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Progress Report
2017-18

अखिल भारतीय समन्वित गेहूँ एवं जौ अनुसंधान परियोजना

AICRP on Wheat and Barley

उन्नत तकनीकियों द्वारा किसानों की अधिक आय

Improved Technologies for Higher Income of Farmers

संसाधन प्रबंधन

RESOURCE MANAGEMENT

भा.कृ.अनु.प. - भारतीय गेहूँ एवं जौ अनुसंधान संस्थान, करनाल

ICAR – Indian Institute of Wheat and Barley Research, Karnal

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AICRP on Wheat & Barley

PROGRESS REPORT
2017-18

RESOURCE MANAGEMENT

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(रमेश कुमार शर्मा)
प्रधान वैज्ञानिक एवं प्रमुख अन्वेषक
संसाधन प्रबंधन

CONTENTS

SUMMARY

Wheat production and productivity improved continuously since the introduction of short stature and fertiliser responsive high yielding varieties which also led to Green Revolution. This year India harvested an all time record wheat production of more than 98 million tonnes despite shrinking land and water resources, climate abrasions and little genetic gain. This has been made possible by Indian farmers and scientists through efficient management of natural resources and various external inputs like chemical fertilizers and pesticides. The imbalanced fertilisation and intensive tillage are still matters of concern. The multiple nutrient deficiencies are being reported which is a result continuous mining of the soil coupled with imbalanced fertilisation. Nitrogen is generally applied in excess and potash and micronutrients are rarely applied. The situation is further worsened by crop residues burning, which besides causing losses of precious organic source and essential nutrients also leads to environmental pollution causing health hazards. In order to provide food security and reverse the trend in natural resource degradation, technological advancements including developing better varieties suited to different cropping systems and growing conditions in various agro-ecological zones is a must. The higher agricultural productivity has to be achieved along with the improvement or at least without further detrimental effect to the environment and natural resources for long-term sustainability. Research efforts are focussed, in addition to varietal improvement, on the refinement of the technologies, integrated nutrient, water and weed management, to make food production cost and energy efficient in order to increase the profit margins to the farmers.

The Resource Management group of the “All India Co-ordinated Research Project on Wheat and Barley” (AICRP-W&B), in addition to evaluating the performance of newly developed genotypes, is also actively engaged in developing and fine tuning the farmers’ and eco-friendly, location specific and cost effective technologies for higher productivity and profitability. The work on cost effective technologies is being executed through special coordinated trials depending on the priorities of various wheat growing zones. The results of the multi-location varietal evaluation and special co-ordinated trials are summarised hereunder.

In two wheat growing zones, three varietal evaluation trial series were conducted to evaluate seven final year genotypes at a number of locations under different growing conditions. The newly developed genotypes were evaluated against the existing varieties used as checks. In addition, ten special coordinated trials were also conducted to address the zone-wise issues and priorities.

The zone-wise details of the varietal evaluation trials conducted are given in Table 1. In all, 31 trials were proposed and all were conducted. Out of the conducted trials, 01 was rejected by the monitoring team due to very poor crop stand. The overall conduct of trial was 100

percent with a success and rejection rate of 96.9 percent and 3.1 percent, respectively. In NWPZ, out of 20 proposed trials, all were conducted successfully. In NEPZ, 11 trials were proposed and all were conducted. However, one trial was rejected by the monitoring team due to poor crop stand. The centres where the trials were not conducted or where the trials were rejected have been listed in the Table 1.

Table 1. Zone-wise details of the coordinated varietal evaluation trials

Trial Series	Locations	Trials conducted	Trials not conducted		Rejected	
			Number	Centres	Number	Centres
North Western Plains Zone						
IR-TAS-DOS	10	10	-	-	-	-
RIR-TS-TAS	10	10	-	-	-	-
Total	**20**	**20**	**-**	-	-	-
North Eastern Plains Zone						
IR-TAS-DOS	11	11	-	-	01	Sabour
Total	**11**	**11**	**-**		**01**	
Total Trials	**31**	**31**	**-**		**01**	

The performance of test entries has been presented in the Table 2. In NWPZ, out of the three test entries in the AVT-II year, PBW 752 was numerically better but statistically at par with the best check HD 3059. In the restricted irrigation trial, the two test entries HI 1620 and HD 3237 were significantly better than the best check WH 1080 with an yield gain of 9.3 and 5.2 percent, respectively. In NEPZ, the two test genotype DBW 187 and PBW 757 were numerically lower yielder but statistically at par with the best check DBW 71.

Table 2. Performance of new genotypes in various agro-climatic zones

Zone wise trial	Test entries	Entry sowing superiority		Best check	Yield gain, %	Locations
		Numerical	Significant			
North Western Plains Zone						
IR- TAS-DOS	HD 3226, PBW 752, PBW 757	PBW 752	-	HD 3059	0.04	10
RIR-TS-TAS	HD 3237, HI 1620		HD 3237, HI 1620	WH 1080	5.2 9.3	10
North Eastern Plains Zone						
IR- TAS-DOS	DBW 187, PBW 757	-	-	DBW 71	-	10

The details of the special coordinated trials conducted in different zones are presented in Table 3. In all, 129 trials were proposed, out of which 111 were conducted with the conduct percentage was 86.0. The maximum number of special trials were conducted in North Western Plains Zone (34) followed by North Eastern Plains Zone (26), Central Zone (22), Northern Hills Zone (16) and Peninsular Zone (13).

Table 3. Zone-wise details of the special agronomic trials

Trial Series	Locations	Trials conducted	Trials not conducted	
			Number	Centres
Northern Hill Zone				
SPL-1: Broadleaved weeds management	04	04	-	-
SPL-2: Lodging and yield maximization	04	04	-	-
SPL-3: Enhancing Zn in wheat grain	03	03	-	-
SPL-6: Evaluation of Hydrogel in wheat	01	-	01	Khudwani
SPL-9: Varieties at dates of sowing	04	02	02	Almora, Khudwani
SPL-10: Precision nutrient management	03	03	-	-
Total	**19**	**16**	**03**	
North Western Plains Zone				
SPL-1: Broadleaved weeds management	08	08	-	-
SPL-2: Lodging and yield maximization	10	07	03	Delhi, Gurdaspur, Sriganganagar
SPL-4: Rhizosphere management	03	01	02	Delhi, Karnal
SPL-5: Micro-Irrigation	02	01	01	Durgapura
SPL-6: Evaluation of Hydrogel in wheat	06	05	01	Gurdaspur
SPL-9: Varieties at dates of sowing	10	08	02	Delhi, Sriganganagar
SPL-10: Precision nutrient management	04	04		
Total	**43**	**34**	**09**	
North Eastern Plains Zone				
SPL-1: Broadleaved weeds management	05	05		
SPL-2: Lodging and yield maximization	11	09	02	IARI Pusa, RAU Pusa
SPL-8:Precision nitrogen management	02	02	-	-
SPL-9: Varieties at dates of sowing	11	10	01	IARI Pusa
SPL-10: Precision nutrient management	01	01		
Total	**30**	**27**	**03**	
Central Zone				
SPL-1: Broadleaved weeds management	03	03	-	-
SPL-2: Lodging and yield maximization	08	08	-	-
SPL-5: Micro-Irrigation	01	01	-	-
SPL-6: Evaluation of Hydrogel in wheat	01	01	-	-
SPL-9: Varieties at dates of sowing	08	08	-	-
SPL-10: Precision nutrient management	01	01	-	-
Total	**22**	**22**	-	-
Peninsular Zone				
SPL-1: Broadleaved weeds management	01	01	-	-
SPL-2: Lodging and yield maximization	05	05	-	-
SPL-6: Evaluation of Hydrogel in wheat	01	01	-	-
SPL-9: Varieties at dates of sowing	05	05	-	-
SPL-10: Precision nutrient management	01	01	-	-
Total	**13**	**13**		
Total Trials	**127**	**112**	**15**	

NORTH WESTERN PLAINS ZONE

In North Western Plains Zone, two varietal evaluation trials under irrigated and restricted irrigation conditions were conducted at ten locations namely Agra, Durgapura, Delhi, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar, to evaluate the performance of new genotypes.

The performance of three *aestivum* test entries HD 3226, PBW 752 and PBW 757 against six checks (HD 3059, DBW 71, DBW 173, HD 3086, WH 1105 and WR 544) was evaluated under timely, late and very late sown conditions. For pooled analysis, all the ten centres data were considered and there was no rejection. There was significant decline in yield from timely (54.11 q/ha) to late (43.84 q/ha) and very late (32.78 q/ha) sown conditions. The yield decline in late and very late sown condition was 18.9 and 39.42%, respectively as compared to timely sown condition. On average basis, test entry PBW 752 ranked 1st with mean yield of 45.01 q/ha (Figure-1) and was at par with best check HD 3059 and HD 3086.

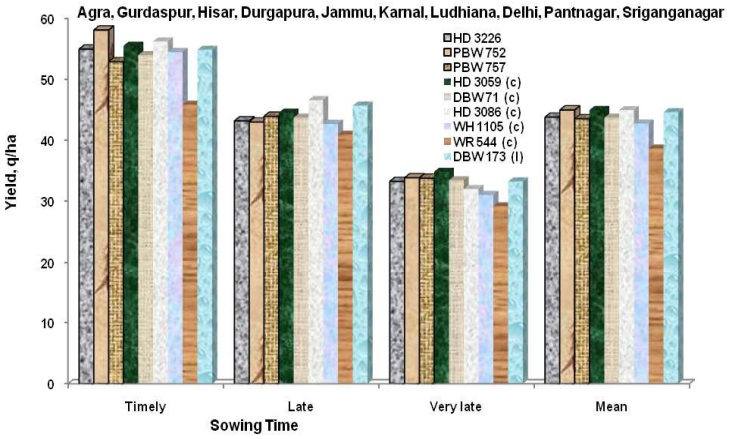

Figure 1. Genotypes under irrigated conditions in North Western Plains Zone

The restricted irrigation trial was conducted with the objective to evaluate the two *aestivum* test entries namely HI 1620 and HD 3237 against four checks (HD 3043, PBW 644, WH 1080 and WH 1142). The perusal of data in Figure-2 indicated that increasing the irrigation frequency significantly increased the grain yield. Maximum grain yield (47.87 q/ha) was obtained with two irrigations. The test entry HI 1620 produced significantly higher grain yield (45.11 q/ha) as compared to other entries and checks on mean basis. The second test entry HD 3237 ranked 2nd in grain yield (43.43 q/ha) and was significantly superior over all checks.

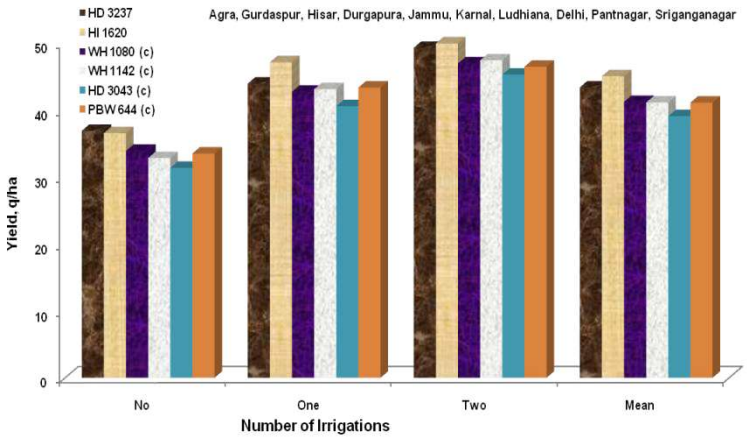

Figure 2. Genotypes under restricted irrigations in North Western Plains Zone

NORTH EASTERN PLAINS ZONE

In this zone, one varietal evaluation trial was conducted to evaluate the performance two new genotypes PBW 757, DBW 187 against six checks (DBW 14, HD 2733, HD 2967, WR 544, DBW 39 and DBW 71) under irrigated timely, late and very late sown conditions at eleven locations. The results indicated that there was a significant decline in yield (Figure-3) from 42.55 q/ha to 29.05 q/ha when sowing was delayed from timely to very late sown conditions. The average yield declined due to late sowing and very late sowing by 8.55 and 31.73 per cent, respectively. On an average basis, the check variety DBW 71 produced the maximum grain yield (38.99 q/ha) followed by the test genotype DBW 187 (38.40 q/ha) and check variety HD 2733 (38.29 q/ha). These three varieties/genotypes were statistically at par.

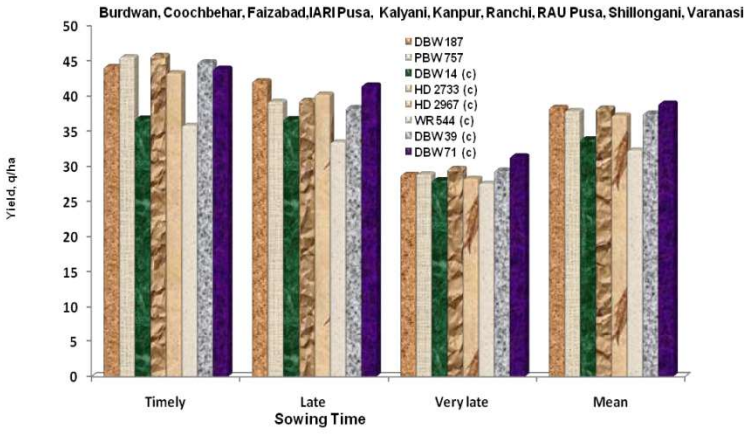

Figure 3. Genotypes under irrigated conditions in North Estern Plains Zone

PRODUCTION TECHNOLOGIES

Various special coordinated trials on herbicide evaluation, site specific nutrient management, irrigation methods and water management options, seed rate and spacing, need based nitrogen application, time of sowing under changing climate *etc*. for maximising productivity were conducted to address various issues in different wheat growing zones. The results of various experiments on updating package of practices are summarised below;

SPL-1: Evaluation of herbicides for control of broadleaved weeds in wheat

This trial was conducted in all the five wheat growing zones to identify effective herbicides for control of broad leaved weeds in wheat. The trial was conducted in RBD with eleven weed control treatments replicated thrice. The treatments were i) Halauxifen-methyl ester + Florasulam 40.85% WG + surfactant Polyglycol 26-2 N (12.76 g a.i +750 ml./ha); ii) Metsulfuron methyl 20 WG + surfactant (4.0 g a.i +625 ml./ha), iii) Carfentrazone 40DF (20.0 g a.i./ha); iv) 2,4-D Na 80 WP (500 g a.i./ha); v) 2,4-D E 38 EC (500 g a.i./ha); vi) Metsulfuron+carfentrazone +surfactant (4.0 g+20 g+625 ml/ha); vii) 2,4-D Na + Carfentrazone (400+20 g a.i./ha); viii) 2,4-D E + Carfentrazone (400+20 g a.i./ha); ix) Halauxifen methyl + florasulam+ carfentrazone + surfactant (10.21+20 g a.i.+750 ml /ha); x) Weedy check and xi) Weed free. Broadleaved herbicides were applied at 30-35 days after sowing. A blanket dose of clodinafop 60 g/ha, or pinoxaden 50 g/ha or fenoxaprop 100 g/ha was applied about 5 days before or after the broad leaf herbicide application to control grassy weeds.

The trial was conducted at twenty one locations in various zones. In NHZ, this trial was conducted at four locations (Almora, Bajaura, Khudwani and Malan), in NWPZ at eight locations (Bikaner, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar), in NEPZ at five locations (Coochbehar, Faizabad, Kalyani, Sabour and Varanasi), in Central Zone at three locations (Bilaspur, Indore and Udaipur) and one location (Dharwad) in Peninsular Zone.

In all the zones weed free treatment produced the highest grain yield which was closely followed by the treatment having combination of Halauxifen methyl+florasulam+ carfentrazone+surfactant. In NHZ, the yield obtained in Halauxifen methyl+ florasulam+carfentrazone+surfactant, Metsulfuron+Carfentrazone+S, Halauxifen methyl+florasulam+S and Metsulfuron+S treatments was statistically at par. In NWPZ and CZ, the yield recorded was highest in weed free which was followed by Halauxifen methyl+florasulam+ carfentrazone+surfactant but the difference was significant. In NEPZ also, similar trend was observed but the difference in weed free and Halauxifen methyl+florasulam+ carfentrazone+surfactant was statistically different. In PZ, the productivity in weed free and Halauxifen methyl+florasulam+ carfentrazone+surfactant was almost similar which was closely followed by Halauxifen methyl+florasulam+surfactant and Metsulfuron+Carfentrazone+S and these four treatments were statistically at par. Among broad leaved herbicides, Halauxifen methyl + florasulam + carfentrazone + surfactant (10.21+20 g a.i.+750 ml/ha) was found the best treatment in controlling broad leaf weeds density and dry weight in all the zones.

SPL-2: Management of lodging and yield maximization in wheat

This experiment was conducted to maximise wheat yield using enhanced fertilisation coupled with crop growth regulators *i.e.* Chlormequat chloride (Lihocin) and Tebuconazole (Folicur 430 SC).

In Northern Hills Zone, this experiment was conducted at four locations namely, Almora (UttaraKhand), Bajaura (Kullu, HP), Khudwani (Anantnag, J&K) and Malan (Palampur, HP). The productivity was improved significantly with the increasing fertiliser doses (Figure-4). Application of 150% RDF has increased the grain yield (53.30 q/ha) to the tune of 17.8% over RDF (45.23 q/ha). Even 15 t/ha

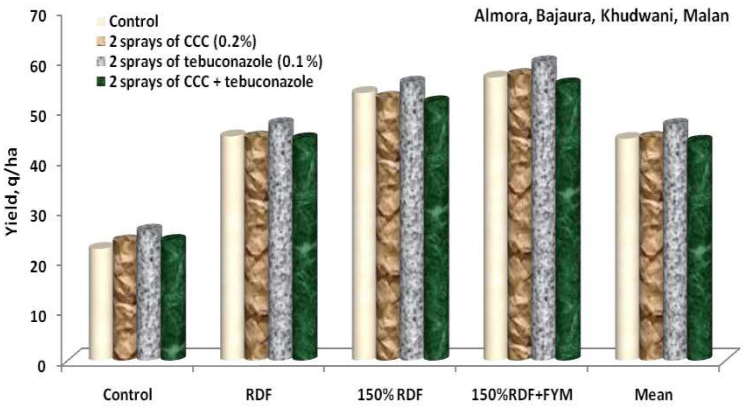

Figure 4. Maximising yield using nutrient management and growth regulators-NHZ

FYM application along with 150% RDF significantly increased the grain yield (57.14 q/ha) as compared to 150% RDF application with yield gain of 7.21%. Application of crop growth regulator either alone or in combination significantly reduced the plant height. Application of Chlormequat chloride(CCC) @ 0.2 % + tebuconazole @ 0.1% twice in crop season reduced the plant height significantly as compared to other treatments. However, two spray of tebuconazole produced maximum grain yield (47.12 q/ha) which was significantly higher than other treatments.

In NWPZ, this trial was conducted at seven centres namely at Agra, Durgapura, Hisar, Jammu, Karnal, Ludhiana and Pantnagar. The results showed significant effect of fertilizer application on grain yield and yield attributes (Figure-5 and Table 6.7). The grain yield enhanced significantly with increasing fertiliser doses. The application of 150% RDF increased the grain yield (54.04 q/ha) to the tune of 2.1 % over RDF (52.92 q/ha). Also, the addition of 15 t/ha FYM application along with 150% RDF increased the grain yield (55.52 q/ha) significantly as compared to 150% RDF application. Two spray of Chlormequat chloride (Lihocin) 0.2 % + tebuconazole (Folicur 430 SC) 0.1% produced maximum grain yield (49.11 q/ha) which was significantly higher than other treatments. This showed that growth retardant in combination with fungicide tebuconazole is more effective rather alone application.

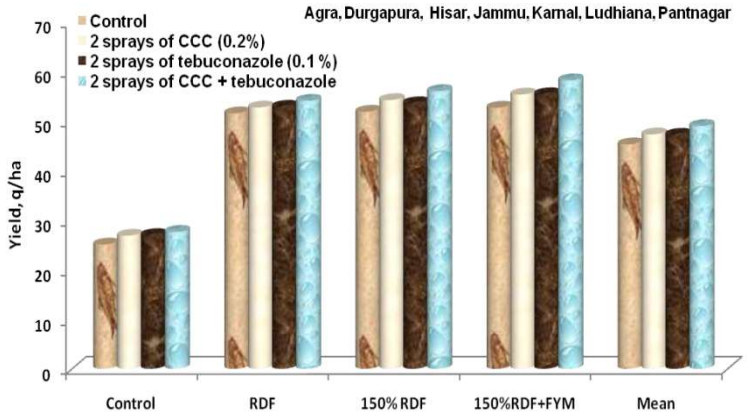

Figure 5. Maximising yield using nutrient management and growth regulators-NWPZ

In NEPZ, this experiment was conducted at nine centres namely Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, Sabour, Shillongani and Varanasi. The pooled analysis showed that increasing fertiliser doses enhanced grain yield significantly (Figure 6). The trend was similar to the North Western Plains Zone and the highest yield (42.97 q/ha) was recorded with two spray of Chlormequat chloride (Lihocin) 0.2 % + tebuconazole (Folicur 430 SC) 0.1% which was

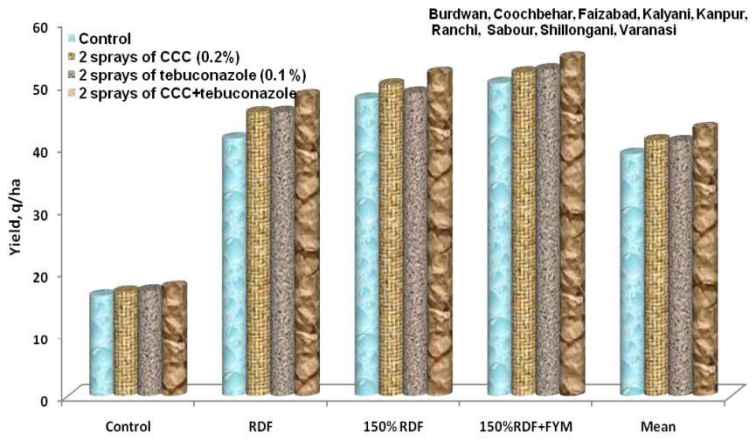

Figure 6. Maximising yield using nutrient management and growth regulators-NEPZ

significantly higher than other treatments. Application of crop growth regulator either alone or in combination significantly reduced the plant height. Application of CCC @ 0.2% + tebuconazole @ 0.1% twice in crop season reduced the plant height significantly as compared to other treatments.

In Central Zone, this trial was conducted at seven locations (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Udaipur and Vijapur). The highest yield was recorded under the treatment 150%RDF+FYM (49.00 q/ha) as compared to all other treatments (Figure-7). Application of crop growth regulators alone or in combination, significantly improved the productivity compared to control treatment. The treatments having two sprays of Lihocin or two sprays of Folicur were statistically at par whereas the treatment where two sprays of Lihocin+Folicur (42.81 q/ha) were applied, the yield improved was statistically higher than all other treatments. Application of growth retardants reduced plant height drastically as compared to control. Minimum plant height was observed under two sprays of Lihocin (82.88 cm) followed by two sprays of Lihocin+Folicur (82.99 cm).

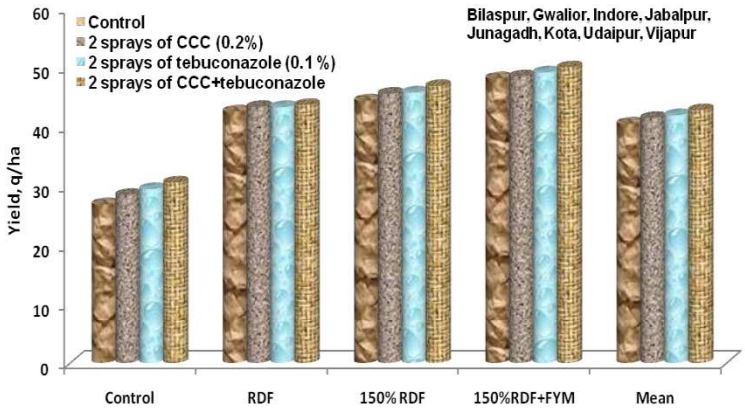

Figure 7. Maximising yield using nutrient management and growth regulators-CZ

In Peninsular Zone, this trial was conducted at four centres namely Dharwad, Niphad, Pune and Ugar Khurd. Among fertiliser treatments, 150% RDF+15 t/ha FYM produced maximum yield (49.89 q/ha) followed by 150% RDF (48.88 q/ha) and both the treatments were statistically at par (Figure 8) but significantly better than control and RDF. Among growth regulator treatments, two sprays as tank mix Lihocin at 0.2% + Folicur 430 SC at 0.1% produced maximum yield (47.26 q/ha) followed by two sprays of Folicur 430 SC at 0.1% (46.75 q/ha) and two sprays of Lihocin at 0.2% (46.18 q/ha) but all these were statistically at par but significantly better than control treatment. Application of growth retardants reduced plant height but improved biomass production as compared to control. Minimum plant height was

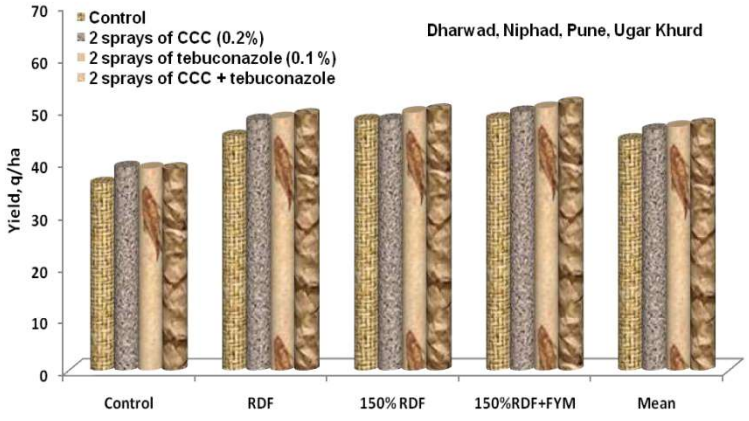

Figure 8. Maximising yield using nutrient management and growth regulators-PZ

observed in two sprays of Lihocin +Folicur (76.8 cm) followed by two sprays of Lihocin (78.4 cm). The height reduction was significant with the application of crop growth regulators individually or in combination as compared to control treatment.

SPL-3: Agronomic management for enhancing Zinc in wheat grain in NHZ

To enhance zinc content in wheat grain in NHZ, a special coordinated trial was conducted at three locations in NHZ (Bajuara, Khudwani and Malan). The results revealed that the highest and significant improved grain yield (44.03 q/ha) was recorded with 37.5 kg Zinc sulphate/ha as soil zinc application+0.5% foliar zinc followed by 25.0 kg Zinc sulphate/ha soil zinc application+0.5% foliar zinc (43.96 q/ha) as compared to yield obtained (38.02 q/ha) in no zinc treatment.

SPL-4: Deep placement of fertilisers

This experiment was proposed and conducted at Pantnagar to utilise the rhizosphere by placing the fertiliser deep in different combinations and comparing with surface application. The surface application of recommended fertilizer (150:60:30) produced at par grain yield as compared to different combinations of deep placement of fertilizer with vermicompost, poultry manure, PSB, KSB. Though, maximum grain yield (57.00 q/ha) was produced with application of 75% RDF+Poultry manure @ 2 q/ha-Deep placement+PSB/KSB. It was observed that the response of deep placement of fertilizer was not very encouraging compared to current recommended practice of fertilizer application

SPL-5: Efficient water management in wheat using micro-irrigation

Efficient water management is important for economising the use of scarce and ever reducing availability of good quality irrigation water resources for crop production. To improve the irrigation water use efficiency and to optimize the water requirement for yield maximisation in wheat, a special coordinated trial was planned and conducted under irrigated timely sown conditions at two locations *i.e.* Karnal in NWPZ and Vijapur in CZ.

In NWPZ, the highest yield (59.48 q/ha) was recorded in drip irrigation at 100% PE, which was significantly higher than other irrigation treatments except six irrigations at critical growth stages and drip irrigation at 80% PE (Figure-9). Maximum water use was in check basin irrigation method (431 mm) followed by drip or sprinkler irrigation at 100% PE (386 mm).

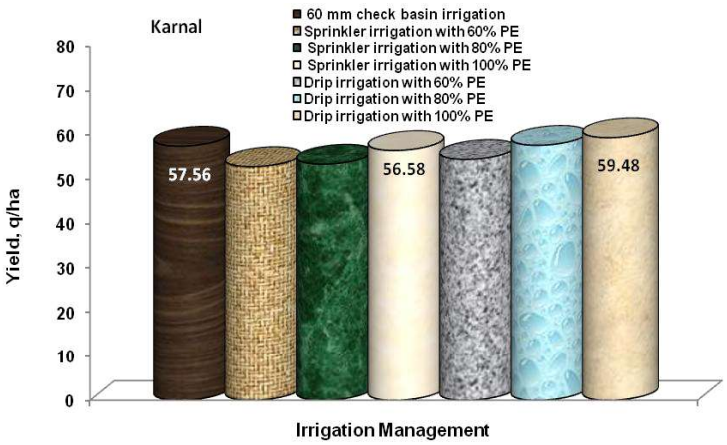

Figure 9. Micro-irrigation for efficient water management in wheat-NWPZ

In Central Zone, seven irrigation treatments followed were 60 mm check basin irrigation at critical growth stages (CRI, T, JT, BL, M and D), drip irrigation with 60%, 80% and 100% PE at 3 days interval, drip irrigation at 0.8, 1.0 and 1.2 IW/CPE i.e. 50 mm irrigation when cumulative Pan Evaporation (CPE) reaches 60 mm, 50 mm and 40 mm, respectively. The results presented in Figure-10 showed highest yield in drip irrigation at 100% PE (67.13 q/ha) followed by drip irrigation at 1.2 IW/CPE (60.38 q/ha). Maximum water use was in 60 mm check basin irrigation treatment (420 mm) followed by drip irrigation at 1.2 IW/CPE and the minimum was in drip irrigation at 60% PE which produced significantly better yield (52.03 q/ha) than flood irrigation (43.38 q/ha).

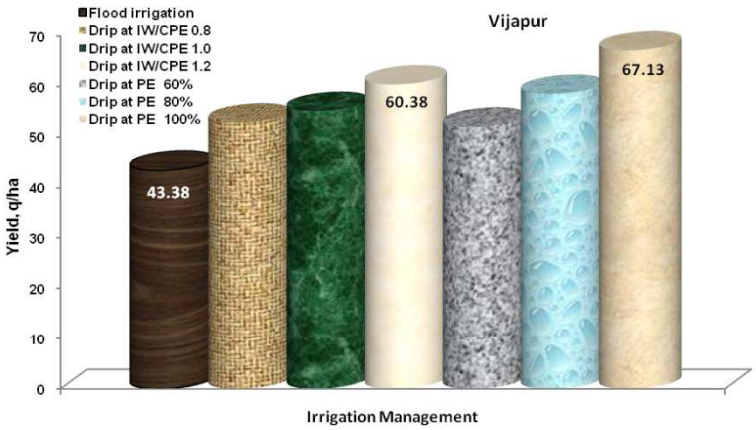

Figure 10. Micro-irrigation for efficient water management in wheat-CZ

SPL-6: Evaluation of Pusa Hydrogel and herbal Hydrogel on in situ moisture conservation under different irrigation levels in wheat

To improve the water use efficiency and wheat productivity a special coordinated trial was conducted. The trial was conducted at five locations in NWPZ *i.e.* Hisar, Durgapura, Karnal, Ludhiana, Pantnagar and one location each in CZ (Junagarh) and PZ (Pune).

In North Western Plains Zone, the effect of irrigation and hydrogel was significant but their interactions were not significant on wheat productivity. The results presented in Figure-11 showed that pusa hydrogel (48.96 q/ha) and herbal hydrogel (48.25 q/ha) both produced similar yield which was significantly better than control (46.91 q/ha) treatment. Among irrigation treatments, application of six irrigations recorded maximum and significantly higher grain yield (56.81 q/ha) than other treatments. Three irrigations schedules at CRI, LT, GF or 40, 80 and 120 DAS produced at par grain yield but significantly higher than no irrigation. There was no interaction between irrigation level and hydrogel treatments.

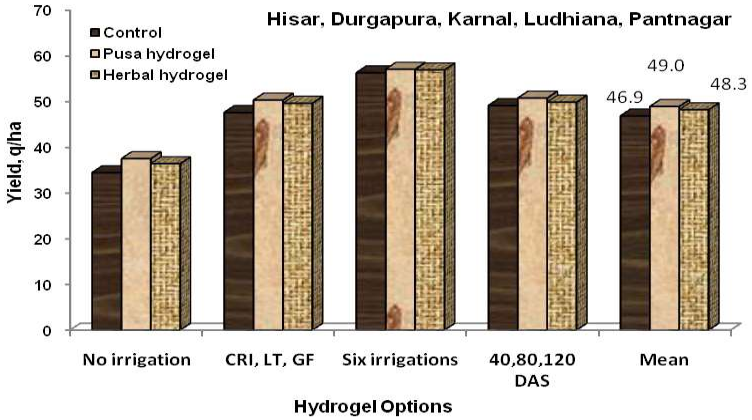

Figure 11. Performance of hydrogel in wheat-NWPZ

In Central Zone, this trial was conducted at Junagarh centre only. Only the irrigation had significant effect on wheat productivity and the hydrogel and interaction effects were not significant. The data presented in Figure-12, illustrated that among irrigation treatments, the highest yield was observed under six irrigation treatment (41.07 q/ha) which was statistically higher as compared to other treatments. Application of hydrogel had no effect on wheat productivity as the yield recorded was almost similar in all the hydrogel and control treatments.

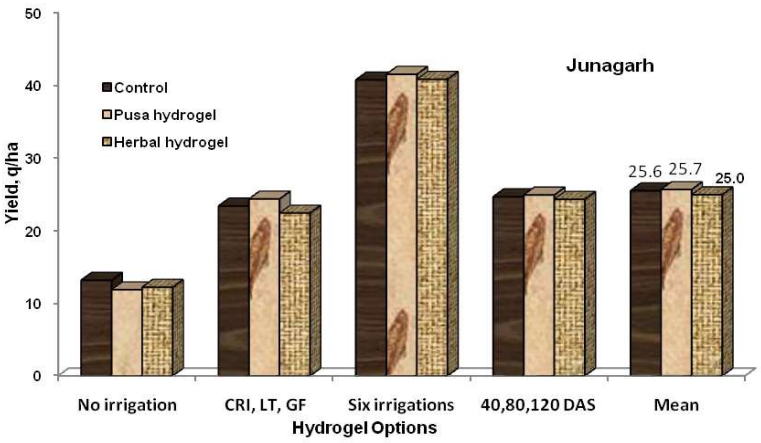

Figure 12. Performance of hydrogel in wheat-Central Zone

In Peninsular Zone, the trial was conducted only at Pune centre. The effect of hydrogel was not significant on wheat productivity as almost similar yield was recorded in control and hydrogel treatments. Among irrigation treatments, maximum and significantly higher yield (Figure-13) was recorded in treatment of six irrigations at critical growth stages (49.60 q/ha) followed by three irrigations at CRI, late tillering and grain filling stages (23.35 q/ha). The lowest grain yield was recorded in no irrigation treatment having a mean yield of 16.53 q/ha.

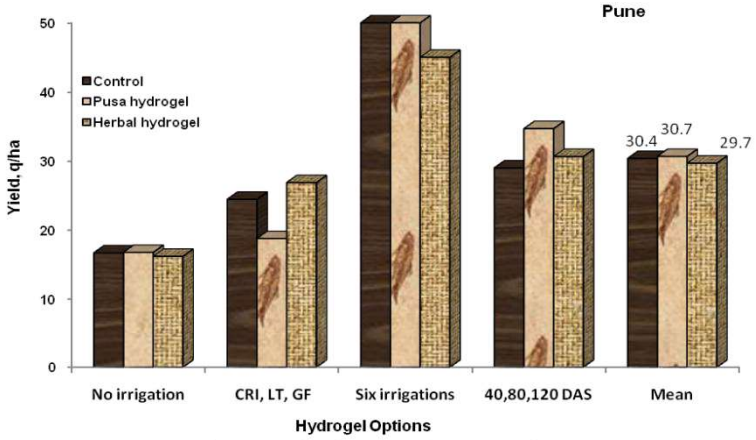

Figure 13. Performance of hydrogel in wheat-Peninsular Zone

SPL-7: Yield maximization in *dicoccum* wheat through spacing and seed rates

This trial was conducted at four locations in PZ (Akola, Dharwad, Niphad and Pune) to evaluate the effect of spacing and seed rates on productivity of *dicoccum* wheat but the data of Akola centre were rejected. The results revealed that among various seed rates there were no significant differences in yield, whereas, significant differences were observed only for line spacing

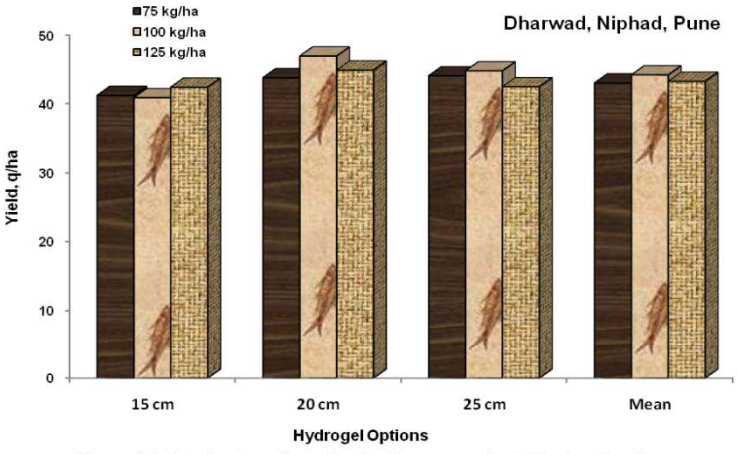

Figure 14. Seed rate and spacing in *dicoccum* wheat -Peninsular Zone

treatments. The highest yield (Figure-14) was obtained in line sowing at 20 cm with seed rate of 100 kg/ha (47.02 q/ha) followed by 20 cm line spacing with seed rate of 125 kg/ha (44.97 q/ha) and these were at par.

SPL-8 Precision nitrogen management in irrigated wheat using NDVI sensor

This experiment was conducted to improve nitrogen use efficiency in wheat by need based application using NDVI sensor at Coochbehar and Ranchi centres in NEPZ and Dharwad and Pune in Peninsular zone. The results of NEPZ revealed significant effect of precision nitrogen management using need based application using remote sensing based GreenSeeker on grain yield. The maximum yield (52.48 q/ha) was recorded for the treatment 30 kg N/ha basal +60 kg N/ha CRI and rest using Green Seeker twice at 40-45 DAS and 60-65 DAS (Figure-15) followed by Rich Plot-90 kg N/ha basal+90 at CRI (50.34 q/ha) and both treatments were statistically at par.

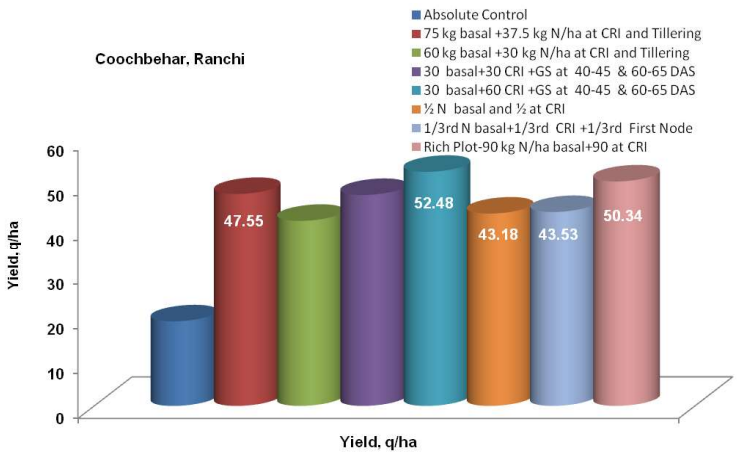

Figure 15. Precision nitrogen management in wheat using GreenSeeker -NEPZ

In Peninsular zone, out of three locations viz. Dharwad, Niphad and Pune, the data of Niphad was rejected due to improper conduct of trial as the GreenSeeker treatment was not imposed. The results revealed that there was significant difference in grain yield (Figure-16) due to different N application treatments. The highest yield was obtained in N-Rich Plot having 90 kg N/ha basal+90 kg/ha at CRI (53.37 q/ha) followed by 30 kg N/ha basal+60 kg N/ha CRI+19 kg N/ha using Green Seeker (51.39 q/ha). In comparison to N rich plot all treatments except 30 kg N/ha basal+60 kg N/ha CRI+19 kg N/ha using GreenSeeker, 30 kg N/ha basal+30 kg N/ha CRI+73 kg N/ha using Green Seeker and 75 kg basal+37.5 kg each at CRI and Tillering recorded significantly lower yields.

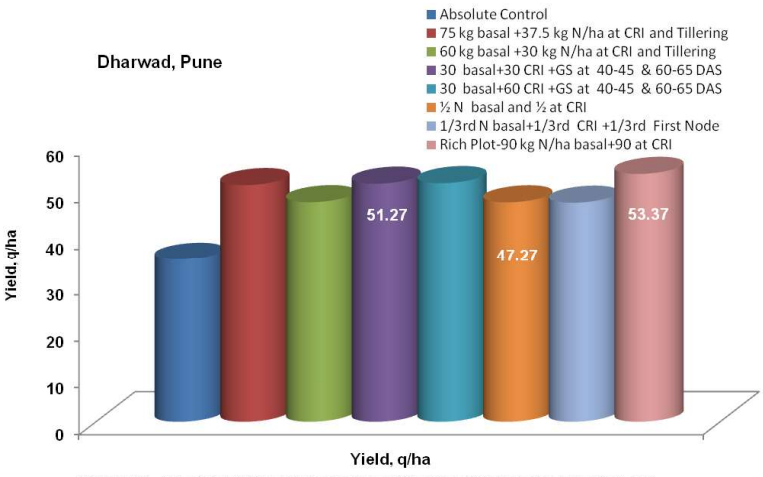

Figure 16. Precision nitrogen management in wheat using GreenSeeker -PZ

SPL-9: Performance of varieties at different dates of sowing under changing climate

In this trial, six varieties (HS 562, HD 2967, HD 3086, HI1544, MACS 6222 and WR 544) were evaluated at different sowing time from 05th November to 05th January in all the five wheat growing zones. Main plots comprised sowing time and sub plots comprised varieties replicated thrice. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Fertiliser, irrigation and weed control measures were followed as per recommended package of practices for the respective zone.

In NHZ, the trial was conducted at two centres (Bajaura and Malan). The results revealed that 5th November sown wheat produced the maximum (41.38 q/ha) and significantly higher yield (Figure-17) as compared to other dates of sowing. The delay in wheat sowing from 5th November to 05th January decreased grain yield significantly from 41.38 q/ha to 19.80 q/ha with the reduction of 52.2%. On mean basis across sowing time, variety HS 562 produced the maximum and significantly higher yield (37.46 q/ha) followed by HD 3086 (32.25 q/ha) and MACS 6222 (32.18 q/ha). The genotypes HD 3086 and MACS 6222 were at par.

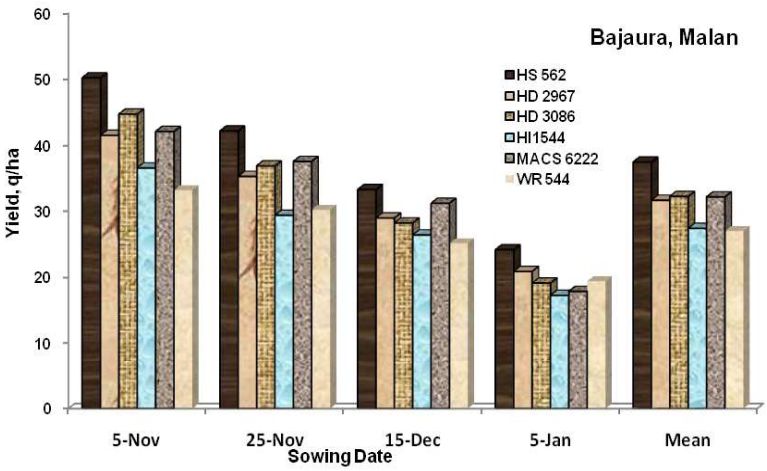

Figure 17. Wheat varieties under different sowing dates -NHZ

In NWPZ, this trial was conducted at 8 locations (Agra, Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana, Pantnagar). The results showed that 5th November sowing produced the maximum (Figure-18) and significantly higher grain yield (50.01 q/ha) than all other sowing dates. There was significant successive reduction in grain yield with each 20 days delay in sowing. This yield reduction was 8.3, 25.9, 43.3% as sowing was delayed to 25th November, 15th December and 5th January, respectively as compared to 5th November sowing. Variety HS 562 produced the maximum grain yield (41.74 q/ha) followed by HD 2967 (41.71 q/ha) and lowest was by WR 544 (36.99 q/ha).

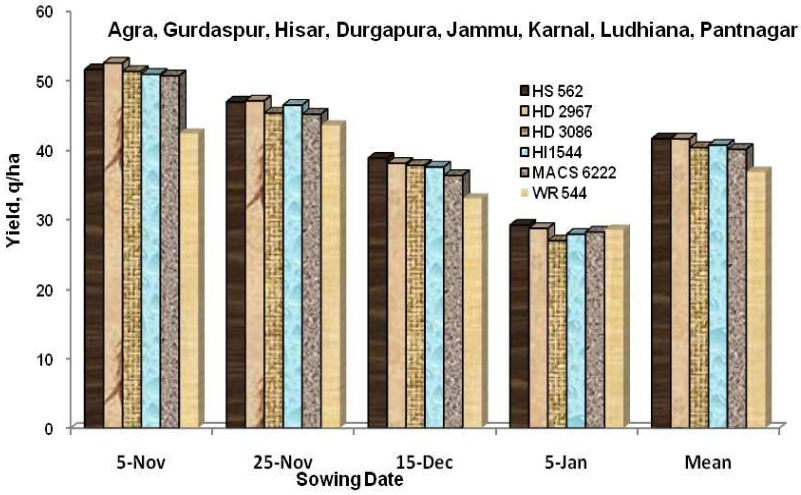

Figure 18. Wheat varieties under different sowing dates -NWPZ

In NEPZ, this trial was conducted at ten centres (Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani and Varanasi). The results showed that 25th November sown wheat produced the maximum yield (42.17 q/ha) which was significantly superior to other dates of sowing. The delay in wheat sowing from 25th November to 05th January decreased grain yield by 36.12 percent, whereas the reduction in yield was 14.70 percent in 15th December. On mean basis across sowing time (Figure-19), variety HD 2967 produced the maximum and significantly higher yield (38.08 q/ha) followed by MACS 6222 (37.55 q/ha) and HI 1544 (36.42 q/ha).

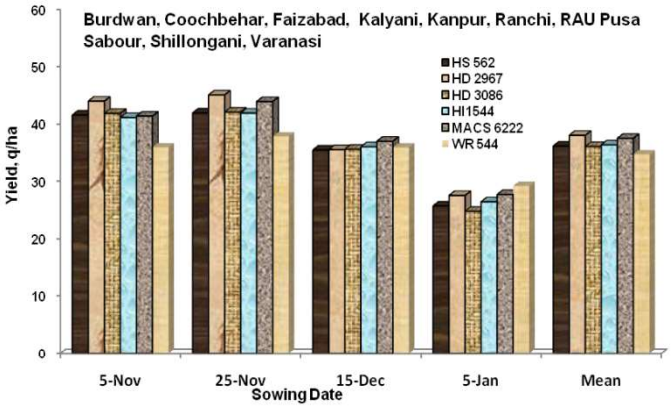

Figure 19. Wheat varieties under different sowing dates -NEPZ

In Central Zone, this trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur) with the objective of quantifying the yield losses due to delayed sowing. The data of Powarkheda was rejected due to anomaly in data reporting as the EMS observed during data analysis was zero for some of the characters. The results showed (Figure-20) that 5th November sowing produced maximum (44.92 q/ha) and significantly higher grain yield than all other sowing dates. There was significant successive reduction in grain yield with each 20 days delay in sowing. This yield reduction was 3.85, 19.30 and 41.70% as sowing was delayed to 25th November, 15th December and 5th January, respectively, as compared to 5th November sowing. Variety HI 1544 produced maximum grain yield (39.68 q/ha) followed by MACS 6222 (39.57 q/ha) and the lowest by WR 544 (34.94 q/ha).

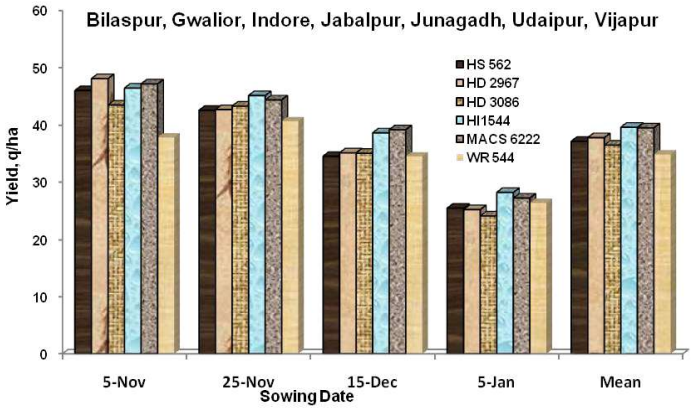

Figure 20. Wheat varieties under different sowing dates -CZ

In Peninsular Zone, the trial was conducted at four centres (Akola, Dharwad, Niphad, Pune). For pooled analysis Akola centre data were not considered due to unrealistic data and three centres pooled data are presented in Figure-21. The results revealed that there was significant difference in grain yield and yield attributes among the varieties, sowing time and their

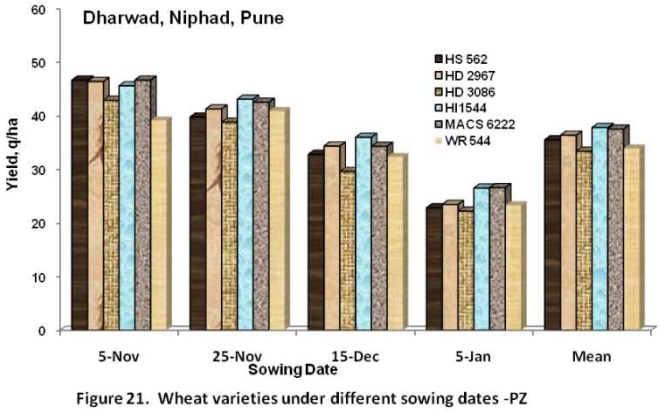

Figure 21. Wheat varieties under different sowing dates -PZ

interactions. The highest yield was obtained in the 5th Nov sowing time and yield declined with delay in sowing. The minimum yield was recorded in 5th January sowing. Among varieties, the top yielder was HI 1544 with an average yield of 37.87 q/ha and it followed by MACS (37.59 q/ha) and HD 2967 (36.44 q/ha).

SPL-10: Precision nutrient management and validation of Nutrient expert in wheat

This experiment was conducted with seven fertiliser treatments *viz*. control, Recommended Dose of Fertilizers (RDF), 150 % RDF, 150 % PK, 150 % NK, 150 % NP and nutrient expert at three locations (Almora, Bajaura and Malan) in NHZ, four location in NWPZ (Hisar, Karnal, Ludhiana, Pantnagar), one location each in NEPZ (Varanasi), CZ (Udiapur) and PZ (Dharwad).

In NHZ, 150% RDF recorded maximum grain yield (49.44 q/ha) which was followed by Nutrient expert treatment (46.80 q/ha) and both the treatments were found at par (Figure-22). The 150% RDF application produced almost 17.1% higher grain yield than recommended dose of fertilizer (RDF) application. The 150% PK application produced 18.10 q/ha yield indicating that omission of phosphorous and potash had marginal effect on productivity but the omission of only nitrogen drastically reduced the productivity. Therefore, it could be inferred that the major response was due to nitrogen application alone.

Figure 22. Validation of Nutrient expert in wheat-NHZ

In NWPZ, this experiment was conducted at four locations namely Hisar, Karnal, Ludhiana and Pantnagar. The results (Figure-23) revealed that 150 % RDF recorded the highest grain yield (52.63 q/ha) and was at par with recommended fertilizer, 150 % NK and nutrient expert treatments. The 150% RDF application produced almost 3.6% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was recorded in control treatment (25.27 q/ha) and 150% PK application (28.50 q/ha), both producing the lowest at par yield. Therefore, it could be said that major response was due to N application only.

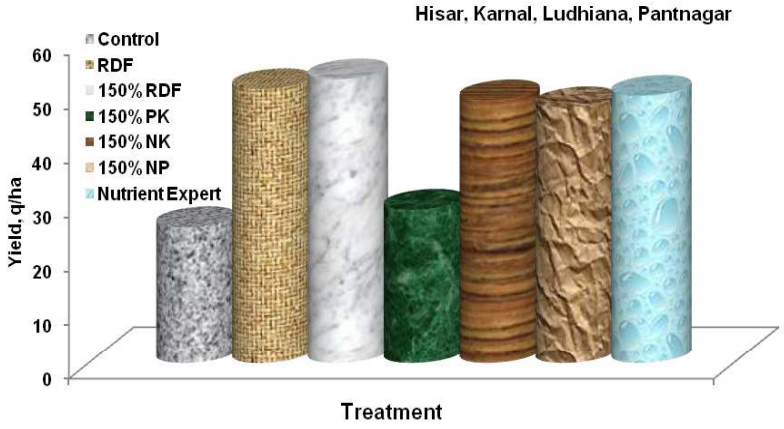

Figure 23. Validation of Nutrient expert in wheat-NWPZ

In NEPZ, this experiment was conducted at Varanasi centre only. The data presented in Figure-24 revealed that 150% RDF recorded maximum and significantly higher grain yield (52.70 q/ha). This was followed by Nutrient expert treatment. The 150% RDF application produced almost 3.21% higher grain yield than recommended dose of fertiliser (RDF) application. Therefore, here also the response was only due to N application only.

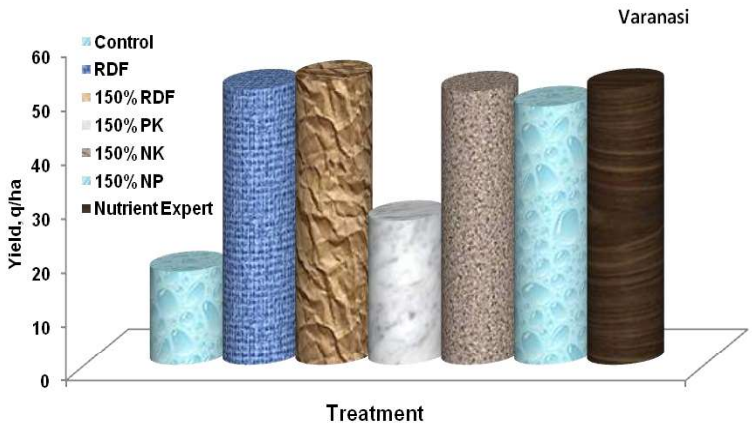

Figure 24. Validation of Nutrient expert in wheat-NEPZ

In Central Zone, the trial was conducted at Udaipur centre only. The highest yield of 50.18 q/ha (Figure 25) was obtained in treatment where fertiliser application was done using Nutrient expert followed by 150% RDF (49.61 q/ha). Almost all yield attributing factors contributed to enhanced yield. The Nutrient expert treatment also recorded the highest biomass (127.50 q/ha) as compared to other fertilizer treatments.

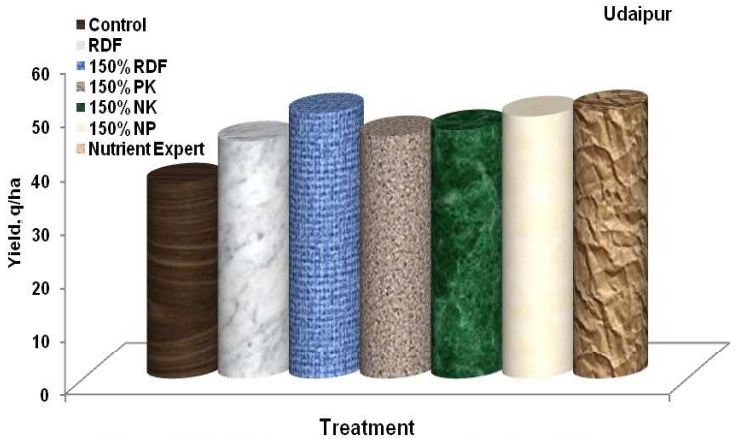

Figure 25. Validation of Nutrient expert in wheat-CZ

At Dharwad centre in Peninsular Zone, the highest yield (Figure-26) was obtained under 150% of RDF with a yield level of 45.77 q/ha (Table 6.30) followed by Nutrient Expert treatment (42.57 q/ha) and recommended dose of NPK (41.42 q/ha). The yield under Nutrient Expert treatment was statistically similar to 150% Rec. NPK. However, Rec NPK recorded significantly lesser yield compared to 150% RDF. Earhead per square meter and thousand grain weight contributed to enhanced yield. In the absence of nitrogen, the least number of earheads/sqm were produced. The yield obtained in nutrient expert treatment was much below the targeted yield of 6 t/ha.

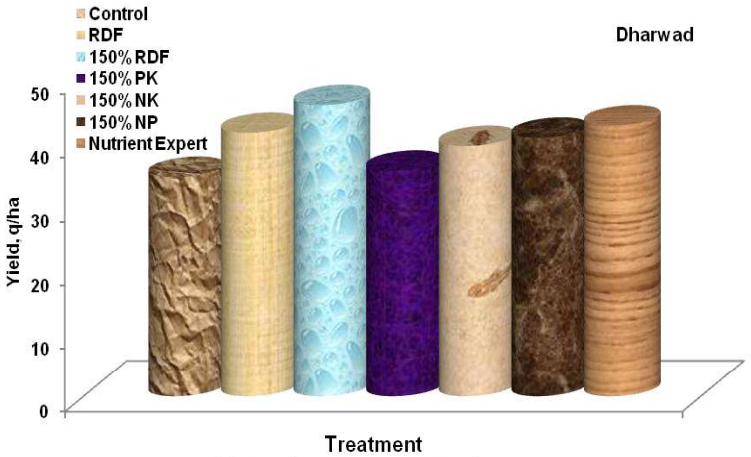

Figure 26. Validation of Nutrient expert in wheat-PZ

Northern Hills Zone

The Northern Hills Zone represents Himachal Pradesh, parts of Jammu & Kashmir, Uttrakhand and North Eastern Hills. The five centres namely Almora, Bajaura, Khudwani (Anantnag), Malan (Palampur) and Shimla are engaged in wheat research under All India Coordinated Wheat and Barley Improvement Project. The data on meteorological parameters received from various centres has been reported in Annexure II. Few showers were received in the month of November and December, and majority of the rainfall was received during later stages (February-April) of the crop season. The maximum rainfall received was 317.1 mm at Khudwani followed by 236.4 mm at Bajaura, 161.2 mm at Malan and 128.1 mm at Almora. The average maximum and minimum temperatures recorded were 25.6^{0}C and 5.4^{0}C at Almora, 23.2^{0}C and 3.6^{0}C at Bajaura, 17.3^{0}C and 1.6^{0}C at Khudwani, 27.1^{0}C and 10.1^{0}C at Malan, respectively.

The soil data received from four centres (Almora, Bajaura, Khudwani and Malan) are presented in Annexure III. Inceptisols are primarily found in this zone and the texture at the four centres varied from silty clay loam to silty clay. The organic carbon in these soils ranged between 0.6 to 1.18 per cent. The organic carbon content range of Almora, Bajaura, Khudwani and Malan centres was 1.02-1.09, 0.60-0.62, 1.01-1.20 and 0.60-0.80 per cent, respectively. Soils of this region are slightly acidic to neutral in reaction, low to medium in available nitrogen (227.0 to 468.0 kg N/ha), medium to high in phosphorus (14.8 to 55.0 kg P/ha) and medium in potash content (165 to 275 kg K/ha).

Since, there was no new genotype in the final year of varietal evaluation, therefore coordinated trials to evaluate the performance of wheat genotypes under different growing conditions were not formulated and conducted. However, five special coordinated trials for updating the package of practices were conducted, the details of which are given in the “Production Technologies” section.

North Western Plains Zone

In the North Western Plains Zone, the areas covered are the states of Haryana, Punjab, Delhi, western UP, part of Rajasthan, Jammu area of J&K and plains of Himachal and Uttarakhand. Ten centres in this zone namely Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar are actively engaged in wheat research activities under All India Coordinated Wheat and Barley Improvement Project (AICW&BIP). The data on various meteorological parameters for various centres are given in Annexure-II. The maximum rainfall was received at Gurdaspur (188.6 mm), followed by Agra (128.2 mm), Ludhiana (86.4 mm), Karnal (85.4 mm), Jammu (80.9 mm), Pantnagar (58.6 mm), Hisar (29.9 mm), Durgapura (13.2 mm), Sriganganagar (8.8 mm), Bikaner (8.0 mm) and the lowest amount of rain (5.0 mm) during the wheat crop season 2017-18 was received at New Delhi. The maximum and minimum temperatures at different locations were 40.4ºC and 5.1ºC at Agra, 43.7ºC and 3.8ºC at Bikaner, 36.2ºC and 4.6ºC at Gurdaspur, 39.3ºC and 2.6ºC at Hisar, 39.6ºC and 6.0ºC at Durgapura, 41.3 ºC and 2.6 ºC Jammu, 37.9ºC and 3.9ºC at Karnal, 39.6ºC and 5.3ºC at Ludhiana, 38.2ºC and 4.0ºC at Delhi, 37.1ºC and 4.2ºC at Pantnagar, 39.8ºC and 2.6ºC at Sriganganagar, respectively. In this zone two coordinated trials were conducted to evaluate second year genotypes for different growing conditions at various locations.

The data on soil parameters for various centres are given in Annexure-III. Soils of this zone are sandy loam to clay loam. The soil organic carbon at various locations varied from 0.24% at Durgapura to 0.70% at Pantnagar. Soils of this zone are low in available nitrogen, medium to high in available phosphorus and available potash.

There were genotypes in the final year of testing for irrigated timely sown and restricted irrigation conditions and the results of the trials formulated and conducted at various locations are discussed hereunder.

EVALUATION UNDER DIFFERENT SOWING CONDITIONS

The performance of genotypes was evaluated for sowing time and restricted irrigation conditions at different locations and the results are summarized here under;

Irrigated Conditions

The performance of three *aestivum* test entries HD 3226, PBW 752 and PBW 757 against six checks (HD 3059, DBW 71, DBW 173, HD 3086, WH 1105 and WR 544) was evaluated

at ten centres *i.e.* Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar under timely, late and very late sown conditions. For pooled analysis, all the ten centres data were considered and there was no rejection.

Table 2.1. North Western Plains Zone IR-TAS-DOS Pooled 2017-18

	Date of sowing							
Variety	Timely	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	54.98	4	43.21	6	33.29	5	43.83	5
PBW 752	58.11	1	43.03	7	33.88	2	45.01	1
PBW 757	52.90	8	43.97	4	33.82	3	43.56	7
HD 3059 (c)	55.53	3	44.56	3	34.88	1	44.99	2
DBW 71 (c)	54.01	7	43.74	5	33.48	4	43.74	6
HD 3086 (c)	56.24	2	46.62	1	32.04	7	44.97	3
WH 1105 (c)	54.50	6	42.73	8	31.09	8	42.77	8
WR 544 (c)	45.88	9	40.96	9	29.22	9	38.68	9
DBW 173 (I)	54.88	5	45.72	2	33.29	6	44.63	4
Mean	54.11		43.84		32.78		43.58	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	2.34		2.05		3.54		NS	
			Earheads/sqm					
HD 3226	439	2	396	2	337	3	391	1
PBW 752	439	1	389	4	327	5	385	5
PBW 757	412	8	383	7	326	7	374	7
HD 3059 (c)	436	3	393	3	331	4	386	4
DBW 71 (c)	433	4	389	5	343	1	389	2
HD 3086 (c)	421	7	400	1	339	2	387	3
WH 1105 (c)	408	9	370	8	309	9	362	9
WR 544 (c)	421	6	366	9	318	8	368	8
DBW 173 (I)	430	5	387	6	327	6	382	6
Mean	426		386		329		380	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	7.92		8.69		NS		NS	
			Grains/Earhead					
HD 3226	32.50	6	32.09	5	31.53	5	32.04	6
PBW 752	32.34	7	30.19	9	30.48	6	31.01	7
PBW 757	35.14	3	31.67	6	31.83	4	32.88	4
HD 3059 (c)	33.30	5	32.26	4	32.19	3	32.58	5
DBW 71 (c)	31.59	8	30.92	7	29.89	7	30.80	8
HD 3086 (c)	36.63	2	34.78	1	28.55	8	33.32	3
WH 1105 (c)	37.38	1	33.52	3	32.97	1	34.62	1
WR 544 (c)	27.96	9	30.59	8	27.58	9	28.71	9
DBW 173 (I)	34.09	4	34.03	2	32.30	2	33.47	2
Mean	33.44		32.23		30.81		32.16	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	0.86		0.99		1.71		NS	
			1000 Grains Weight, g					
HD 3226	38.83	4	34.65	9	32.43	7	35.30	7
PBW 752	41.38	1	37.46	1	34.48	1	37.77	1
PBW 757	36.58	8	36.72	3	33.35	5	35.55	5
HD 3059 (c)	38.71	5	35.82	5	33.27	6	35.93	4
DBW 71 (c)	39.47	3	36.62	4	33.53	3	36.54	3
HD 3086 (c)	37.71	7	35.53	7	33.37	4	35.54	6
WH 1105 (c)	36.09	9	35.34	8	31.13	9	34.19	9
WR 544 (c)	39.51	2	37.30	2	34.47	2	37.09	2
DBW 173 (I)	37.77	6	35.55	6	32.05	8	35.12	8
Mean	38.45		36.11		33.12		35.89	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	0.45		0.57		0.99		NS	

Centres: Agra, Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana, Delhi, Pantnagar, Sriganganagar

The timely sowing time was from 5th to 11th November, late sowing was from 10th to 16nd December and very late sowing was from 1st -7th January. The trial was laid out in a split plot design with sowing time in main and genotypes in sub plots with three replications. The sowing was done using the normalized (adjusted considering 1000 grains weight of 38 g) seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Nitrogen was applied in three splits (1/3 at sowing and remaining 2/3 nitrogen as 1/3rd at first irrigation *i.e.* at 20-25 days after sowing and 1/3rd at second irrigation *i.e.* 40-45 days after sowing), whereas full phosphorus and potash was applied as basal.

The perusal of pooled data in Table 2.1 indicated that there was a significant decline in yield from timely (54.11 q/ha) to late (43.84 q/ha) and very late (32.78 q/ha) sown condition. This yield reduction was due to significant reduction in earheads/m^2, thousand grain weight and grains/earhead in successive delay in sowing dates. Yield decline in late and very late sown condition was 18.9 and 39.42 %, respectively as compared to timely sown condition.

On average basis, test entry PBW 752 ranked 1st with mean yield of 45.01 q/ha and was at par with best check HD 3059 and HD 3086. This higher grain yield in PBW 752 was mainly attributed by significantly higher thousand grain weight (37.77 g) as compared to other varieties. This test entry ranked first in thousand grains weight across the sowing dates. The centre wise data are presented in Tables 2.1.1 to 2.1.10 in Annexure-I.

Restricted Irrigation

The restricted irrigation trial was conducted with the objective to evaluate the two *aestivum* test entries namely HI 1620 and HD 3237 against four checks (HD 3043, PBW 644, WH 1080 and WH 1142) at ten locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar). For pooled analysis all the ten centres data were considered and there was no rejection. The trial was laid out in a split plot design with number of irrigations in main and genotypes in sub plots with three replications. The sowing was done using the normalized (adjusted considering 1000 grains weight as 38 g) seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Nitrogen, phosphorus and potash (90:60:40 kg N, P_2O_5 and K_2O) were applied as full basal was applied in I_1 treatment *i.e.* no irrigation, whereas 1/3 N and full phosphorus and potash was applied as basal at sowing and remaining 2/3 nitrogen at first irrigation *i.e.* at 20-25 days after sowing in I_2 and I_3 treatments. The pooled analysis is presented in Table 2.2 and the centre wise data are in Annexure-I in Tables 2.2.1 to 2.2.10.

The perusal of data in Table 2.2 indicated that increasing the irrigation frequency significantly increased the grain yield. Maximum grain yield (47.87 q/ha) was obtained with two irrigations. Increasing irrigation level enhanced the grain yield mainly due to significant increase in earheads/sqm. The test entry HI 1620 produced significantly higher grain yield (45.11 q/ha) as compared to other entries and checks on mean basis. The second test entry HD 3237 ranked 2nd in grain yield (43.43 q/ha) and was significantly superior over all checks. HI 1620 recorded significantly higher thousand grain weight (39.93 g) as compared to other entries and checks. This test entry ranked first in thousand grains weight in all the irrigation levels including zero irrigation.

Table 2.2. North Western Plains Zone RIR-TS-TAS Pooled 2017-18

Variety	Irrigation level							
	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3237	36.96	1	44.00	2	49.34	2	43.43	2
HI 1620	36.63	2	47.19	1	51.53	1	45.11	1
WH 1080 (c)	33.99	3	42.80	5	47.02	4	41.27	3
WH 1142 (c)	32.91	5	43.17	4	47.48	3	41.19	4
HD 3043 (c)	31.45	6	40.64	6	45.35	6	39.15	6
PBW 644 (c)	33.58	4	43.41	3	46.52	5	41.17	5
Mean	34.25		43.53		47.87		41.89	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	0.76		0.70		1.21		NS	
			Earheads/sqm					
HD 3237	336	2	395	5	413	6	381	5
HI 1620	334	3	408	2	432	2	391	2
WH 1080 (c)	343	1	425	1	435	1	401	1
WH 1142 (c)	333	4	405	3	424	4	387	3
HD 3043 (c)	326	5	395	4	429	3	383	4
PBW 644 (c)	323	6	388	6	419	5	377	6
Mean	333		403		425		387	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	10.42		9.22		NS		NS	
			Grains/Earhead					
HD 3237	29.34	2	30.20	3	30.68	2	30.07	3
HI 1620	27.49	5	29.32	5	29.68	5	28.83	5
WH 1080 (c)	27.14	6	27.71	6	29.63	6	28.16	6
WH 1142 (c)	29.38	1	31.81	1	33.77	1	31.65	1
HD 3043 (c)	28.78	4	30.13	4	29.96	4	29.62	4
PBW 644 (c)	29.14	3	31.38	2	30.56	3	30.36	2
Mean	28.55		30.09		30.71		29.78	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	1.10		0.96		1.71		NS	
			1000 Grains Weight, g					
HD 3237	37.26	2	36.92	2	39.54	2	37.91	2
HI 1620	39.80	1	39.33	1	40.66	1	39.93	1
WH 1080 (c)	36.73	3	36.59	3	37.06	3	36.79	3
WH 1142 (c)	33.46	5	33.69	6	33.68	6	33.61	6
HD 3043 (c)	33.29	6	33.89	5	35.58	5	34.25	5
PBW 644 (c)	35.48	4	36.20	4	36.80	4	36.16	4
Mean	36.00		36.10		37.22		36.44	
	Sowing (A)		Variety (B)		B within A		A within B	
CD (0.05)	0.50		0.54		0.94		NS	

Centres: Agra, Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana, Delhi, Pantnagar, Sriganganagar

North Eastern Plains Zone

The North Eastern Plains Zone (NEPZ) is the second most important wheat growing zone of the country consisting of Assam, Bihar, Jharkhand, Orissa, eastern parts of UP and West Bengal. All the eleven centres namely Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RAU Pusa, RAU Sabour, Shillongani and Varanasi are actively involved in coordinated research activities.

The data on climatic parameters at various locations are given in Annexure II. Temperature is an important factor affecting wheat productivity. Rainfall received varied from 9.2 mm at Varanasi to 447.7 mm at Burdwan during the wheat season of 2017-18. The rainfall was highest at Burdwan (447.7 mm) followed by Shillongani (367.2 mm), Sabour (282.6 mm), Ranchi (119.1 mm), Coochbehar (97.56 mm), Kalyani (47.8 mm), IARI Pusa (46.8 mm), RAU Pusa (46.8 mm), Kanpur (15.8 mm) and Varanasi (9.2 mm). The maximum and minimum temperatures at different locations were 33.6ºC and 7.2ºC at Burdwan, 33.67ºC and 7.97ºC at Coochbehar, 36.6 ºC and 6.2ºC at IARI Pusa, 37.08ºC and 7.34ºC at Kalyani, 39.3ºC and 5.3ºC at Kanpur, 37.4ºC and 2.0ºC at Ranchi, 36.6 ºC and 6.2 ºC at RAU Pusa, 35.4ºC and 5.9ºC at Sabour, 33.1ºC and 9.4ºC at Shillongani and 35.4ºC and 5.9ºC at Varanasi, respectively.

The data on various soil parameters at various locations are given in Annexure III. The soils of this zone are sandy loam to clay loam having organic carbon contents varying from 0.37 per cent at Varanasi to 1.15 per cent at Shillongani. The soils of this zone are low in available nitrogen, medium in available phosphorus and potash. Wheat production and productivity in this zone is more dependent on weather conditions during the crop season.

EVALUATION UNDER DIFFERENT SOWING CONDITIONS

The performance of genotypes was evaluated for sowing times under irrigated conditions at different locations and the results are summarized here under;

Irrigated Conditions

In this trial two test entry PBW 757, DBW 187 and six checks (DBW 14, HD 2733, HD 2967, WR 544, DBW 39 and DBW 71) were evaluated under timely, late and very late sown conditions in split plot design with three replications. Main plots comprised of dates of sowing and the genotypes were in the sub plots. The trial was conducted at eleven locations (Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani and Varanasi). The trial at Sabour centre was rejected by monitoring team due to insufficient plant population at first date of sowing treatment.

Sowing was done using normalized seed rate @ 100 kg/ha (adjusted considering 1000 grain weight as 38 g) at a row to row spacing of 20 cm. NPK fertilizers were applied @ 150:60:40 kg N, P_2O_5 and K_2O/ha with 1/3 N, full P and K as basal application and the remaining 2/3rd nitrogen as $1/3^{rd}$ at first irrigation and 1/3rd at second irrigation. Weed control measures were followed as per the recommended practice. Centre wise data are given in Annexure I as Tables 3.1.1 to 3.1.10.

Pooled analysis of data from ten centres is presented in Table 3.1. The perusal of data indicated that there was a significant decline in yield from 42.55 q/ha to 29.05 q/ha when sowing was delayed from timely to very late sown conditions because of significant reduction in number of grains per earhead and 1000 grain weight. The average yield declined due to late sowing and very late sowing by 8.55 and 31.73 per cent, respectively. On an average basis, the check variety DBW 71 produced the maximum grain yield (38.99 q/ha) followed by the test genotype DBW 187 (38.40 q/ha) and check variety HD 2733 (38.29 q/ha). These three varieties/genotypes were statistically at par. The second test entry obtained 4^{th} rank with an average yield of 37.92 q/ha which was significantly less than the best check variety. The highest number of earheads/m^2 (303) and 1000 grain weight (39.94) were recorded for the check variety HD 2733, whereas the maximum number of grains/earhead was observed in DBW 39 (37.17). The interaction between genotypes and sowing time was significant for yield and yield attributes.

Table 3.1. North Eastern Plains Zone IR-TAS-DOS Pooled 2017-18

Variety	Sowing time: Timely	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 187	44.20	4	42.16	1	28.84	5	38.40	2
PBW 757	45.60	2	39.24	5	28.92	4	37.92	4
DBW 14 (c)	36.85	7	36.78	7	28.09	7	33.91	7
HD 2733 (c)	45.78	1	39.39	4	29.70	2	38.29	3
HD 2967 (c)	43.31	6	40.27	3	28.29	6	37.29	6
WR 544 (c)	35.84	8	33.48	8	27.59	8	32.31	8
DBW 39 (c)	44.86	3	38.37	6	29.47	3	37.57	5
DBW 71 (c)	43.94	5	41.57	2	31.47	1	38.99	1
Mean	42.55		38.91		29.05		36.83	
	Sowing (A)		Genotypes (B)		B within A		A within B	
CD (0.05)	0.62		0.79		1.37		1.42	
			Earheads/sqm					
DBW 187	297	3	314	5	264	6	292	5
PBW 757	296	4	316	4	258	7	290	6
DBW 14 (c)	289	7	314	6	273	4	292	4
HD 2733 (c)	312	1	325	2	273	3	303	1
HD 2967 (c)	303	2	317	3	282	1	301	2
WR 544 (c)	256	8	300	8	268	5	275	8
DBW 39 (c)	289	6	308	7	258	8	285	7
DBW 71 (c)	294	5	325	1	276	2	298	3
Mean	292		315		269		292	
	Sowing (A)		Genotypes (B)		B within A		A within B	
CD (0.05)	5.85		6.66		11.54		12.25	
			Grains/Earhead					
DBW 187	37.31	4	34.91	4	31.44	4	34.55	4
PBW 757	41.11	1	33.62	5	32.97	3	35.90	3
DBW 14 (c)	33.23	8	31.02	7	29.99	7	31.41	7
HD 2733 (c)	36.38	6	32.65	6	30.48	6	33.17	6
HD 2967 (c)	36.47	5	35.90	1	30.89	5	34.42	5
WR 544 (c)	34.80	7	29.34	8	29.15	8	31.10	8
DBW 39 (c)	40.77	2	35.17	2	35.59	1	37.17	1
DBW 71 (c)	40.50	3	35.03	3	34.40	2	36.64	2
Mean	37.57		33.46		31.86		34.30	
	Sowing (A)		Genotypes (B)		B within A		A within B	
CD (0.05)	0.83		1.40		2.43		2.41	
			1000 Grains Weight, g					
DBW 187	42.37	2	39.56	1	35.64	4	39.19	2
PBW 757	41.14	4	38.14	5	35.07	5	38.12	5
DBW 14 (c)	41.18	3	39.31	2	36.25	3	38.91	3
HD 2733 (c)	43.13	1	39.18	4	37.50	1	39.94	1
HD 2967 (c)	40.73	6	37.19	8	34.55	6	37.49	7
WR 544 (c)	40.69	7	39.25	3	36.41	2	38.78	4
DBW 39 (c)	41.13	5	37.59	7	34.18	8	37.63	6
DBW 71 (c)	38.74	8	37.71	6	34.34	7	36.93	8
Mean	41.14		38.49		35.49		38.37	
	Sowing (A)		Genotypes (B)		B within A		A within B	
CD (0.05)	0.29		0.61		1.05		1.03	

Centres: Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RAU Pusa, Shillongani, Varanasi

Central Zone

In Central zone, eight centres, *viz.* Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur are actively involved in the coordinated wheat programme. The data on climatic parameters at various locations are given in Annexure II. The maximum rainfall in this zone during the wheat growing season 2017-18 was recorded at Bilaspur (116.6 mm), followed by Jabalpur (105.8 mm), Powarkheda (24.8mm), Gwalior (7.0 mm), Udaipur (6.4 mm), Junagarh (3.7 mm), Vijapur (3.5 mm) and Indore (1.4 mm). The average maximum and minimum temperatures were 40.4ºC and 8.5ºC at Bilaspur, 37.1ºC and 4.2ºC at Gwalior, 41.5ºC and 7.5ºC at Indore, 38.0 ºC and 3.9 ºC at Jabalpur, 41.4ºC and 10.0ºC at Junagarh, 40.2ºC and 10.5ºC at Powarkheda, 37.8ºC and 5.2ºC at Udaipur, and 38.6ºC and 10.7ºC at Vijapur, respectively.

The data on various soil parameters at various locations are given in Annexure III. The soils at most of the centres are sandy clay loam to clay, neutral to slightly alkaline in reaction (pH: 7.1 to 8.0) except Vijapur where the soils are sandy loam. All the centres were low to medium in organic carbon (0.31-0.55 per cent) status. The available nitrogen status was low to medium (158-287 kg/ha), phosphorus low to high (12.50-41.16 kg/ha) and potassium was in high (200-457 kg/ha) at most of the locations.

Since, there was no new genotype in the final year of varietal evaluation, therefore coordinated trials to evaluate the performance of wheat genotypes under different growing conditions were not formulated and conducted. However, six production technology trials were done at eight locations namely Bilaspur, Gwalior, Indore, Junagarh, Jabalpur, Powarkheda, Udaipur and Vijapur under various growing conditions, the details of which are given in the “Production Technologies” section.

Peninsular Zone

In Peninsular zone, six centres (Akola, Dharwad, Niphad, Pune, Ugar Khurd and Washim), are actively engaged in research activities of coordinated wheat agronomy programme. The data on climatic parameters received from the centres are reported in Annexure II. The water is a limiting factor in this zone and productivity is mainly dependent on rainfall and also the temperature during the crop growing cycle (November to April). Majority of rainfall received was in the month of October-November, and some rainfall was received during later stages in the crop season. The maximum rainfall received was 240.8 mm at Niphad followed by 162.6 mm at Dharwad, 161.9 mm at Pune, 145 mm at Ugar Khurd, 46,5 mm at Akola. The weekly average maximum and minimum temperatures were varied from 30.0-35.2 and 12.5-24.2^{o}C at Akola, 28.0-34.7 and 10.7-20.1^{o}C at Dharwad, 26.5-34.0 and 7.5-16.0^{o}C at Niphad, 28.6-36.8 and 8.0-18.7^{o}C at Pune, 26.4-40.0 and 11.8-20.8^{o}C at Ugar Khurd, respectively.

The data on various soil parameters received from the centres are reported in Annexure III. The soils of this zone fall under the order vertisols and predominantly are clayey in nature with low to high organic carbon ranging from 0.3 to 1.1 per cent. The available soil nitrogen is low ranging between 118 to 274 kg/ha, phosphorus from low to high (9.0 to 49 kg/ha) whereas the potash content in soil was very high (200 to 510 kg/ha).

Since, there was no new genotype in the final year of varietal evaluation, therefore coordinated trials to evaluate the performance of wheat genotypes under different growing conditions were not formulated and conducted. However, seven special coordinated trials were conducted at various locations to update the package of practices for this zone.

PRODUCTION TECHNOLOGIES

In this section, the results of various experiments on updating the package of practices are presented. Various special coordinated trials on evaluation of herbicides for control of broad leaved weeds in wheat, control of lodging and yield maximization, efficient water management using micro-irrigation, evaluation of hydrogels under different irrigation levels, identifying optimum spacing and seed rate for triticale and validation of nutrient expert in wheat were conducted to address the various issues in different wheat growing zone.

SPL-1: Evaluation of herbicides for control of broadleaved weeds in wheat

To identify the effective herbicides for broadleaved weed control in wheat, this trial was conducted in five wheat growing zones (NHZ, NWPZ, NEPZ, CZ and PZ). The trial was conducted in RBD with eleven weed control treatments replicated thrice. The eleven weed control treatments were i) *Halauxifen-methyl ester+Florasulam 40.85% WG+surfactantPolyglycol 26-2 N (12.76 g a.i +750 ml./ha); ii) Metsulfuron methyl 20 WG + surfactant (4.0 g a.i +625 ml./ha), iii) Carfentrazone 40DF (20.0 g a.i./ha); iv) 2,4-D Na 80 WP (500 g a.i./ha); v) 2,4-D E 38 EC (500 g a.i./ha); vi) Metsulfuron+carfentrazone +surfactant (4.0 g+20 g+625 ml/ha); vii) 2,4-D Na + Carfentrazone (400+20 g a.i./ha); viii) 2,4-D E+Carfentrazone (400+20 g a.i./ha); ix) Halauxifen methyl + florasulam+ carfentrazone + surfactant (10.21+20 g a.i.+750ml /ha); x) Weedy check and xi) Weed free*. Broadleaved herbicides were applied at 30-35 days after sowing. A blanket dose of clodinafop 60 g/pinoxaden 50 g/fenoxaprop 100 g/ha was applied about 5 days before or after the broad leaf herbicide application to control grassy weeds. Observations on weed density and dry weight were recorded at 30, 60 and 90 days after herbicide spray. For irrigation and fertilization, the recommended package of practices for the zone was followed. The zone wise performance of herbicide is given hereunder.

In NHZ, this trial was conducted at four centres (Almora, Bajuara, Khudwani and Malan).The pooled analysis showed significant effect of herbicide application on grain yield and yield attributes (Table 6.1). The highest yield was obtained under weed free situations (48.85 q/ha). A close comparison among herbicides showed better performance of Metsulfuron + carfentrazone + Surfactant (47.61 q/ha) followed by Halauxifen methyl+ florasulam+ carfentrazone+ Surfactant (47.41 q/ha). The treatments weed free, Metsulfuron + carfentrazone,Halauxifen methyl+ florasulam+ carfentrazone and metsulfuron alone were at

par. Gain in yield was due to lesser weed population and dry weight, which may be attributed to better control by these herbicides. The uncontrolled weed growth resulted in lowest wheat yield (36.04 q/ha). Centre wise data have been demonstrated in Annexure I as Tables 6.1.1. to 6.1.4.

Table 6.1. Northern Hill Zone		**SPL-1**		**Pooled**	**2017-18**
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha
Halauxifen+Florasulam+S*	12.76	371	43.05	29.37	46.56
Metsulfuron+S	4	360	43.14	30.25	46.70
Carfentrazone	20	347	42.84	28.92	42.80
2,4-D Na	500	352	42.80	29.30	44.12
2,4-D E	500	337	42.75	29.38	42.22
Metsulfuron+Carfentrazone+S	4+20	353	42.94	31.28	47.61
2,4-D Na+Carfentrazone	400+20	343	43.29	29.99	44.74
2,4-D E+Carfentrazone	400+20	350	42.82	29.47	43.44
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	371	43.49	29.75	47.41
Weedy check		313	39.56	29.11	36.04
Weed free		371	43.99	30.21	48.85
CD (0.05)		20.56	1.21	2.47	3.42
	Dose g a.i./ha	Weeds/sqm 30 DAS**		Weed dry wt./sqm 60DAS	
Halauxifen+Florasulam+S	12.76	5.01(24.3)#		3.19(9.2)	
Metsulfuron+S	4	3.98(14.8)		3.56(11.7)	
Carfentrazone	20	6.59(42.7)		4.98(23.9)	
2,4-D Na	500	6.47(40.9)		4.77(21.9)	
2,4-D E	500	6.06(35.9)		4.78(21.9)	
Metsulfuron+Carfentrazone+S	4+20	3.97(14.8)		2.75(6.6)	
2,4-D Na+Carfentrazone	400+20	5.33(27.4)		4.12(16.1)	
2,4-D E+Carfentrazone	400+20	5.06(25.1)		3.57(11.8)	
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	4.42(18.7)		2.75(6.6)	
Weedy check		10.99(120.0)		7.95(62.2)	
Weed free		1.00(0.0)		1.00(0.0)	
CD (0.05)		0.83		0.44	

Centres: Almora, Bajaura, Khudwani, Malan

*S-Surfactant, **DAS-Days After Spray

#Original values in parenthesis and square root transformed (√X+1) value used for statistical analysis

In North Western Plains Zone, trial was conducted at eight centres (Bikaner, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). The pooled data are presented in Table 6.2 and the centre wise data are given in Annexure-I as Tables 6.2.1-6.2.8. The perusal of the data presented in Table 6.2 on broad leaf weed density and dry weight as well as wheat yield and yield attributes revealed significant reduction in weed density and dry weight of weeds as a result of herbicide application. The reduction in weed infestation was reflected in yield improvement. The weed competition during the growing season recorded the lowest wheat yield of 36.0 q/ha and season long weed free conditions resulted in maximum wheat yield of 54.59 q/ha. Among herbicides, Halauxifen methyl + florasulam+ carfentrazone+surfactant (10.21+20 g a.i.+750 ml/ha) was found the best treatment in controlling broad leaf weeds density (98.7/sqm) and broadleaved weeds dry weight (199.3

g/sqm). At Karnal centre, the tank mix combination of ready mixture halauxifen + florasulam with carfentrazone was the most effective treatment in controlling the diverse weed flora in wheat. Carfentrazone alone was not effective against *Lathyrus aphaca*.

Table 6.2. North Western Plains Zone		**SPL-1**		**Pooled**	**2017-18**
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha
Halauxifen+Florasulam+S*	12.76	395	38.62	33.99	50.63
Metsulfuron+S	4	380	38.63	34.06	49.63
Carfentrazone	20	383	38.48	34.61	50.44
2,4-D Na	500	377	37.77	33.60	47.58
2,4-D E	500	384	38.58	34.00	49.59
Metsulfuron+Carfentrazone+S	4+20	394	38.61	34.06	51.33
2,4-D Na+Carfentrazone	400+20	397	38.82	33.80	51.51
2,4-D E+Carfentrazone	400+20	393	39.62	33.46	51.11
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	394	39.66	33.61	51.96
Weedy check		328	35.32	31.56	36.00
Weed free		411	40.33	33.69	54.59
CD (0.05)		21.09	1.31	NS	2.79
	Dose g a.i./ha	Weeds/sqm 60 DAS**		Weed dry wt./sqm 90 DAS	
Halauxifen+Florasulam+S	12.76	4.28(17.4)#		6.20(37.4)	
Metsulfuron+S	4	5.21(26.2)		7.23(51.3)	
Carfentrazone	20	5.41(28.3)		7.10(49.44)	
2,4-D Na	500	6.01(35.2)		7.90(61.4)	
2,4-D E	500	5.40(28.3)		7.23(51.4)	
Metsulfuron+Carfentrazone+S	4+20	4.09(15.7)		6.43(40.4)	
2,4-D Na+Carfentrazone	400+20	4.01(15.2)		6.37(39.7)	
2,4-D E+Carfentrazone	400+20	3.59(11.9)		5.86(33.4)	
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	3.50(11.3)		5.58(30.2)	
Weedy check		9.98(98.7)		14.15(199.3)	
Weed free		1.00(0.0)		1.00(0.0)	
CD (0.05)		0.51		0.47	
Centres: Bikaner, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar					
*S-Surfactant, **DAS-Days After Spray					
#Original values in parenthesis and square root transformed (√X+1) value used for statistical analysis					

In North Eastern Plains Zone, this experiment was conducted at five locations viz. Coochbehar, Faizabad, Kalyani, Sabour and Varanasi. Centre wise data tables are given in Annexure I as Tables 6.3.1 to 6.3.5.

The pooled analysis of data from five locations (Table 6.3) revealed that weed free treatment produced the maximum and significantly higher grain yield (51.21 q/ha) as compared to other treatments. The next best treatment was combination of Halauxifen methyl + florasulam+ carfentrazone+Surfactant and ranked at 2nd place as far as grain yield is concerned (48.82 q/ha). This treatment also reduced weed number and dry weight to a great extent as compared to other treatments. Other herbicide combinations like

Metsulfuron+carfentrazone and Halauxifen-methyl Ester+Florasulam were also quite effective in controlling the weeds and gave similar yield as under Halauxifen methyl+florasulam+carfentrazone treatment.

Table 6.3. North Eastern Plains Zone		**SPL-1**		**Pooled**	**2017-18**
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha
Halauxifen+Florasulam+S*	12.76	329	38.78	37.45	46.87
Metsulfuron+S	4	337	38.83	35.48	45.24
Carfentrazone	20	315	38.65	35.43	42.04
2,4-D Na	500	308	38.48	35.51	41.12
2,4-D E	500	312	38.35	35.61	41.55
Metsulfuron+Carfentrazone+S	4+20	343	39.51	36.76	48.09
2,4-D Na+Carfentrazone	400+20	322	38.36	37.68	45.57
2,4-D E+Carfentrazone	400+20	328	39.09	36.79	46.07
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	342	39.01	37.47	48.82
Weedy check		229	36.33	34.48	26.54
Weed free		356	40.54	36.94	51.21
CD (0.05)		16.32	1.15	2.74	2.33
	Dose g a.i./ha	Weeds/sqm 60 DAS**		Weed dry wt./sqm 60DAS	
Halauxifen+Florasulam+S	12.76	5.33(27.4)#		6.09(36.2)	
Metsulfuron+S	4	5.65(31.0)		6.05(35.7)	
Carfentrazone	20	5.64(30.9)		6.15(36.9)	
2,4-D Na	500	6.62(42.9)		8.80(76.4)	
2,4-D E	500	6.13(36.7)		7.55(55.9)	
Metsulfuron+Carfentrazone+S	4+20	4.92(23.3)		5.27(26.8)	
2,4-D Na+Carfentrazone	400+20	5.41(28.3)		6.56(42.1)	
2,4-D E+Carfentrazone	400+20	5.23(26.3)		6.02(35.3)	
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	5.2(26.1)		5.63(30.7)	
Weedy check		12.74(161.5)		13.48(180.9)	
Weed free		1.00(0.0)		1.00(0.0)	
CD (0.05)		0.42		0.45	
Centres: Coochbehar, Faizabad, Kalyani, Sabour, Varanasi					

*S-Surfactant, **DAS-Days After Spray

#Original values in parenthesis and square root transformed (√X+1) value used for statistical analysis

In Central Zone, this trial was conducted at three centres (Bilaspur, Indore and Udaipur). The pooled analysis showed significant effect of herbicide application on grain yield and yield attributes (Table 6.4). The highest yield was obtained under weed free situations (54.22 q/ha). A close comparison among herbicides shows better performance of Halauxifen+ florasulam+ carfentra+Surfactant (50.73 q/ha) followed by Metsulfuron + Carfentrazone+ Surfactant (50.17 q/ha) and 2,4-D E + Carfentrazone(49.24 q/ha). The gain in yield was due to significantly higher number of earheads/sqm and bolder grains as a result of reduction in weed population and dry weight. Centre wise data have been presented in Annexure I as Tables 6.4.1-6.4.3.

Table 6.4. Central Zone		**SPL-1**		**Pooled**	**2017-18**
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha
Halauxifen+Florasulam+S*	12.76	359	44.22	30.94	48.90
Metsulfuron+S	4	358	45.21	28.91	46.28
Carfentrazone	20	352	44.87	27.09	42.39
2,4-D Na	500	340	43.43	30.28	44.06
2,4-D E	500	357	45.02	28.76	45.78
Metsulfuron+Carfentrazone+S	4+20	389	46.25	28.31	50.17
2,4-D Na+Carfentrazone	400+20	359	45.16	28.50	45.71
2,4-D E+Carfentrazone	400+20	382	45.41	28.68	49.24
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	392	45.88	28.44	50.73
Weedy check		334	42.82	27.90	39.43
Weed free		407	47.08	29.90	54.22
CD (0.05)		23.6	1.29	2.96	2.33
	Dose g a.i./ha	Weeds/sqm 30 DAS**		Weed dry wt./sqm 90DAS	
Halauxifen+Florasulam+S	12.76	3.55 (12.7)[#]		2.33 (5.0)	
Metsulfuron+S	4	4.30 (17.7)		2.69 (6.9)	
Carfentrazone	20	4.31 (17.9)		3.12 (9.0)	
2,4-D Na	500	4.05 (16.0)		3.48 (11.5)	
2,4-D E	500	4.59 (20.6)		2.66 (6.9)	
Metsulfuron+Carfentrazone+S	4+20	3.55 (11.8)		2.21 (4.5)	
2,4-D Na+Carfentrazone	400+20	4.62 (21.1)		2.76 (7.1)	
2,4-D E+Carfentrazone	400+20	3.85 (14.2)		2.50 (5.6)	
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	3.44 (11.9)		2.10 (3.7)	
Weedy check		11.64 (147.0)		6.42 (42.0)	
Weed free		1.00 (0.0)		1.00 (0.0)	
CD (0.05)		0.43		0.27	
Centres: Bilaspur, Indore, Udaipur					
*S-Surfactant, **DAS-Days After Spray					
[#]Original values in parenthesis and square root transformed (√X+1) value used for statistical analysis					

In Peninsular Zone, this trial was conducted at only one centre i.e. Dharwad. The analysed data showed significant effect of herbicide application on grain yield and yield attributes (Table 6.5). The highest yield was obtained under weed free situations (44.58 q/ha). A close comparison among herbicides shows better performance of Halauxifen methyl + florasulam+ carfentrazone(43.27 q/ha) followed by Metsulfuron + carfentrazone +Surfactant (42.49 q/ha). Gain in yield was due to significantly higher number of earheads/sqm and thousand grain weight as a result of efficient broadleaved weed control. At Dharwad the weed pressure was low as compared to other centres but here also the Halauxifen methyl + florasulam+ carfentrazone was the best herbicide treatment in reducing the weed population and dry weight.

Table 6.5. Peninsular Zone		SPL-1		Dharwad	2017-18
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha
Halauxifen+Florasulam+S*	12.76	259	41.56	38.94	41.63
Metsulfuron+S	4	240	39.73	39.36	37.38
Carfentrazone	20	252	40.91	38.51	39.58
2,4-D Na	500	248	40.55	38.60	38.52
2,4-D E	500	240	40.44	38.67	37.44
Metsulfuron+Carfentrazone+S	4+20	265	41.20	39.00	42.49
2,4-D Na+Carfentrazone	400+20	262	41.86	37.11	40.67
2,4-D E+Carfentrazone	400+20	255	41.81	36.16	38.49
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	274	41.49	38.07	43.27
Weedy check		232	35.58	39.59	32.59
Weed free		281	42.29	37.57	44.58
CD (0.05)		12.36	NS	3.23	3.74
	Dose g a.i./ha	Weeds/sqm 30 DAS**		Weed dry wt. 90 DAS	
Halauxifen+Florasulam+S	12.76	4.98(24.0) #		1.71(1.9)	
Metsulfuron+S	4	4.70(21.7)		1.61(1.6)	
Carfentrazone	20	4.88(23.7)		1.64(1.7)	
2,4-D Na	500	4.81(22.3)		1.71(1.9)	
2,4-D E	500	4.73(22.0)		1.66(1.8)	
Metsulfuron+Carfentrazone+S	4+20	4.64(21.0)		1.68(1.8)	
2,4-D Na+Carfentrazone	400+20	5.46(29.3)		1.78(2.2)	
2,4-D E+Carfentrazone	400+20	4.86(25.0)		1.64(2.0)	
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	4.35(18.3)		1.40(1.0)	
Weedy check		6.33(39.7)		2.42(4.9)	
Weed free		1.00(0.0)		1.00(0.0)	
CD (0.05)		1.95		0.50	
Date of Sowing: 12.11.2017		Date of Harvesting: 21.03.2018			

*S-Surfactant, **DAS-Days After Spray

#Original values in parenthesis and square root transformed (√X+1) value used for statistical analysis

SPL-2: Management of lodging and yield maximization in wheat

This experiment was conducted to maximise wheat yield using crop growth regulators *i.e.* Chlormequat chloride (Lihocin) and tebuconazole (Folicur 430 SC). Experiment consisted of four fertiliser treatments *viz*. control, RDF, 150 % RDF and 150 % RDF +15 t FYM/ha in main plots and four growth regulators *viz* control, two sprays of 0.2% Chlormequat chloride (CCC), two sprays of tebuconazole (0.1%) and two sprays of combination of CCC and tebuconazole, The trial was conducted in split plot design with three replications. Growth regulators were used twice *i.e.* at first node and flag leaf stages. The sowing was done using the normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation and weed control measures were followed as per recommended package of practices for the concerned zone. This trial was conducted in five zones and zone wise results presented in the subsequent paragraphs.

In Northern Hills Zone, this experiment was conducted at Almora (UttaraKhand), Bajaura (Kullu, HP), Khudwani (Anantnag, J&K) and Malan (Palampur, HP). A perusal of pooled data of the four centres presented in Table 6.6 revealed that the highest yield was recorded under the treatment 150% RDF + 15 t/ha FYM application (57.14 q/ha) as compared to all other treatments. The gain in yield was 7.20% and 26.33% over 150%RDF and RDF, respectively. The treatment 150% RDF + 15 t FYM application was found superior to the treatment 150% RDF (53.3 q/ha). The treatments two sprays of tebuconazole yielded significantly higher (47.12 q/ha) as compared to other sub plot treatments and it was found superior to two sprays of cycocel (44.51 q/ha). The yield increment may be due to more earheads/sqm and higher number of grains per earhead. Also, the two sprays of cycocel was found at par with control (44.31 q/ha) thus proving that there is no significant effect of cycocel on yield. Application of growth retardants reduced plant height drastically as compared to control. Minimum plant height is observed under two sprays of lihocin+folicur (74.01 cm) followed by two sprays of Lihocin (80.49 cm) and two sprays of tebuconazole (84.63 cm). Lodging was not reported at any centre in NHZ. The centre wise data has been illustrated in Annexure I as Tables 6.6.1- 6.6.4.

In NWPZ, this trial was conducted at seven centres namely at Agra, Durgapura, Hisar, Jammu, Karnal, Ludhiana and Pantnagar. The pooled analysis showed significant effect of fertiliser application and growth regulators on grain yield and yield attributes (Table 6.7).The grain yield enhanced significantly with increasing fertiliser doses. The application of 150% RDF increased the grain yield (54.04 q/ha) to the tune of 2.1% over RDF (52.92 q/ha). Also, the addition of 15 t/ha FYM application along with 150% RDF increased the grain yield (55.52 q/ha) significantly as compared to 150% RDF application. Two spray of Chlormequat chloride (Lihocin) 0.2 % + tebuconazole (Folicur 430SC) 0.1% produced maximum grain yield (49.11 q/ha) which was significantly higher than other treatments. This showed that growth retardant in combination with fungicide tebuconazole is more effective rather alone application. CCC @ 0.2% + tebuconazole @ 0.1% twice in crop season application produced maximum yield attributing parameters but reduced the plant height significantly as compared to other treatments. There was no significant lodging during the crop year. Lodging score was reported by Jammu, Karnal, Ludhiana and Pantnagar. The results showed that increasing the fertiliser rates in combination with growth retardant application increased the grain yield. Centre wise data are presented in Tables 6.7.1. to 6.7.7. in Annexure-I.

Table 6.6. Northern Hills Zone		**SPL-2**	**Pooled**		**2017-18**
	Fertilization				
Growth regulator (GR)	Control	RDF	150% RDF	150%RDF+FYM	Mean
		Yield, q/ha			
Control	22.31	44.81	53.50	56.59	44.31
2 sprays of CCC (0.2%)	23.83	44.60	52.52	57.09	44.51
2 sprays of tebuconazole (0.1 %)	25.97	47.28	55.57	59.65	47.12
2 sprays of CCC + tebuconazole	23.89	44.24	51.63	55.22	43.74
Mean	24.00	45.23	53.30	57.14	44.92
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.94	1.09	NS	NS	
		Earheads/sqm			
Control	257	326	358	368	327
2 sprays of CCC (0.2%)	266	335	353	377	333
2 sprays of tebuconazole (0.1 %)	268	347	374	383	343
2 sprays of CCC +tebuconazole	274	346	367	383	342
Mean	266	338	363	378	336
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	8.96	8.70	NS	NS	
		Grains/Earhead			
Control	23.48	33.04	35.25	35.98	31.94
2 sprays of CCC (0.2%)	24.32	32.01	35.11	35.06	31.63
2 sprays of tebuconazole (0.1 %)	25.75	32.48	34.61	35.69	32.13
2 sprays of CCC + tebuconazole	23.64	31.12	33.39	33.49	30.41
Mean	24.30	32.16	34.59	35.05	31.53
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.64	1.02	NS	NS	
		1000 Grains Weight, g			
Control	38.40	40.82	40.53	41.23	40.54
2 sprays of CCC (0.2%)	38.21	39.89	39.99	40.49	39.55
2 sprays of tebuconazole (0.1 %)	38.91	40.64	40.93	41.61	40.51
2 sprays of CCC + tebuconazole	38.28	39.86	38.87	40.82	39.61
Mean	38.45	40.3	40.08	41.04	40.05
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	0.47	NS	NS	NS	
		Plant Height, cm			
Control	69.79	86.89	94.16	99.83	87.67
2 sprays of CCC (0.2%)	66.54	78.12	84.68	92.60	80.49
2 sprays of tebuconazole (0.1 %)	71.47	81.94	91.88	93.21	84.63
2 sprays of CCC + tebuconazole	60.51	69.82	80.84	84.86	74.01
Mean	67.08	79.19	87.89	92.63	81.70
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	2.05	1.55	3.10	3.37	
		Biomass, q/ha			
Control	54.28	111.74	130.32	136.13	108.12
2 sprays of CCC (0.2%)	56.24	108.33	124.35	137.42	106.59
2 sprays of tebuconazole (0.1 %)	63.63	112.14	133.47	144.46	113.43
2 sprays of CCC + tebuconazole	58.61	108.76	126.75	134.60	107.18
Mean	58.19	110.24	128.72	138.15	108.83
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	4.33	2.57	NS	NS	

Centres: Almora, Bajaura, Khudwani and Malan

Table 6.7. North Western Plains Zone	SPL-2	Pooled			2017-18
	Fertilization				
Growth regulator (GR)	Control	RDF	150% RDF	150%RDF+FYM	Mean
Yield, q/ha					
Control	25.23	51.66	51.98	52.80	45.42
2 sprays of CCC (0.2%)	27.01	52.84	54.34	55.45	47.41
2 sprays of tebuconazole (0.1%)	27.13	52.99	53.70	55.52	47.34
2 sprays of CCC + tebuconazole	27.78	54.19	56.14	58.32	49.11
Mean	26.79	52.92	54.04	55.52	47.32
	Fertilization (A)	GR (B)	B within A	A within B	
CD (0.05)	1.19	0.92	NS	NS	
Earheads/sqm					
Control	258	406	431	436	383
2 sprays of CCC (0.2%)	258	405	432	439	383
2 sprays of tebuconazole (0.1%)	260	403	432	436	383
2 sprays of CCC + tebuconazole	262	411	433	444	388
Mean	260	406	432	439	384
	Fertilization (A)	GR (B)	B within A	A within B	
CD (0.05)	10.30	5.17	NS	NS	
Grains/Earhead					
Control	26.36	32.96	31.72	31.66	30.67
2 sprays of CCC (0.2%)	27.97	33.65	33.24	33.27	32.03
2 sprays of tebuconazole (0.1%)	27.67	33.94	31.99	32.99	31.65
2 sprays of CCC + tebuconazole	28.51	34.56	33.68	34.41	32.79
Mean	27.63	33.78	32.66	33.08	31.79
	Fertilization (A)	GR (B)	B within A	A within B	
CD (0.05)	1.50	0.90	NS	NS	
1000 Grains Weight, g					
Control	37.15	38.74	38.14	38.51	38.13
2 sprays of CCC (0.2%)	37.63	38.90	37.93	38.09	38.14
2 sprays of tebuconazole (0.1%)	38.17	38.94	39.17	39.00	38.82
2 sprays of CCC + tebuconazole	37.55	38.51	38.64	38.48	38.29
Mean	37.63	38.77	38.47	38.52	38.35
	Fertilization (A)	GR (B)	B within A	A within B	
CD (0.05)	0.64	0.42	NS	NS	
Biomass, q/ha					
Control	69	129	136	140	118
2 sprays of CCC (0.2%)	66	128	134	138	117
2 sprays of tebuconazole (0.1%)	69	130	135	141	119
2 sprays of CCC + tebuconazole	69	128	134	140	118
Mean	68	129	135	140	118
	Fertilization (A)	GR (B)	B within A	A within B	
CD (0.05)	2.01	NS	NS	NS	
Plant Height, cm					
Control	79.56	99.89	100.73	102.40	95.64
2 sprays of CCC (0.2%)	75.00	92.96	95.96	97.35	90.32
2 sprays of tebuconazole (0.1%)	79.19	95.45	98.83	100.94	93.60
2 sprays of CCC + tebuconazole	70.81	89.87	91.74	94.35	86.69
Mean	76.14	94.54	96.82	98.76	91.56
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.36	1.01	NS	NS	

Centres: Agra, Durgapura, Hisar, Jammu, Karnal, Ludhiana, Pantnagar

In NEPZ, this trial was conducted at 9 centres *viz* Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, Sabour, Shillongani and Varanasi.

Table 6.8. North Eastern Plains Zone	**SPL-2**			**Pooled**	**2017-18**
	Fertilization				
Growth regulator (GR)	Control	RDF	150% RDF	150%RDF+15t FYM	Mean
		Yield, q/ha			
Control	16.20	41.34	47.69	50.2	38.86
2 sprays of CCC (0.2%)	16.81	45.5	49.96	51.89	41.04
2 sprays of tebuconazole (0.1%)	16.99	45.56	48.65	52.38	40.89
2 sprays of CCC +tebuconazole	17.58	48.22	51.82	54.26	42.97
Mean	16.89	45.16	49.53	52.18	40.94
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	0.85	0.89	1.77	1.75	
		Earheads/sqm			
Control	190	286	315	334	281
2 sprays of CCC (0.2%)	202	309	346	336	298
2 sprays of tebuconazole (0.1%)	197	308	330	329	291
2 sprays of CCC +tebuconazole	204	322	332	343	300
Mean	198	306	331	335	293
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	9.39	9.35	NS	NS	
		Grains/earhead			
Control	22.37	36.28	37.45	37.31	33.35
2 sprays of CCC (0.2%)	22.07	36.10	37.33	37.43	33.23
2 sprays of tebuconazole (0.1%)	22.92	36.66	36.08	39.13	33.70
2 sprays of CCC +tebuconazole	22.36	37.03	38.34	38.61	34.09
Mean	22.43	36.52	37.3	38.12	33.59
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	1.06	NS	NS	NS	
		1000 Grains Weight, g			
Control	38.68	41.09	41.42	41.62	40.70
2 sprays of CCC (0.2%)	38.47	41.69	41.96	42.68	41.20
2 sprays of tebuconazole (0.1%)	38.56	41.74	41.86	42.12	41.07
2 sprays of CCC +tebuconazole	38.97	41.7	42.22	42.7	41.40
Mean	38.67	41.56	41.86	42.28	41.09
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	0.51	0.41	NS	NS	
		Biomass, q/ha			
Control	43	100	118	122	96
2 sprays of CCC (0.2%)	43	109	120	128	100
2 sprays of tebuconazole (0.1%)	44	112	120	127	100
2 sprays of CCC +tebuconazole	46	117	126	130	105
Mean	44	109	121	127	100
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	2.35	2.02	4.04	4.21	
		Plant Height, cm			
Control	77.46	93.78	96.14	97.46	91.21
2 sprays of CCC (0.2%)	70.84	87.77	90.60	89.15	84.59
2 sprays of tebuconazole (0.1%)	74.79	90.59	92.08	92.21	87.42
2 sprays of CCC +tebuconazole	69.80	88.50	88.40	88.09	83.70
Mean	73.22	90.16	91.8	91.73	86.73
	Fertilization(A)	GR (B)	B within A	A within B	
CD (0.05)	2.01	2.08	NS	NS	
Centres: Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, Sabour, Shillongani, Varanasi					

The pooled analysis (Table 6.8) showed that increasing fertiliser doses enhanced grain yield significantly. 150% RDF+15 t FYM application has increased the grain yield (52.18 q/ha) to the tune of 15.54% over RDF (45.16 q/ha) and 5.35% over 150% RDF (49.53 q/ha). Two sprays of CCC+tebuconazole produced maximum grain yield (42.97 q/ha) which was significantly higher than other treatments. This showed that growth retardant in combination with fungicide is more effective rather than alone application. Application of CCC @ 0.2%+tebuconazole @ 0.1 % twice during crop season produced maximum yield attributing parameters and biomass and simultaneously reduced the plant height significantly as compared to other treatments. It is interesting to note that growth retardant application reduced the plant height and at the same time increased the biomass thus indicating stouter stem which ultimately reduces the chances of lodging. Centre wise data are given in Annexure-I as Tables 6.8.1 to 6.8.9.

In Central Zone, this trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur). The data of Powarkheda was rejected due to anomaly in data reporting as the EMS observed during data analysis was zero for some of the characters. A perusal of pooled data of the seven centres presented in Table 6.9 exposed that the highest yield was recorded under the treatment 150%RDF+15t/ha FYM (49.00 q/ha) as compared to all other treatments. The treatments two sprays of two sprays of lihocin+Folicur (Chloremequat chloride at 0.2% + tebuconazole at 0.1%) recorded the highest yield (42.81 q/ha) which was significantly higher than the treatments of two sprays of Chloremequat chloride- lihocin (41.50 q/ha) or tebuconazole-folicur (41.97 q/ha) alone, being at par among themselves were significantly higher than control (no sprays). The yield increment may be due to more earheads/sqm and higher 1000 grains weight. Application of growth retardants reduced plant height significantly as compared to control. Minimum plant height was observed under two sprays of lihocin+folicur (78.33 cm) followed by two sprays of Lihocin (79.69 cm). Lodging was not reported at any centre from the Central zone. The centre wise data are presented in Annexure I as Tables 6.9.1- 6.9.7.

In Peninsular Zone, this trial was conducted at Akola, Dharwad, Niphad, Pune and Ugar Khurd. The data of Akola centre was not considered for pooled analysis due to unrealistic data reporting having low CV and zero EMS. The pooled data of rest of the four centres revealed that among main plot treatments 150% RDF+15 t/ha FYM produced maximum yield (35.16 q/ha) followed by 150% RDF (35.12 q/ha) and both the treatments remained statistically at par (Table 6.10). Among growth retardant treatments two sprays as tank mix

of Lihocin @ 0.2% +tebuconazole (Folicur 430 SC) @ 0.1% produced maximum yield (47.26 q/ha) followed by two sprays of tebuconazole @ 0.1% (46.75 q/ha) and the combination treatment was significantly better compared to all the growth regulator treatments. The centre wise data are presented in Tables 6.10.1 to 6.10.5.

Table 6.9. Central Zone			**SPL-2**	**Pooled**	**2017-18**
	Fertilization				
Growth regulator (GR)	Control	RDF	150% RDF	150% RDF+ FYM	Mean
		Yield, q/ha			
Control	26.94	42.62	44.46	48.21	40.56
2 sprays of CCC (0.2%)	28.50	43.37	45.60	48.53	41.50
2 sprays of tebuconazole (0.1 %)	29.50	43.35	45.81	49.20	41.97
2 sprays of CCC +tebuconazole	30.60	43.69	46.91	50.04	42.81
Mean	28.89	43.26	45.69	49.00	41.71
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	0.84	0.71	NS	NS	
		Earheads/sqm			
Control	286	348	355	364	338
2 sprays of CCC (0.2%)	291	351	364	368	344
2 sprays of tebuconazole (0.1 %)	291	353	364	367	344
2 sprays of CCC +tebuconazole	294	352	363	377	347
Mean	291	351	361	369	343
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	5.49	4.92	NS	NS	
		Grains/Earhead			
Control	24.84	30.98	31.00	32.82	29.91
2 sprays of CCC (0.2%)	25.23	31.47	30.88	31.75	29.83
2 sprays of tebuconazole (0.1 %)	25.78	30.62	30.36	32.28	29.76
2 sprays of CCC +tebuconazole	26.44	31.08	31.83	31.82	30.29
Mean	25.57	31.04	31.02	32.17	29.95
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	0.77	NS	NS	NS	
		1000 Grains Weight, g			
Control	39.30	40.20	41.19	41.39	40.52
2 sprays of CCC (0.2%)	40.27	40.17	41.80	42.91	41.29
2 sprays of tebuconazole (0.1 %)	40.70	40.79	42.44	42.75	41.67
2 sprays of CCC +tebuconazole	40.46	40.95	41.97	42.84	41.55
Mean	40.18	40.53	41.85	42.47	41.26
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	0.69	0.58	NS	NS	
		Plant height, cm			
Control	73.96	83.63	86.35	88.73	83.17
2 sprays of CCC (0.2%)	71.92	80.03	82.04	84.76	79.69
2 sprays of tebuconazole (0.1 %)	73.06	82.53	84.09	87.10	81.70
2 sprays of CCC +tebuconazole	70.62	79.86	80.31	82.53	78.33
Mean	72.39	81.51	83.20	85.78	80.72
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	1.20	0.84	NS	NS	
		Biomass, q/ha			
Control	54	87	92	97	83
2 sprays of CCC (0.2%)	58	88	94	100	85
2 sprays of tebuconazole (0.1 %)	63	90	95	101	87
2 sprays of CCC +tebuconazole	63	93	97	102	89
Mean	60	90	95	100	86
CD (0.05)	Fertiliser (A)	GR (B)	B within A	A within B	
	1.75	1.67	NS	NS	
Centres: Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Udaipur, Vijapur					

Table 6.10. Peninsular Zone	SPL-2		Pooled		2017-18
	Fertilisation				
Growth regulator (GR)	Control	RDF	150% RDF	150%RDF+FYM	Mean
		Yield, q/ha			
Control	35.96	44.98	47.99	48.33	44.32
2 sprays of CCC (0.2%)	39.01	48.04	48.08	49.60	46.18
2 sprays of tebuconazole (0.1 %)	38.76	48.41	49.47	50.36	46.75
2 sprays of CCC +tebuconazole	38.72	49.08	49.98	51.27	47.26
Mean	38.11	47.63	48.88	49.89	46.13
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.67	1.32	NS	NS	
		Earheads/sqm			
Control	288.0	324.3	321.7	321.5	313.9
2 sprays of CCC (0.2%)	305.8	322.0	327.4	344.1	324.8
2 sprays of tebuconazole (0.1 %)	306.5	345.8	339.1	325.9	329.3
2 sprays of CCC +tebuconazole	312.3	337.2	356.2	342.6	337.1
Mean	303.1	332.3	336.1	333.5	326.3
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	5.54	5.96	11.92	11.70	
		Grains/Earhead			
Control	33.19	35.36	36.87	35.91	35.33
2 sprays of CCC (0.2%)	33.34	36.18	35.01	34.06	34.65
2 sprays of tebuconazole (0.1 %)	32.77	34.17	34.85	35.95	34.43
2 sprays of CCC +tebuconazole	33.15	34.03	33.75	34.71	33.91
Mean	33.11	34.94	35.12	35.16	34.58
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.21	NS	NS	NS	
		1000 Grains Weight, g			
Control	38.06	40.94	41.34	43.22	40.89
2 sprays of CCC (0.2%)	39.36	42.46	42.94	43.85	42.15
2 sprays of tebuconazole (0.1 %)	39.76	42.80	43.19	43.70	42.36
2 sprays of CCC +tebuconazole	38.87	44.14	43.19	44.02	42.56
Mean	39.01	42.58	42.66	43.70	41.99
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	0.35	0.70	NS	NS	
		Biomass, q/ha			
Control	80.54	103.37	109.28	108.83	100.50
2 sprays of CCC (0.2%)	84.60	106.35	109.32	109.54	102.45
2 sprays of tebuconazole (0.1 %)	86.25	109.10	113.28	114.37	105.75
2 sprays of CCC +tebuconazole	90.02	111.86	115.45	117.18	108.63
Mean	85.35	107.67	111.83	112.48	104.33
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	2.78	2.24	NS	NS	
		Plant height, cm			
Control	78.7	83.5	83.4	84.7	82.6
2 sprays of CCC (0.2%)	74.4	78.3	79.8	80.9	78.4
2 sprays of tebuconazole (0.1 %)	74.9	81.0	81.2	83.5	80.1
2 sprays of CCC +tebuconazole	70.8	78.6	78.5	79.1	76.8
Mean	74.7	80.3	80.7	82.1	79.5
	Fertiliser (A)	GR (B)	B within A	A within B	
CD (0.05)	1.06	1.05	NS	NS	
Centres: Dharwad, Niphad, Pune, Ugar Khurd					

However, tank mix application of both the growth retardants produced significantly higher yield than Lihocin @ 0.2% alone (46.18 q/ha) and control (44.32 q/ha). The gain in yield might be contributed by higher thousand grain weight and more number of earheads per

square meter. The significantly least plant height was recorded in treatment of 2 sprays of CCC +tebuconazole(76.8 cm) followed by 2 sprays of CCC@ 0.2% (78.4 cm), two sprays of tebuconazole (80.1 cm) and control (82.6 cm). Contrary to the plant height, maximum and significantly higher biomass was recorded in treatment tank mix of CCC +tebuconazole (108.63 q/ha) followed by 2 sprays of tebuconazole (0.1 %)(105.75 q/ha). There is no significant difference was observed in control (100.50 q/ha) and tebuconazole @ 0.2% (102.45 q/ha) as far as biomass production is the concern. Lodging was not reported from any of the centre.

SPL-3: Agronomic management for enhancing Zinc in wheat grain in NHZ

To enhance zinc content in wheat grain in NHZ, a special coordinated trial was conducted in RBD at three locations in NHZ (Bajuara, Khudwani and Malan). There were eight treatments *viz.* no zinc application, soil zinc application (12.5 kg Zinc sulphate/ha), soil zinc application (25.0 kg Zinc sulphate/ha), soil zinc application (37.5 kg Zinc sulphate/ha), foliar zinc application (0.5% $ZnSO_4$ hepta hydrate) at heading and early milk stage (T5), soil zinc application (12.5 kg Zinc sulphate/ha) + T5, soil zinc application (25.0 kg Zinc sulphate/ha) + T5 and soil zinc application (37.5 kg Zinc sulphate/ha) + T5. The wheat variety HPW 349 was used in the experiment. The observations on yield and yield attributes and zinc status in soil, grain and straw were recorded. A perusal of pooled data of the three centres presented in Table 6.11 revealed that there was significant increase in grain yield (44.03 q/ha) under the treatment soil zinc application (37.5 kg Zinc sulphate/ha) + foliar zinc(0.5%) followed by the treatment soil zinc application (25.0 kg Zinc sulphate/ha) + foliar zinc (0.5%) (43.96 q/ha) as compared to no zinc treatment (38.02 q/ha). All the zinc treatments except 12.5 kg/ha $ZnSO_4$ or foliar spray of 0.5% Zinc hepta hydrate were at par. The centre wise tables have been presented in Annexure I as Tables 6.11.1- 6.11.3.

Table 6.11. Northern Hills Zone	**SPL-3**		**Pooled**	**2017-18**
Zinc treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha
No zinc	322	39.97	29.76	38.02
12.5 kg Zinc sulphate/ha	332	41.73	29.25	40.31
25.0 kg Zinc sulphate/ha	344	41.53	29.79	42.44
37.5 kg Zinc sulphate/ha	340	42.37	30.26	43.27
Foliar zinc (0.5% hepta hydrate)	318	40.68	30.50	39.12
12.5 kg Zinc sulphate/ha + Foliar Zn (0.5%)	341	42.24	30.30	43.45
25.0 kg Zinc sulphate/ha + Foliar Zn (0.5%)	346	42.44	30.11	43.96
37.5 kg Zinc sulphate/ha + Foliar Zn (0.5%)	343	42.46	30.39	44.03
CD (0.05)	22.33	1.72	2.48	2.25
Centres: Bajaura, Khudwani, Malan				

SPL-4: Deep placement of fertilisers

This experiment was conducted to utilise the rhizosphere by placing the fertiliser deep in different combinations and comparing with surface application. Treatments were T1: RDF (150:60:30) at surface application, T2: RDF (150:60:30) at deep placement, T3: 75 % RDF at deep placement, T4: 75% of RDF (150:60:30) + Vermicompost @ 2 q/ha – Deep placement, T5: 75% of RDF (150:60:30) + Poultry manure @ 2 q/ha – Deep placement, T6: T4+ PSB/KSB – Deep placement, T7: T5+PSB/KSB– Deep placement and T8: Absolute control. The trial was conducted at Pantnagar in randomized block design by using variety WH 1105 with three replications. The sowing was done using the normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation and weed control measures were followed as per recommended package of practices for the concerned zone.

All the treatments produced significantly higher grain yield, earheads/sqm and thousand grain weight as compared to absolute control where no fertilizer was applied. The surface application of recommended fertilizer (150:60:30) produced at par grain yield and earheads/sqm as compared to different combination of deep placement of fertilizer with vermicompost, poultry manure, PSB, KSB. Though, maximum grain yield (57.00 q/ha) was produced with application of T7 treatments. In nut shell, deep placement of fertilizer was not very encouraging vis a vis current recommended practice of fertilizer application.

Table 6.12. North Western Plains Zone **SPL-4** **Pantnagar** **2017-18**

Treatments	Yield, q/ha	Earheads/ sqm	1000 Grain Weight, g	Grains/ earhead
RDF (150:60:30)– Surface application	54.33	408.0	40.70	33.17
RDF (150:60:30)– Deep placement*	56.23	418.7	41.57	32.37
75% RDF Deep placement	52.43	402.0	43.67	29.89
75% RDF+Vermicompost @ 2 q/ha-Deep placement	53.17	436.7	39.67	30.74
75% RDF+Poultry manure @ 2 q/ha-Deep placement	52.90	425.3	41.70	29.89
T4+ PSB/KSB – Deep placement	55.20	423.0	44.47	29.42
T5+PSB/KSB– Deep placement	57.00	439.0	40.83	31.90
Absolute control	31.03	246.3	33.90	37.63
CD (0.05)	5.41	42.9	3.64	5.99

**Depth of placement was kept at 10-20 cm*

SPL-5: Efficient water management in wheat using micro-irrigation

Water management is a vital step for efficient use of irrigation water. To optimize the water requirement for yield maximisation in wheat, a special coordinated trial was planned and proposed under irrigated timely sown conditions at three locations *i.e.* Durgapura and Karnal in NWPZ, Vijapur in CZ. The experiment was conducted in randomized block design with four replications. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Fertiliser and weed control measures were followed as per recommended package of practices for the zone.

In NWPZ, this trial was conducted at Karnal only. The treatments comprised of seven irrigation treatments involving three irrigation systems namely conventional flood irrigation; drip irrigation and sprinkler irrigation. In flood method of irrigation water was applied at critical stages (CRI, T, JT, BL, M and D). The pooled analysis of two centres is presented in Table 6.13. The result showed that sprinkler irrigations at 60 and 80 % PE and drip irrigation at 60 % PE produced significantly lower grain yield as compared to 6 flood irrigations. This yield reduction was mainly due to significant reduction in earheads/sqm as compared to conventional practice. In general, earheads/sqm was significantly lower in all the sprinkler and drip irrigation schedule as compared to 6 flood irrigations with exception of 100 % PE sprinkler irrigation, which was at par. The drip irrigations at 80 and 100 % PE and sprinkler irrigations at 100 % PE gave statistically similar grain yield as compared to 6 flood irrigation. Highest grain yield (59.48 q/ha) was obtained with drip irrigation at 100 % PE.

Table 6.13. North Western Plain Zone SPL-5 Karnal 2017-18

Treatments	Earheads/ sqm	Grains/ Earhead	1000 Grain Weight, g	Yield, q/ha	Water use, mm
6 irrigations	475	32.03	37.88	57.56	431
Sprinkler irrigation with 60% PE	332	45.01	35.51	52.94	260
Sprinkler irrigation with 80% PE	412	37.77	34.49	53.50	323
Sprinkler irrigation with 100% PE	477	34.33	34.63	56.58	386
Drip irrigation with 60% PE	337	47.29	34.29	54.58	260
Drip irrigation with 80% PE	338	53.43	31.96	57.75	323
Drip irrigation with 100% PE	384	47.10	33.02	59.48	386
CD (0.05).	36.7	3.43	1.00	2.69	

In Central Zone, seven irrigation treatments followed were 60 mm check basin irrigation at critical growth stages (CRI, JT, T, BL, M and D), drip irrigation with 60% PE, drip irrigation with 80% PE, drip irrigation with 100% PE, drip irrigation with 0.8 IW/CPE, drip irrigation with 1.0 IW/CPE and drip irrigation with 1.2 IW/CPE. Sowing was done using seed rate @ 100kg/ha (adjusted considering 1000 grain weight as 38g). Fertilizer was applied as per recommendation (1/3rd N, full P & K as basal and the remaining 2/3rd nitrogen as 1/3rd at CRI and next 1/3rd at Jointing. The perusal of data in Table 6.14 gave the highest yield under drip irrigation with 100% PE (67.13 q/ha) which was significantly higher than other treatments except drip irrigation with 1.2 IW/CPE (60.38 q/ha) and drip irrigation with 80% PE (58.53 q/ha). The highest yield in drip irrigation with 100% PE is due to more earheads/sqm and higher number of grains per earhead. The treatment flood irrigation recorded the lowest yield which was significantly lower than other irrigation treatments (43.38 q/ha). Maximum water use was in 60 mm check basin flood irrigation treatment (420 mm). In drip irrigation at 100% PE, the yield gain of 54.75% along with water saving of 26.4% was recorded as compared to flood irrigation.

Table 6.14. Central Zone	SPL-5				Vijapur	2017-18
Irrigation treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Biomass, q/ha	Yield, q/ha	Water use, mm
Drip at PE 100%	318	44.50	49.44	122	67.13	309
Drip at PE 80%	262	46.03	49.86	130	58.53	259
Drip at PE 60%	269	42.48	45.55	114	52.03	209
Drip at IW/CPE 1.2	265	45.75	49.82	128	60.38	360
Drip at IW/CPE 1.0	269	46.55	44.62	119	55.13	310
Drip at IW/CPE 0.8	247	45.15	47.53	116	52.84	260
Flood irrigation	261	41.90	40.68	106	43.38	420
CD (0.05)	46.49	4.24	11.35	20.51	11.20	

SPL-6: Evaluation of Pusa Hydrogel and herbal Hydrogel on in situ moisture conservation under different irrigation levels in wheat

To improve the water use efficiency and wheat productivity a special coordinated trial was conducted in split plot design with three replications in North Western Plains Zone and Central Zone. The main plots comprised of four irrigation treatments (no irrigation, three irrigations (CRI, LT and GF), six irrigations (CRI, T, JT, BL, F, M) and three irrigations (at 35/40 DAS, 80 DAS and 120 DAS) while the hydrogel treatments (control, Pusa Hydrogel and herbal Hydrogel) were included in sub plots. Fertilizer was applied as per recommendation (1/2 N, full P & K as basal and the remaining 1/2 nitrogen at first irrigation in except in no irrigation treatment where full NPK was applied as basal).

In NWPZ, this experiment was conducted at five locations namely Hisar, Durgapura, Karnal, Ludhiana and Pantnagar. The pooled analysis (Table 6.15) showed that pusa hydrogel (48.96 q/ha) and herbal hydrogel (48.25 q/ha) both produced similar yield which was significantly better than control (46.91 q/ha) treatment. This higher yield was mainly attributed by significantly higher earheads/sqm by both hydrogels as compared to control. Application of six irrigations recorded maximum and significantly higher grain yield (56.81 q/ha) than other treatments. Three irrigations schedules at CRI, LT, GF or 40, 80 and 120 DAS produced at par grain yield but significantly higher than no irrigation. There was no interaction between irrigation level and hydrogel treatments. The centre wise data are presented in Tables 6.15.1 to 6.15.5 in Annexure-I.

In Central Zone, this trial was conducted at Junagarh centre only. The data presented in Table 6.16, illustrated that there is no significant difference between hydrogel treatments and control. Among irrigation treatments, the highest yield was observed under six irrigation treatment (41.07 q/ha) which was statistically higher as compared to other treatments. The yield increment is attributed to more earheads/sqm, higher 1000 grains weight and higher number of grains per earhead.

Table 6.15. North Western Plains Zone SPL-6 Pooled 2017-18

Treatments	Irrigation levels: No Irrigation	CRI, LT, GF	Six Irrigations	40,80,120DAS	Mean
		Yield, q/ha			
Control	34.47	47.65	56.35	49.18	46.91
Pusa hydrogel	37.53	50.37	57.12	50.8	48.96
Herbal hydrogel	36.44	49.67	56.97	49.91	48.25
Mean	36.15	49.23	56.81	49.96	48.04
	Irrigation (A)	Hydrogel (B)	B within A	A within B	
CD (0.05)	1.50	1.11	NS	NS	
		Earheads/sqm			
Control	274	373	388	352	347
Pusa hydrogel	296	376	399	360	358
Herbal hydrogel	288	379	406	350	356
Mean	286	376	398	354	353
	Irrigation (A)	Hydrogel (B)	B within A	A within B	
CD (0.05)	11.01	8.23	NS	NS	
		Grains/Earhead			
Control	38.69	34.29	38.17	36.78	36.98
Pusa hydrogel	36.58	35.96	37.48	36.95	36.74
Herbal hydrogel	36.26	35.65	37.07	37.99	36.74
Mean	37.18	35.3	37.57	37.24	36.82
	Irrigation (A)	Hydrogel (B)	B within A	A within B	
CD (0.05)	1.43	NS	NS	NS	
		1000 Grains Weight, g			
Control	32.69	37.17	38.2	37.4	36.36
Pusa hydrogel	34.55	37.07	38.43	37.97	37.01
Herbal hydrogel	34.47	36.7	38.24	37.33	36.69
Mean	33.9	36.98	38.29	37.56	36.68
	Irrigation (A)	Hydrogel (B)	B within A	A within B	
CD (0.05)	0.95	NS	NS	NS	

Centres: Hisar, Durgapura, Karnal, Ludhiana, Pantnagar

Table 6.16. Central Zone SPL-6 Junagarh 2017-18

Hydrogel Treatments	Irrigation levels: No irrigation	CRI, LT, GF	Six irrigations	40,80,120	Mean
		Yield, q/ha			
Control	13.25	23.46	40.79	24.73	25.56
Pusa hydrogel	11.94	24.42	41.56	24.97	25.72
Herbal hydrogel	12.28	22.48	40.87	24.38	25.00
Mean	12.49	23.45	41.07	24.70	25.43
CD (0.05)	Irrigation (A)	Hydrogel (B)	B within A	A within B	
	1.26	NS	NS	NS	
		Earheads/sqm			
Control	228	271	349	302	288
Pusa hydrogel	213	255	354	278	275
Herbal hydrogel	221	272	343	274	278
Mean	221	266	349	285	280
CD (0.05)	Irrigation (A)	Hydrogel (B)	B within A	A within B	
	18.28	9.42	NS	NS	
		Grains/Earhead			
Control	19.25	26.63	30.77	22.93	24.90
Pusa hydrogel	18.04	29.60	30.53	24.18	25.59
Herbal hydrogel	17.31	25.72	30.87	24.42	24.58
Mean	18.20	27.31	30.72	23.85	25.02
CD (0.05)	Irrigation (A)	Hydrogel (B)	B within A	A within B	
	2.86	NS	NS	NS	
		1000 Grains Weight, g			
Control	30.20	32.60	38.13	35.73	34.17
Pusa hydrogel	31.20	32.50	38.60	37.23	34.88
Herbal hydrogel	32.27	32.07	38.57	36.50	34.85
Mean	31.22	32.39	38.43	36.49	34.63
CD (0.05)	Irrigation (A)	Hydrogel (B)	B within A	A within B	
	1.12	NS	NS	NS	

In Peninsular Zone, the trial was conducted only at Pune centre. The data presented in Table 6.17 illustrated no significant effect of hydrogel on yield and yield attributes except earhead density. Among irrigation treatments maximum and significantly higher yield was recorded in treatment of six irrigations at critical growth stages (49.60 q/ha) followed by three irrigations at CRI, late tillering and grain filling stages (23.35 q/ha). The lowest grain yield was recorded in no irrigation treatment having a mean yield of 16.53 q/ha. The gain in yield was contributed by higher number of earheads/sqm, grains/earhead and higher 1000 grain weights.

Table 6.17. Peninsular Zone **SPL-6** **Pune** **2017-18**

	Irrigation Treatments				
Hydrogel	No irrigation	CRI, LT, GF	Six irrigations	40,80,120	Mean
			Yield, q/ha		
Control	16.68	24.44	51.35	28.98	30.36
Pusa hydrogel	16.74	18.75	52.45	34.67	30.65
Herbal hydrogel	16.18	26.85	45.01	30.63	29.67
Mean	16.53	23.35	49.60	31.43	30.23
CD (0.05)	Irrigations (A)	Hydrogel (B)	B within A	A within B	
	1.47	NS	3.23	2.91	
			Earheads/sqm		
Control	288.33	321.67	360.00	316.67	321.67
Pusa hydrogel	308.33	351.67	353.33	358.33	342.92
Herbal hydrogel	350.00	313.33	353.33	345.00	340.42
Mean	315.56	328.89	355.56	340.00	335.00
CD (0.05)	Irrigations (A)	Hydrogel (B)	B within A	A within B	
	NS	14.21	28.42	32.51	
			Grains/earhead		
Control	15.02	19.40	33.44	22.02	22.47
Pusa hydrogel	13.87	15.26	36.59	22.17	21.97
Herbal hydrogel	11.37	23.83	31.34	20.57	21.78
Mean	13.42	19.50	33.79	21.59	22.07
CD (0.05)	Irrigations (A)	Hydrogel (B)	B within A	A within B	
	2.67	NS	2.18	2.87	
			1000 Grains Weight, g		
Control	38.67	39.33	42.67	41.67	40.58
Pusa hydrogel	39.33	35.00	40.67	43.67	39.67
Herbal hydrogel	40.67	36.00	40.67	43.33	40.17
Mean	39.56	36.78	41.33	42.89	40.14
CD (0.05)	Irrigations (A)	Hydrogel (B)	B within A	A within B	
	1.26	NS	1.79	1.80	

SPL-7: Yield maximization in *dicoccum* wheat through spacing and seed rates

This trial was conducted in split plot design to evaluate the effect of spacing and seed rates on productivity of dicoccum wheat at four locations in PZ (Akola, Dharwad, Niphad and Pune). The main plots comprised three line spacing treatments (15, 20 and 25 cm) and whereas sub plot included three seed rate treatments (75, 100. 125 kg/ha). NPK was applied in the ratio of 120:40:60 (1/3rd N, full P & K as basal and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and next 1/3rd at second irrigation.

The pooled analysis data of three centres are presented in Table 6.18. The data from Akola centre were not considered for pooled analysis due to high CV. A perusal of pooled data revealed that among various seed rates there were no significant differences in grain yield and yield attributes, whereas, significant differences were observed for line spacing treatments. The highest yield was obtained in line sowing at 20 cm with seed rate of 100 kg/ha (47.02 q/ha) followed by 20 cm line spacing with seed rate of 125 kg/ha (44.97 q/ha) and remained at par. The increment in yield may be attributed to higher 1000 grains weight. The 15 and 25 line spacing recorded significantly lower yields compared to 20 cm row spacing. The centre wise data are presented in Annexure-I as Tables 6.18.1- 6.18.4.

Table 6.18.Penninsular Zone **SPL-7** **Pooled** **2017-18**

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
			Yield, q/ha					
75 kg/ha	41.29	2	43.87	3	44.15	2	43.10	3
100 kg/ha	40.96	3	47.02	1	44.87	1	44.28	1
125 kg/ha	42.49	1	44.97	2	42.56	3	43.34	2
Mean	41.58		45.29		43.86		43.58	
	Spacing (A)		Seed rate (B)		B within A		A within B	
CD (0.05)	1.23		NS		NS		NS	
			Earheads/sqm					
75 kg/ha	426	3	392	1	362	1	393	1
100 kg/ha	429	1	384	2	347	3	387	2
125 kg/ha	427	2	380	3	350	2	386	3
Mean	427		386		353		389	
	Spacing (A)		Seed rate (B)		B within A		A within B	
CD (0.05)	8.15		NS		NS		NS	
			Grains/Earhead					
75 kg/ha	27.42	3	28.91	3	33.18	2	29.84	3
100 kg/ha	28.05	2	31.67	1	34.45	1	31.39	1
125 kg/ha	28.57	1	31.53	2	30.75	3	30.28	2
Mean	28.01		30.71		32.80		30.50	
	Spacing (A)		Seed rate (B)		B within A		A within B	
CD (0.05)	1.14		NS		NS		NS	
			1000 grains weight, g					
75 kg/ha	39.66	1	40.94	1	38.66	3	39.75	2
100 kg/ha	38.94	2	40.41	2	38.92	2	39.42	3
125 kg/ha	38.90	3	39.57	3	40.97	1	39.82	1
Mean	39.17		40.31		39.52		39.66	
	Spacing (A)		Seed rate (B)		B within A		A within B	
CD (0.05)	0.71		NS		1.56		1.45	

Centres: Dharwad, Niphad, Pune

SPL-8 Precision nitrogen management in irrigated wheat using NDVI sensor

This experiment was conducted to improve nitrogen use efficiency in wheat by need based application at Coochbehar and Ranchi centres in NEPZ and Dharwad, Niphad and Pune in PZ. The experiment was conducted in randomized block design consisting of eight treatment viz. Absolute Control, 75 kg N/ha basal 37.5 kg N/ha each at CRI and tillering, 60 kg N/ha basal 30 kg N/ha each at CRI and tillering, 30 kg N/ha basal+30 kg N/ha CRI and rest using

Green Seeker twice at 40-45 DAS and 60-65 DAS, 30 kg N/ha basal +60 kg N/ha CRI and rest using Green Seeker twice at 40-45 DAS and 60-65 DAS, ½ N as basal and ½ at CRI, 1/3rd N as basal, 1/3rd at CRI and 1/3rd at first node stage (around 45 days after seeding) and Rich Plot-90 kg N/ha basal+90 at CRI which was replicated thrice. The sowing was done using the normalized seed rate @ 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation and weed control measures were followed as per recommended package of practices for the zone.

The pooled analysis of data from two locations of North Eastern Plains Zone (Table 6.19) revealed significant effect of precision nitrogen management on grain yield. The maximum yield was recorded for the treatment 30 kg N/ha basal +60 kg N/ha CRI and rest using Green Seeker twice at 40-45 DAS and 60-65 DAS (52.48 q/ha) followed by Rich Plot-90 kg N/ha basal+90 at CRI (50.34 q/ha) and both treatments remained statistically at par. Centre wise data are given in Annexure I as Tables 6.19.1 to 6.19.2.

Table 6.19 North Eastern Plain Zone SPL-8 Pooled 2017-18

Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha
Absolute Control	190	32.22	31.73	18.87
75 kg basal +37.5 kg N/ha at CRI and Tillering	312	39.91	39.17	47.55
60 kg basal +30 kg N/ha at CRI and Tillering	293	39.66	37.58	41.56
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	302	40.81	39.80	47.32
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	318	42.69	40.05	52.48
½ N basal and ½ at CRI	289	40.53	38.10	43.18
1/3rd N basal+1/3rd CRI +1/3rd First Node	299	39.84	38.04	43.53
Rich Plot-90 kg N/ha basal+90 at CRI	309	41.80	40.04	50.34
CD (0.05)	39.4	1.51	5.43	3.32

Centres: Coochbehar, Ranchi

In Peninsular zone, out of the three locations viz. Dharwad, Niphad and Pune, the data of Niphad was rejected due to improper conduct of trial as the GreenSeeker treatment was not imposed. The pooled data analysis was done using data supplied by Dharwad and Pune which are presented in Table 6.20. A perusal of data revealed that there was significant difference in grain yield and yield attributes due to different N application treatments. The highest yield was obtained in N Rich Plot having 90 kg N/ha basal+90 kg/ha at CRI (53.37 q/ha) followed by 30 kg N/ha basal+60 kg N/ha CRI + 19 kg N/ha using Green Seeker (51.39 q/ha). In comparison to N rich plots all treatments except 30 kg N/ha basal+60 kg N/ha CRI + 19 kg N/ha using Green Seeker, 30 kg N/ha basal+30 kg N/ha CRI + 73 kg N/ha using Green Seeker and 75 kg basal+37.5 kg each at CRI and Tillering recorded significantly

lower yields. The increment in yield may be attributed to better yield attributes as well as biomass. The centre wise data are presented in Annexure-I as Tables 6.20.1 to 6.20.3.

Table 6.20. Peninsular Zone	**SPL-8**		**Pooled**	**2017-18**		
Nitrogen treatments	Earheads/ sqm	1000 Grains Wt., g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Nitrogen Kg/ha
Absolute Control	270	41.59	31.32	34.92	86	0
75 kg basal+37.5 kg at CRI and T	333	42.45	36.89	50.96	130	150
60 kg basa +30 kg at CRI and T	314	41.30	37.20	47.30	122	120
30 kg basal+30 CRI+GS at 40-45 & 60-65 DAS	338	43.17	36.02	51.27	128	109
30 basal+60 CRI+GS at 40-45 & 60-65 DAS	330	42.65	37.13	51.39	127	133
½ N basal and ½ at CRI	325	40.94	36.30	47.27	120	120
1/3rd N basal, 1/3rd CRI and 1/3rd FN	342	41.92	34.75	47.19	122	120
Rich Plot-90 kg N/ha basal+90 at CRI	363	43.71	35.15	53.37	132	180
CD (0.05)	11.97	NS	2.29	2.80	8.73	
Centres: Dharwad, Pune						

SPL-9 Performance of varieties at different dates of sowing under changing climate

In this trial, six varieties (HS 562, HD 2967, HD 3086, HI1544, MACS 6222 and WR 544) were evaluated at different sowing time from 05th November to 05th January in split plot design in all the five wheat growing zones. Main plots comprised sowing time and sub plots comprised varieties replicated thrice. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Fertiliser, irrigation and weed control measures were followed as per recommended package of practices for the respective zone.

In NHZ, the trial was conducted at two centres (Bajaura and Malan). The centre wise data are given in Annexure-I as Tables 6.21.1 to 6.21.2. The pooled analysis (Table 6.21) revealed that 5th November sown wheat produced the maximum (41.38 q/ha) and significantly higher yield as compared to other dates of sowing. The yield increment was due to more earheads/sqm and higher number of grains per earhead. The delay in wheat sowing from 5th November to 05th January decreased grain yield significantly from 41.38 q/ha to 19.80 q/ha. The percent decline in wheat yield was 52.2%. On mean basis across sowing time, variety HS 562 produced the maximum and significantly higher yield (37.46 q/ha) followed by HD 3086 (32.25 q/ha) and MACS 6222 (32.18 q/ha). The genotypes HD 3086 and MACS 6222 were found at par.

In NWPZ, this trial was conducted at 8 locations (Agra, Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana, Pantnagar). The centre wise data are given in Annexure-I as Tables 6.22.1 to 6.22.8. The pooled analysis (Table 6.22) showed that 5th November sowing produced the maximum and significantly higher grain yield (50.01 q/ha) than all other sowing

dates. There was significant successive reduction in grain yield with each 20 days delay in sowing. This yield reduction was 8.3, 25.9, 43.3% as sowing was delayed to 25th November, 15th December and 5th January, respectively as compared to 5th November sowing. The yield reduction was mainly due to significant reduction in 1000 grain weight and grains/Earhead with successive delay in sowing time. The earheads/sqm started declining significantly from 15th December onwards. Variety HS 562 produced the maximum grain yield (41.74 q/ha) followed by HD 2967 (41.71 q/ha) followed by and lowest by WR 544 (36.99 q/ha).

Table 6.21. Northern Hills Zone SPL-9 Pooled 2017-18

	Sowing time									
Varieties	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	50.22	1	42.16	1	33.29	1	24.18	1	37.46	1
HD 2967	41.51	4	35.29	4	28.99	3	20.89	2	31.67	4
HD 3086	44.72	2	36.88	3	28.24	4	19.14	4	32.25	2
HI1544	36.57	5	29.40	6	26.42	5	17.27	6	27.41	5
MACS 6222	42.09	3	37.55	2	31.21	2	17.87	5	32.18	3
WR 544	33.19	6	30.22	5	25.16	6	19.41	3	27.00	6
Mean	41.38		35.25		28.89		19.80		31.33	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.49		1.01		2.03		2.36			
			Earheads/sqm							
HS 562	335	1	323	1	318	1	264	1	310	1
HD 2967	314	4	316	2	287	4	231	2	287	2
HD 3086	320	3	287	6	293	3	216	4	279	4
HI1544	327	2	305	3	300	2	211	6	286	3
MACS 6222	294	6	287	5	285	5	214	5	270	6
WR 544	304	5	293	4	270	6	227	3	273	5
Mean	316		302		292		227		284	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	14.77		10.08		20.17		23.44			
			Grains/Earhead							
HS 562	31.15	2	29.95	1	23.86	2	21.96	4	26.73	1
HD 2967	28.80	3	26.20	4	22.84	4	23.70	1	25.39	3
HD 3086	28.77	4	27.41	3	20.87	6	20.81	5	24.47	4
HI1544	24.36	6	21.73	6	23.66	3	22.31	3	23.02	6
MACS 6222	31.33	1	27.82	2	25.11	1	20.36	6	26.15	2
WR 544	25.02	5	23.05	5	22.69	5	22.97	2	23.43	5
Mean	28.24		26.03		23.17		22.02		24.86	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	2.70		1.55		3.10		3.88			
			1000 Grain Weight, g							
HS 562	48.41	2	45.63	4	44.05	4	41.93	2	45.01	2
HD 2967	46.41	3	44.33	6	45.07	2	40.36	6	44.04	4
HD 3086	48.79	1	47.07	1	46.97	1	44.15	1	46.75	1
HI1544	46.38	4	46.28	3	38.98	6	40.76	4	43.10	5
MACS 6222	45.65	5	46.87	2	44.43	3	41.14	3	44.52	3
WR 544	44.24	6	45.25	5	41.41	5	40.60	5	42.88	6
Mean	46.65		45.91		43.49		41.49		44.38	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.46		1.15		2.30		2.54			

Centres: Bajaura, Malan

Table 6.22. North Western Plains Zone SPL-9 Pooled 2017-18

	Date of sowing									
Varieties	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
				Yield, q/ha						
HS 562	51.68	2	47.03	2	38.94	1	29.31	1	41.74	1
HD 2967	52.62	1	47.19	1	38.20	2	28.85	2	41.71	2
HD 3086	51.44	3	45.44	4	37.92	3	27.06	6	40.47	4
HI 1544	51.02	4	46.57	3	37.68	4	28.01	5	40.82	3
MACS 6222	50.79	5	45.26	5	36.45	5	28.33	4	40.21	5
WR 544	42.49	6	43.66	6	33.16	6	28.67	3	36.99	6
Mean	50.01		45.86		37.06		28.37		40.32	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.06		0.66		1.31		NS			
				Earheads/sqm						
HS 562	410	2	420	1	387	1	323	2	385	1
HD 2967	400	3	383	5	376	3	333	1	373	3
HD 3086	392	4	383	6	372	4	317	4	366	4
HI 1544	414	1	401	2	384	2	321	3	380	2
MACS 6222	377	6	389	4	353	6	313	6	358	6
WR 544	383	5	397	3	363	5	317	5	365	5
Mean	396		396		373		321		371	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	10.23		6.43		12.85		NS			
				Grains/Earhead						
HS 562	32.58	4	29.72	5	28.94	2	29.39	1	30.15	4
HD 2967	33.73	3	33.42	1	28.66	3	27.12	4	30.73	2
HD 3086	34.26	2	33.04	2	28.46	4	25.80	6	30.39	3
HI 1544	31.21	5	31.94	3	28.36	5	27.79	3	29.82	5
MACS 6222	35.56	1	30.32	4	29.77	1	28.91	2	31.14	1
WR 544	29.13	6	28.93	6	26.32	6	27.07	5	27.86	6
Mean	32.75		31.23		28.42		27.68		30.02	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.20		0.84		1.67		NS			
				1000 Grains Weight, g						
HS 562	39.14	4	37.86	3	35.43	5	31.76	6	36.05	6
HD 2967	39.50	2	37.28	4	35.65	3	32.88	2	36.33	2
HD 3086	39.06	5	36.56	6	36.00	1	32.59	3	36.05	5
HI 1544	40.00	1	37.22	5	35.15	6	32.45	4	36.20	4
MACS 6222	38.11	6	38.75	2	35.56	4	32.43	5	36.21	3
WR 544	39.30	3	38.79	1	35.73	2	33.88	1	36.92	1
Mean	39.18		37.74		35.59		32.66		36.29	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.70		0.43		0.86		NS			

Centres: Agra, Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana, Pantnagar

In NEPZ, this trial was conducted at ten centres (Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani and Varanasi). All the recommended package of practices was followed. The centre wise data are given in Annexure-I as Tables 6.23.1 to 6.23.10. Pooled analysis (Table 6.23) of ten locations revealed that 25th November sown wheat produced the maximum (42.17 q/ha) which was significantly superior to other dates of sowing. The delay in wheat sowing from 25th November to 05th January decreased grain yield by 36.12 percent, whereas the reduction in yield was 14.70 percent in 15th December. On mean basis across sowing time, variety HD 2967 produced the maximum and significantly higher yield (38.08 q/ha) followed by MACS 6222 (37.55 q/ha) and HI 1544 (36.42 q/ha).

Table 6.23. North Eastern Plains Zone					SPL-9		Pooled		2017-18	
	Sowing time									
Varieties	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	41.62	3	41.97	4	35.51	6	25.74	5	36.21	4
HD 2967	44.05	1	45.13	1	35.58	5	27.58	3	38.08	1
HD 3086	41.92	2	42.12	3	35.64	4	24.82	6	36.12	5
HI1544	41.18	5	41.96	5	36.08	2	26.48	4	36.42	3
MACS 6222	41.44	4	43.97	2	37.04	1	27.74	2	37.55	2
WR 544	35.99	6	37.88	6	35.96	3	29.26	1	34.77	6
Mean	41.03		42.17		35.97		26.94		36.53	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.74		0.49		0.98		1.16			
					Earheads/sqm					
HS 562	285	2	312	2	283	3	246	3	281	3
HD 2967	298	1	317	1	275	5	245	4	284	2
HD 3086	284	3	300	3	270	6	236	5	273	6
HI1544	284	5	297	4	306	1	250	2	284	1
MACS 6222	284	4	297	5	282	4	235	6	275	5
WR 544	271	6	290	6	288	2	252	1	275	4
Mean	284		302		284		244		279	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	8.10		6.29		12.58		14.04			
					Grains/Earhead					
HS 562	38.67	1	36.86	2	36.80	1	32.10	3	36.11	1
HD 2967	36.11	5	35.86	4	36.09	2	32.17	2	35.06	3
HD 3086	36.69	2	36.59	3	35.35	4	29.68	6	34.58	4
HI1544	36.37	4	35.06	5	32.66	6	31.45	5	33.89	5
MACS 6222	36.40	3	37.45	1	35.39	3	34.10	1	35.83	2
WR 544	33.43	6	33.09	6	32.87	5	32.04	4	32.86	6
Mean	36.28		35.82		34.86		31.92		34.72	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.92		0.80		1.60		1.72			
					1000 Grains Weight, g					
HS 562	39.77	6	38.51	6	35.59	6	33.78	6	36.91	6
HD 2967	42.60	1	41.38	2	37.53	5	35.80	4	39.33	5
HD 3086	42.24	2	40.12	5	39.35	3	36.31	2	39.50	2
HI1544	41.44	5	41.46	1	39.75	1	34.93	5	39.39	3
MACS 6222	41.94	3	40.64	3	38.97	4	36.02	3	39.39	4
WR 544	41.45	4	40.45	4	39.42	2	37.99	1	39.83	1
Mean	41.57		40.43		38.43		35.81		39.06	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.72		0.55		1.10		1.23			

Centres: Burdwan, Coochbehar, Faizabad, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani, Varanasi

In Central Zone, this trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur) with the objective of quantifying the yield losses due to delayed sowing. The data of Powarkheda was rejected due to anomaly in data reporting as the EMS observed during data analysis was zero for some of the characters. The centre wise data are given in Annexure-I as Tables 6.24.1 to 6.24.7. The Pooled analysis presented in Table 6.24 showed that 5th November sowing produced maximum and significantly higher grain yield (44.92 q/ha) than all other sowing dates. There was significant successive reduction in grain yield with each 20 days delay in sowing. This

yield reduction was 3.85, 19.30 and 41.70% as sowing was delayed to 25th November, 15th December and 5th January, respectively, as compared to 5th November sowing. The yield reduction was mainly due to significant reduction in earhead density and thousand grain weight with successive delay in sowing time. The earheads/sqm was started declining significantly from 25th November on ward sowing. Variety HI 1544 produced maximum grain yield (39.68 q/ha) followed by MACS 6222 (39.57 q/ha) and the lowest by WR 544 (34.94 q/ha).

Table 6.24. Central Zone **SPL-9** **Pooled** **2017-18**

	Sowing time									
Varieties	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	46.09	4	42.63	5	34.61	5	25.54	4	37.22	4
HD 2967	48.17	1	42.76	4	35.21	3	25.30	5	37.86	3
HD 3086	43.56	5	43.36	3	35.14	4	24.19	6	36.56	5
HI1544	46.52	3	45.21	1	38.70	2	28.30	1	39.68	1
MACS 6222	47.25	2	44.45	2	39.24	1	27.32	2	39.57	2
WR 544	37.91	6	40.74	6	34.60	6	26.49	3	34.94	6
Mean	44.92		43.19		36.25		26.19		37.64	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.98		0.62		1.23		1.49			
					Earheads/sqm					
HS 562	366	2	362	2	331	1	287	1	337	1
HD 2967	362	3	343	4	317	5	255	6	320	4
HD 3086	361	4	349	3	328	3	257	5	324	3
HI1544	377	1	368	1	329	2	272	2	336	2
MACS 6222	343	5	331	6	319	4	258	4	313	5
WR 544	338	6	340	5	305	6	261	3	311	6
Mean	358		349		322		265		323	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	7.60		4.21		8.42		10.79			
					Grains/Earhead					
HS 562	31.47	3	33.21	2	31.06	3	30.28	1	31.50	3
HD 2967	32.71	1	32.94	3	31.98	2	29.51	3	31.79	2
HD 3086	28.08	4	31.02	4	29.31	6	26.57	6	28.74	5
HI1544	27.63	5	28.54	6	29.61	5	28.38	5	28.54	6
MACS 6222	32.33	2	34.11	1	33.04	1	29.36	4	32.21	1
WR 544	25.81	6	29.54	5	30.58	4	30.13	2	29.02	4
Mean	29.67		31.56		30.93		29.04		30.30	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.94		0.74		1.48		1.64			
					1000 Grains Weight, g					
HS 562	41.25	6	36.21	6	33.81	6	31.20	6	35.62	6
HD 2967	41.59	5	38.23	5	33.83	5	32.96	5	36.65	5
HD 3086	43.83	4	41.21	3	35.99	4	34.51	4	38.88	4
HI1544	46.02	1	43.66	1	39.96	1	36.40	1	41.51	1
MACS 6222	44.35	2	40.11	4	37.71	2	35.85	2	39.50	3
WR 544	44.08	3	42.00	2	37.52	3	34.76	3	39.59	2
Mean	43.52		40.24		36.47		34.28		38.63	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.70		0.46		0.92		1.09			

Centres: Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Udaipur, Vijapur

In Peninsular Zone, the trial was conducted at four centres (Akola, Dharwad, Niphad, Pune). For pooled analysis Akola centre data were not considered due to unrealistic data and three centres pooled data are presented in Table 6.25. A perusal of data revealed that there was significant difference in grain yield and yield attributes among the varieties, sowing time and their interactions. The highest yield was obtained in the 5th Nov sowing time and yield declined with delay in sowing. The yield decline was due to reduction in the yield attributes. The minimum yield was recorded in 5th January sowing. Among varieties, the top yielder was HI 1544 with an average yield of 37.87 q/ha and it followed by MACS (37.59 q/ha) and HD 2967 (36.44 q/ha). The better yield may be attributed to better yield attributes (earhead numbers, grains/earhead and 1000 grains weight).The centre wise data are presented in Annexure-I as Tables 6.25.1 to 6.25.4.

Table 6.25. Peninsular Zone SPL-9 Pooled 2017-18

	Sowing Time									
Varieties	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	46.74	2	39.84	5	32.87	4	22.88	5	35.58	4
HD 2967	46.49	3	41.35	3	34.42	2	23.50	3	36.44	3
HD 3086	42.97	5	38.88	6	29.66	6	22.26	6	33.44	6
HI1544	45.69	4	43.18	1	36.06	1	26.56	2	37.87	1
MACS 6222	46.76	1	42.59	2	34.36	3	26.65	1	37.59	2
WR 544	39.21	6	40.98	4	32.39	5	23.38	4	33.99	5
Mean	44.64		41.14		33.29		24.21		35.82	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.50		1.12		2.25		2.53			
					Earheads/sqm					
HS 562	348.44	2	333.33	3	328.11	3	325.22	3	333.78	2
HD 2967	336.56	5	323.11	5	317.56	5	320.44	5	324.42	5
HD 3086	332.67	6	327.00	4	331.67	2	334.44	1	331.44	4
HI1544	342.11	4	345.89	1	354.22	1	331.00	2	343.31	1
MACS 6222	347.00	3	336.89	2	323.22	4	323.22	4	332.58	3
WR 544	349.11	1	322.56	6	301.89	6	306.67	6	320.06	6
Mean	342.65		331.46		326.11		323.50		330.93	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	10.17		8.55		17.09		18.56			
					Grains/Earhead					
HS 562	32.39	2	31.41	2	29.81	4	21.88	4	28.87	4
HD 2967	33.56	1	35.30	1	30.36	2	21.69	5	30.23	1
HD 3086	32.37	3	31.37	3	25.50	6	19.49	6	27.18	6
HI1544	31.72	5	31.36	4	29.45	5	23.34	3	28.97	3
MACS 6222	32.20	4	31.05	6	29.94	3	23.96	1	29.29	2
WR 544	28.99	6	31.13	5	30.97	1	23.37	2	28.62	5
Mean	31.87		31.94		29.34		22.29		28.86	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	1.34		1.10		2.20		2.41			
					1000 Grains Weight, g					
HS 562	42.93	4	39.55	5	35.63	6	34.45	5	38.14	5
HD 2967	42.94	3	38.11	6	37.52	2	36.26	2	38.71	4
HD 3086	41.05	6	39.69	4	36.10	5	35.45	4	38.07	6
HI1544	43.81	1	41.42	3	36.54	4	35.86	3	39.41	2
MACS 6222	43.57	2	42.15	2	37.16	3	36.28	1	39.79	1
WR 544	41.41	5	42.22	1	37.68	1	34.33	6	38.91	3
Mean	42.62		40.52		36.77		35.44		38.84	
	Sowing (A)		Variety (B)		B within A		A within B			
CD (0.05)	0.44		0.67		1.34		1.30			

Centres: Dharwad, Niphad, Pune

SPL-10: Precision nutrient management and validation of Nutrient Expert in wheat

This experiment was conducted with seven fertiliser treatments *viz*. control, Recommended Dose of Fertilizers (RDF), 150% RDF, 150% PK, 150% NK, 150% NP and nutrient expert in RBD at three locations (Almora, Bajaura and Malan) in NHZ, four location in NWPZ (Hisar, Karnal, Ludhiana, Pantnagar), one location each in NEPZ (Varanasi), CZ (Udiapur) and PZ (Dharwad). The conventional sowing was done using the normalized seed rate @ 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Weed control and irrigation measures were followed as per recommended package of practices for the zone.

For NHZ, the centre wise data are presented as Tables 6.26.1 to 6.26.3 in Annexure-I. The pooled data analysis (Table 6.26) showed that 150% RDF recorded maximum grain yield (49.44 q/ha) which was followed by Nutrient expert treatment (46.80 q/ha) and both the treatments were found at par. The 150% RDF application produced almost 17.1% higher grain yield than recommended dose of fertilizer (RDF) application. The 150% PK application produced 18.10 q/ha yield indicating that omission of phosphorous and potash had marginal effect on productivity but the omission of only nitrogen drastically reduced the productivity. Therefore, it could be inferred that the major response was due to nitrogen application alone.

Table 6.26. Northern Hills Zone SPL-10 Pooled 2017-18

Treatments	Earheads/ sqm	Grain/ Earhead	1000 Grains Weight, g	Biomass , q/ha	Nitrogen, kg/ha	Phosphorus, kg/ha	Potash, kg/ha	Yield, q/ha
Control	251	14.82	42.69	39	0	0	0	15.71
RDF	339	27.53	45.70	106	120	60	30	42.23
150% RDF	366	29.03	47.36	119	180	90	45	49.44
150% PK	272	15.23	43.97	45	0	90	45	18.10
150% NK	358	26.58	45.98	107	180	0	45	43.37
150% NP	359	27.81	45.98	108	180	90	0	45.59
Nutrient Expert	374	27.35	46.49	115	150	55	72	46.80
CD (0.05)	24.23	2.01	2.07	7.56				3.28

Centres: Almora, Bajaura, Malan

In NWPZ, this experiment was conducted at four locations namely Hisar, Karnal, Ludhiana and Pantnagar. The pooled analysis data (Table 6.27) revealed that 150 % RDF recorded the highest grain yield (52.63 q/ha) and was at par with recommended fertilizer, 150 % NK and nutrient expert treatments. The 150% RDF application produced almost 3.6% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was

recorded in control treatment (25.27 q/ha) and 150% PK application (28.50 q/ha), both producing the lowest at par yield. Therefore, it could be said that major response was due to N application only. The centre wise performance is given in Tables 6.27.1 to 6.27.4 in Annexure-I.

Table 6.27. North Western Plains Zone SPL-10 Pooled 2017-18

Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Biomass, q/ha	Nitrogen, kg/ha	Phosphorus, kg/ha	Potash, kg/ha	Yield, q/ha
Control	237	38.30	27.51	65.85	0	0	0	25.27
Rec. NPK	392	38.24	34.71	128.16	150	60	40	50.81
150% NPK	412	38.15	34.05	134.82	225	90	60	52.63
150% PK	263	39.08	27.18	71.51	0	90	60	28.50
150% NK	399	36.71	33.88	129.54	225	0	60	48.74
150% NP	411	37.29	32.01	125.88	225	90	0	47.45
Nutrient Expert	399	37.36	33.82	127.45	171	68	77	49.57
CD (0.05)	40.28	2.70	6.21	4.78				4.65

Centres: Hisar, Karnal, Ludhiana, Pantnagar

In NEPZ, this experiment was conducted at Varanasi centre only. The data presented in Table 6.28 revealed that 150% RDF recorded maximum and significantly higher grain yield (52.70 q/ha). This was followed by Nutrient expert treatment. The 150% RDF application produced almost 3.21% higher grain yield than recommended dose of fertiliser (RDF) application. Therefore, it could be inferred that the response was only due to N application only.

Table 6.28. North Eastern Plains Zone SPL-10 Varanasi 2017-18

Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Biomass, q/ha	Nitrogen, kg/ha	Phosphorus, kg/ha	Potash, kg/ha	Yield, q/ha
Control	231	38.85	19.42	46.24	0	0	0	17.40
Rec. NPK	399	36.32	35.35	125.46	120	60	40	51.06
150 % RDF	408	35.34	36.55	148.24	180	90	60	52.70
150 % PK	263	39.89	25.56	76.50	0	90	60	26.78
150 % NK	411	35.45	34.80	131.24	180	0	60	50.70
150 % NP	404	33.43	35.51	130.56	180	90	0	47.93
Nutrient Expert	414	36.13	34.32	131.92	135	60	80	51.17
CD (0.05)	24.25	1.03	3.07	17.09				0.92

Date of Sowing: 22.11.2017 Date of Harvesting: 06.04.2018

In Central Zone, the trial was conducted at Udaipur centre only. The highest yield of 50.18 q/ha was obtained in treatment where fertiliser application was done using Nutrient expert (Table 6.29) followed by 150% RDF (49.61 q/ha). Almost all yield attributing factors

contributed to enhanced yield. The Nutrient expert treatment also recorded the highest biomass (127.50 q/ha) as compared to other fertilizer treatments.

Table 6.29. Central Zone SPL-10 Udaipur 2017-18

Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Biomass, q/ha	Nitrogen, kg/ha	Phosphorus, kg/ha	Potash, kg/ha	Yield, q/ha
Control	390	39.33	23.83	92	0	0	0	36.55
Rec. NPK	408	42.61	25.82	117	120	60	40	44.37
150 % RDF	422	44.32	26.72	128	180	90	60	49.61
150 % PK	400	42.59	26.69	120	0	90	60	45.36
150 % NK	410	43.62	25.89	122	180	0	60	46.51
150 % NP	413	44.00	26.98	122	180	90	0	49.03
Nutrient expert	425	45.38	26.03	128	170	66	76	50.18
CD (0.05)	35.09	2.02	6.73	16.57				9.79
Date of Sowing: 13.11.2017					Date of Harvesting: 03.04.2018			

At Dharwad centre in Peninsular Zone, the highest yield was obtained under 150% of RDF with a yield level of 45.77 q/ha (Table 6.30) followed by Nutrient Expert treatment (42.57 q/ha) and recommended dose of NPK (41.42 q/ha). The yield under Nutrient Expert treatment was statistically similar to 150% Rec. NPK. However, Rec NPK recorded significantly lesser yield compared to 150% Rec. NPK. Earhead per square meter and thousand grain weight contributed to enhanced yield. In the absence of nitrogen, the least number of earheads/sqm were produced. The yield obtained in nutrient expert treatment was much below the targeted yield of 6 t/ha.

Table 6.30. Peninsular Zone SPL 10 Dharwad 2017-18

Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Nitrogen kg/ha	Phosphorus kg/ha	Potash kg/ha	Yield q/ha	Biomass q/ha
control	238	40.54	39.21	0	0	0	34.50	97
RDF	280	41.81	38.57	120	60	40	41.42	118
150% RDF	300	43.56	37.75	180	90	60	45.77	125
150% PK	249	40.35	34.71	0	90	60	35.48	105
150% NK	260	40.54	40.12	180	0	60	39.36	109
150% NP	278	41.32	41.84	180	90	0	40.65	113
Nutrient Expert	285	42.16	38.77	140	65	59	42.57	120
CD (0.05)	13.31	4.00	6.37				5.55	11.82
Date of Sowing: 13.11.2017					Date of Harvesting: 16.03.2018			

CENTRE-WISE

Table 2.1.1. North Western Plains Zone **IR-TAS-DOS** **Agra** **2017-18**

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	55.78	2	43.00	6	23.47	5	40.75	2
HD 3059 (c)	47.28	6	45.24	4	21.09	9	37.87	6
DBW 71 (c)	44.90	8	36.39	9	25.85	2	35.71	9
DBW 173 (I)	50.65	3	46.26	3	22.79	6	39.90	3
PBW 752	50.06	4	46.63	2	21.09	8	39.26	4
HD 3086 (c)	56.12	1	47.94	1	21.10	7	41.72	1
PBW 757	45.92	7	37.07	7	24.83	3	35.94	7
WH 1105 (c)	50.00	5	43.47	5	23.51	4	38.99	5
WR 544 (c)	41.84	9	36.73	8	29.25	1	35.94	8
Mean	49.17		42.53		23.66		38.45	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.76		3.00		10.31	
Genotype(B)	**		1.14		3.25		8.90	
B within A	**		1.98		5.62			
A within B			2.01		6.04			
			Grains/Earhead					
HD 3226	34.10	1	34.65	3	22.05	7	30.26	3
HD 3059 (c)	33.80	2	34.71	2	22.76	4	30.42	2
DBW 71 (c)	31.06	6	31.99	6	25.16	1	29.40	5
DBW 173 (I)	32.68	3	33.07	5	23.37	3	29.70	4
PBW 752	27.59	8	31.19	7	20.30	8	26.36	8
HD 3086 (c)	31.25	5	33.45	4	19.51	9	28.07	6
PBW 757	30.10	7	30.12	8	22.46	5	27.56	7
WH 1105 (c)	31.59	4	37.23	1	24.68	2	31.17	1
WR 544 (c)	25.90	9	25.47	9	22.13	6	24.50	9
Mean	30.90		32.43		22.49		28.61	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.33		1.28		5.92	
Genotype(B)	**		0.86		2.44		8.99	
B within A	NS		1.49		4.22			
A within B			1.44		4.31			
			Earheads/sqm					
HD 3226	472	2	409	6	375	4	419	2
HD 3059 (c)	435	6	428	4	335	9	399	7
DBW 71 (c)	418	8	389	9	379	2	395	8
DBW 173 (I)	459	3	432	3	354	6	415	3
PBW 752	453	4	439	2	347	8	413	4
HD 3086 (c)	485	1	453	1	352	7	430	1
PBW 757	429	7	397	7	379	3	401	6
WH 1105 (c)	450	5	412	5	370	5	410	5
WR 544 (c)	408	9	391	8	384	1	394	9
Mean	445		417		364		409	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.84		3.31		1.07	
Genotype(B)	**		2.60		7.41		1.91	
B within A	**		4.51		12.83			
A within B			4.34		13.00			
			1000 Grains Weight, g					
HD 3226	34.62	6	30.35	7	28.38	5	31.12	6
HD 3059 (c)	32.18	9	30.42	6	27.53	7	30.04	8
DBW 71 (c)	34.56	7	29.20	8	27.10	8	30.28	7
DBW 173 (I)	33.81	8	32.44	3	27.55	6	31.27	5
PBW 752	40.07	1	34.11	2	29.97	3	34.72	2
HD 3086 (c)	37.04	3	31.61	4	30.72	2	33.12	3
PBW 757	35.64	4	31.15	5	29.21	4	32.00	4
WH 1105 (c)	35.14	5	28.36	9	25.74	9	29.75	9
WR 544 (c)	39.68	2	36.84	1	34.40	1	36.97	1
Mean	35.86		31.61		28.96		32.14	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.19		0.76		3.11	
Genotype(B)	**		0.21		0.59		1.94	
B within A	**		0.36		1.02			
A within B			0.39		1.17			
Date of Sowing:			11.11.2017		10.12.2017		07.01.2018	
Date of Harvesting:			21.03.2018		09.04.2018		21.04.2018	

Table 2.1.2. North Western Plains Zone IR-TAS-DOS Gurdaspur 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	45.54	7	39.08	7	37.47	1	40.70	5
HD 3059 (c)	49.35	6	44.18	4	36.48	2	43.34	3
DBW 71 (c)	45.49	8	44.78	3	29.85	7	40.04	7
DBW 173 (I)	53.10	1	46.09	2	32.76	4	43.98	2
PBW 752	51.14	3	35.51	8	30.51	5	39.05	8
HD 3086 (c)	49.90	5	43.89	5	30.01	6	41.27	4
PBW 757	53.03	2	48.66	1	35.56	3	45.75	1
WH 1105 (c)	50.41	4	41.24	6	29.46	8	40.37	6
WR 544 (c)	35.26	9	30.44	9	22.89	9	29.53	9
Mean	48.13		41.54		31.66		40.45	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.69		2.71		8.87	
Genotype(B)	**		1.10		3.13		8.18	
B within A	**		1.91		5.43			
A within B			1.93		5.78			
			Grains/Earhead					
HD 3226	27.54	7	26.05	7	46.53	1	33.37	4
HD 3059 (c)	35.97	3	30.59	3	36.20	5	34.25	3
DBW 71 (c)	26.51	8	27.49	5	30.24	7	28.08	7
DBW 173 (I)	31.36	5	26.53	6	38.30	4	32.06	5
PBW 752	27.63	6	20.26	9	35.31	6	27.73	8
HD 3086 (c)	32.04	4	31.49	2	29.74	8	31.09	6
PBW 757	40.18	1	34.88	1	44.50	2	39.85	1
WH 1105 (c)	38.75	2	28.58	4	40.04	3	35.79	2
WR 544 (c)	21.10	9	22.23	8	26.09	9	23.14	9
Mean	31.23		27.57		36.33		31.71	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.42		1.64		6.86	
Genotype(B)	**		1.01		2.88		9.59	
B within A	**		1.76		4.99			
A within B			1.71		5.12			
			Earheads/sqm					
HD 3226	462	4	453	3	276	5	397	5
HD 3059 (c)	439	8	414	7	322	2	392	6
DBW 71 (c)	452	5	436	4	319	3	402	4
DBW 173 (I)	508	1	490	1	276	4	425	1
PBW 752	503	2	464	2	262	6	410	2
HD 3086 (c)	449	6	436	4	333	1	406	3
PBW 757	424	9	407	9	258	9	363	9
WH 1105 (c)	449	6	428	6	261	7	380	7
WR 544 (c)	471	3	408	8	259	8	379	8
Mean	462		437		285		395	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		6.05		23.74		7.96	
Genotype(B)	**		5.68		16.16		4.32	
B within A	**		9.84		27.99			
A within B			11.07		33.20			
			1000 Grains Weight, g					
HD 3226	35.85	3	33.12	8	29.33	8	32.77	5
HD 3059 (c)	31.40	7	34.95	4	31.34	3	32.56	6
DBW 71 (c)	38.14	1	37.43	2	30.91	6	35.50	2
DBW 173 (I)	33.43	6	35.43	3	31.20	4	33.35	4
PBW 752	37.12	2	37.66	1	33.21	2	36.00	1
HD 3086 (c)	34.72	5	31.97	9	30.16	7	32.29	7
PBW 757	31.09	8	34.27	5	30.95	5	32.10	8
WH 1105 (c)	29.01	9	33.78	6	28.24	9	30.34	9
WR 544 (c)	35.63	4	33.77	7	33.97	1	34.46	3
Mean	34.04		34.71		31.04		33.26	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.35		1.39		5.53	
Genotype(B)	**		0.42		1.21		3.82	
B within A	**		0.73		2.09			
A within B			0.78		2.33			
Date of Sowing:			11.11.2017		11.12.2017		01.01.2018	
Date of Harvesting:			04.05.2018		07.05.2018		07.05.2018	

Table 2.1.3. North Western Plains Zone IR-TAS-DOS Hisar 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	49.86	8	43.50	8	38.23	5	43.87	8
HD 3059 (c)	56.19	4	48.57	1	40.07	2	48.28	2
DBW 71 (c)	52.93	7	45.54	6	35.61	7	44.69	7
DBW 173 (I)	56.94	2	46.67	4	39.01	3	47.54	3
PBW 752	58.71	1	48.27	2	41.73	1	49.57	1
HD 3086 (c)	56.33	3	47.07	3	38.33	4	47.24	4
PBW 757	55.85	5	45.85	5	37.41	6	46.37	5
WH 1105 (c)	55.44	6	45.27	7	35.17	8	45.29	6
WR 544 (c)	47.55	9	36.36	9	30.92	9	38.28	9
Mean	54.42		45.23		37.39		45.68	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.61		2.40		6.94	
Genotype(B)	**		0.74		2.10		4.85	
B within A	NS		1.28		3.64			
A within B			1.35		4.05			
			Grains/Earhead					
HD 3226	31.60	6	29.81	4	35.21	2	32.21	4
HD 3059 (c)	32.41	5	30.82	1	36.18	1	33.14	1
DBW 71 (c)	29.29	9	29.58	6	32.05	7	30.31	8
DBW 173 (I)	33.37	3	30.38	2	32.41	6	32.05	5
PBW 752	30.70	7	29.39	7	34.53	4	31.54	6
HD 3086 (c)	32.47	4	29.24	8	30.48	8	30.73	7
PBW 757	33.66	2	29.72	5	34.55	3	32.64	3
WH 1105 (c)	35.06	1	30.29	3	33.93	5	33.09	2
WR 544 (c)	29.77	8	25.16	9	28.30	9	27.74	9
Mean	32.04		29.38		33.07		31.50	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.77		3.03		12.74	
Genotype(B)	**		0.85		2.41		8.08	
B within A	NS		1.47		4.18			
A within B			1.59		4.76			
			Earheads/sqm					
HD 3226	428	6	405	7	317	5	383	6
HD 3059 (c)	440	4	428	2	322	4	397	3
DBW 71 (c)	460	1	412	5	305	6	392	5
DBW 173 (I)	452	3	422	3	350	1	408	2
PBW 752	457	2	433	1	347	2	412	1
HD 3086 (c)	433	5	412	5	338	3	394	4
PBW 757	423	7	413	4	300	7	379	7
WH 1105 (c)	395	9	392	8	278	9	355	9
WR 544 (c)	408	8	383	9	298	8	363	8
Mean	433		411		317		387	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		5.98		23.48		8.03	
Genotype(B)	**		9.67		27.51		7.50	
B within A	NS		16.75		47.64			
A within B			16.89		50.64			
			1000 Grains Weight, g					
HD 3226	37.17	9	36.11	9	34.46	9	35.91	9
HD 3059 (c)	39.69	4	36.81	7	34.56	7	37.02	7
DBW 71 (c)	39.35	6	37.42	6	36.59	4	37.79	5
DBW 173 (I)	37.87	8	36.62	8	34.55	8	36.34	8
PBW 752	41.91	1	38.08	3	35.01	6	38.33	3
HD 3086 (c)	40.29	2	39.16	1	37.38	2	38.94	1
PBW 757	39.36	5	37.44	5	36.32	5	37.71	6
WH 1105 (c)	40.15	3	38.20	2	37.54	1	38.63	2
WR 544 (c)	39.30	7	37.95	4	36.76	3	38.00	4
Mean	39.46		37.53		35.91		37.63	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.19		0.73		2.58	
Genotype(B)	**		0.36		1.01		2.83	
B within A	NS		0.62		1.75			
A within B			0.61		1.83			
Date of Sowing:			05.11.2017		15.12.2017		05.01.2018	
Date of Harvesting:			14.04.2018		18.04.2018		27.04.2018	

Table 2.1.4. North Western Plains Zone IR-TAS-DOS Durgapura 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	54.54	1	28.53	9	23.38	5	35.48	6
HD 3059 (c)	52.10	2	34.31	6	24.46	4	36.96	3
DBW 71 (c)	49.22	4	38.24	4	25.85	1	37.77	1
DBW 173 (I)	45.51	6	33.62	7	21.45	8	33.53	8
PBW 752	49.45	3	28.98	8	24.81	2	34.42	7
HD 3086 (c)	39.83	9	36.39	5	22.14	6	32.79	9
PBW 757	46.26	5	41.81	3	24.68	3	37.58	2
WH 1105 (c)	40.18	8	44.26	1	22.07	7	35.50	5
WR 544 (c)	45.15	7	44.14	2	21.17	9	36.82	4
Mean	46.92		36.70		23.33		35.65	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.00		3.91		14.51	
Genotype(B)	NS		1.26		3.60		10.64	
B within A	**		2.19		6.23			
A within B			2.29		6.87			
			Grains/Earhead					
HD 3226	26.38	9	40.21	1	28.07	9	31.55	4
HD 3059 (c)	27.64	8	33.45	4	29.07	6	30.05	8
DBW 71 (c)	29.87	6	29.81	6	28.08	8	29.25	9
DBW 173 (I)	33.46	4	35.98	3	32.12	2	33.85	1
PBW 752	29.34	7	39.50	2	28.73	7	32.53	3
HD 3086 (c)	38.87	1	30.53	5	29.94	4	33.11	2
PBW 757	33.42	5	27.89	7	29.48	5	30.26	7
WH 1105 (c)	38.68	2	25.08	9	30.17	3	31.31	5
WR 544 (c)	34.47	3	26.04	8	32.31	1	30.94	6
Mean	32.46		32.05		29.78		31.43	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.81		3.19		13.41	
Genotype(B)	NS		1.14		3.25		10.92	
B within A	**		1.98		5.63			
A within B			2.04		6.10			
			Earheads/sqm					
HD 3226	450	1	273	9	277	2	333	6
HD 3059 (c)	433	2	324	6	268	4	341	3
DBW 71 (c)	405	4	361	4	281	1	349	1
DBW 173 (I)	368	6	315	7	236	8	306	9
PBW 752	412	3	278	8	271	3	320	7
HD 3086 (c)	327	9	353	5	255	6	312	8
PBW 757	375	5	393	3	267	5	345	2
WH 1105 (c)	328	8	425	1	253	7	335	5
WR 544 (c)	365	7	413	2	233	9	337	4
Mean	385		348		260		331	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		8.45		33.16		13.26	
Genotype(B)	NS		11.64		33.09		10.54	
B within A	**		20.16		57.32			
A within B			20.80		62.35			
			1000 Grains Weight, g					
HD 3226	46.04	1	26.02	9	30.37	5	34.15	6
HD 3059 (c)	43.59	2	31.80	6	31.46	4	35.62	3
DBW 71 (c)	40.71	4	35.73	4	32.85	1	36.43	1
DBW 173 (I)	37.01	6	31.11	7	28.44	8	32.19	8
PBW 752	40.94	3	26.47	8	31.81	2	33.08	7
HD 3086 (c)	31.32	9	33.88	5	29.13	6	31.45	9
PBW 757	37.75	5	39.30	3	31.67	3	36.24	2
WH 1105 (c)	31.67	8	41.75	1	29.07	7	34.16	5
WR 544 (c)	36.65	7	41.64	2	28.16	9	35.48	4
Mean	38.41		34.19		30.33		34.31	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		1.00		3.91		15.08	
Genotype(B)	NS		1.26		3.60		11.06	
B within A	**		2.19		6.23			
A within B			2.29		6.87			
Date of Sowing:			08.11.2017		14.12.2017		04.01.2018	
Date of Harvesting:			10.04.2018		18.04.2018		22.04.2018	

Table 2.1.5. North Western Plains Zone IR-TAS-DOS Jammu 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	34.23	8	29.76	4	23.61	7	29.20	7
HD 3059 (c)	43.61	4	31.83	3	32.40	1	35.95	3
DBW 71 (c)	38.88	6	24.58	8	28.47	3	30.64	5
DBW 173 (I)	43.51	5	41.89	1	30.02	2	38.48	1
PBW 752	51.63	2	25.10	7	25.90	4	34.21	4
HD 3086 (c)	53.61	1	34.93	2	24.42	6	37.65	2
PBW 757	35.94	7	25.61	6	23.00	8	28.19	8
WH 1105 (c)	43.75	3	21.25	9	24.78	5	29.93	6
WR 544 (c)	30.42	9	29.35	5	19.28	9	26.35	9
Mean	41.73		29.37		25.76		32.29	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.94		3.70		15.18	
Genotype(B)	**		1.52		4.33		14.13	
B within A	**		2.63		7.49			
A within B			2.66		7.97			
			Grains/Earhead					
HD 3226	26.69	8	21.99	8	17.08	8	21.92	8
HD 3059 (c)	30.93	5	22.91	5	23.53	2	25.79	4
DBW 71 (c)	29.21	6	22.92	4	22.48	3	24.87	5
DBW 173 (I)	33.18	3	35.08	1	23.70	1	30.65	1
PBW 752	39.59	2	22.86	6	19.61	5	27.35	3
HD 3086 (c)	40.41	1	29.26	2	18.84	6	29.50	2
PBW 757	27.55	7	22.14	7	17.82	7	22.50	7
WH 1105 (c)	32.48	4	19.49	9	19.98	4	23.98	6
WR 544 (c)	24.02	9	26.87	3	14.74	9	21.88	9
Mean	31.56		24.83		19.75		25.38	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.60		2.34		12.23	
Genotype(B)	**		1.38		3.92		16.30	
B within A	**		2.39		6.79			
A within B			2.33		6.99			
			Earheads/sqm					
HD 3226	349	6	361	1	371	1	360	2
HD 3059 (c)	370	1	361	1	367	2	366	1
DBW 71 (c)	361	2	301	8	349	7	337	7
DBW 173 (I)	355	4	309	5	355	5	340	4
PBW 752	353	5	309	4	341	9	335	9
HD 3086 (c)	342	9	335	3	353	6	343	3
PBW 757	346	8	308	6	357	4	337	6
WH 1105 (c)	358	3	307	7	347	8	337	5
WR 544 (c)	349	6	293	9	366	3	336	8
Mean	354		320		356		343	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		4.85		19.03		7.33	
Genotype(B)	*		6.97		19.81		6.08	
B within A	NS		12.07		34.31			
A within B			12.37		37.07			
			1000 Grains Weight, g					
HD 3226	37.27	6	37.46	5	37.27	3	37.33	2
HD 3059 (c)	38.15	2	38.54	2	37.66	2	38.11	1
DBW 71 (c)	37.28	5	36.11	7	36.08	5	36.49	9
DBW 173 (I)	36.93	8	38.79	1	35.78	8	37.17	5
PBW 752	36.95	7	35.86	8	38.83	1	37.21	4
HD 3086 (c)	38.72	1	36.14	6	36.82	4	37.23	3
PBW 757	37.63	4	37.82	4	35.90	6	37.12	6
WH 1105 (c)	38.00	3	35.73	9	35.82	7	36.52	8
WR 544 (c)	36.23	9	38.16	3	35.74	9	36.71	7
Mean	37.46		37.18		36.65		37.10	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.24		0.93		3.30	
Genotype(B)	NS		0.41		1.18		3.35	
B within A	**		0.72		2.04			
A within B			0.72		2.15			
Date of Sowing:			08.11.2017		15.12.2017		05.01.18	
Date of Harvesting:			15.04.2018		02.05.2018		11.05.18	

Table 2.1.6. North Western Plains Zone IR-TAS-DOS Karnal 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	56.85	7	47.05	7	42.80	7	48.90	7
HD 3059 (c)	57.23	6	50.75	3	44.81	3	50.93	4
DBW 71 (c)	58.70	4	48.82	5	43.78	6	50.43	5
DBW 173 (I)	59.96	3	48.75	6	44.25	5	50.98	3
PBW 752	61.78	2	51.55	2	48.31	1	53.88	1
HD 3086 (c)	63.50	1	52.02	1	45.84	2	53.79	2
PBW 757	57.33	5	49.44	4	44.32	4	50.36	6
WH 1105 (c)	56.44	8	44.84	8	41.20	8	47.49	8
WR 544 (c)	52.32	9	41.69	9	37.17	9	43.73	9
Mean	58.23		48.32		43.61		50.06	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.87		3.40		8.99	
Genotype(B)	**		0.85		2.42		5.09	
B within A	NS		1.47		4.19			
A within B			1.64		4.90			
			Grains/Earhead					
HD 3226	33.14	9	30.72	4	31.23	5	31.70	5
HD 3059 (c)	34.81	5	35.08	2	37.60	2	35.83	2
DBW 71 (c)	37.35	3	27.59	9	27.07	8	30.67	7
DBW 173 (I)	36.38	4	30.36	5	33.48	3	33.41	4
PBW 752	33.35	8	28.41	8	29.39	7	30.39	8
HD 3086 (c)	34.47	7	30.30	6	30.07	6	31.62	6
PBW 757	38.73	2	33.48	3	33.06	4	35.09	3
WH 1105 (c)	41.77	1	37.71	1	40.87	1	40.12	1
WR 544 (c)	34.51	6	29.09	7	24.83	9	29.48	9
Mean	36.06		31.42		31.96		33.14	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.95		3.74		14.92	
Genotype(B)	**		0.94		2.66		8.47	
B within A	*		1.62		4.61			
A within B			1.80		5.40			
			Earheads/sqm					
HD 3226	400	2	434	5	451	4	428	4
HD 3059 (c)	391	6	396	7	392	8	393	7
DBW 71 (c)	379	7	454	2	460	3	431	3
DBW 173 (I)	397	4	442	3	429	5	423	5
PBW 752	398	3	442	3	475	2	438	2
HD 3086 (c)	486	1	500	1	479	1	488	1
PBW 757	393	5	420	6	407	7	407	6
WH 1105 (c)	339	9	345	9	358	9	348	9
WR 544 (c)	376	8	375	8	408	6	386	8
Mean	395		423		429		416	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		12.31		48.34		15.39	
Genotype(B)	**		12.70		36.13		9.17	
B within A	**NS**		22.00		62.58			
A within B			24.12		72.33			
			1000 Grains Weight, g					
HD 3226	42.90	2	35.62	6	30.71	8	36.41	6
HD 3059 (c)	42.65	3	36.70	5	30.89	7	36.74	4
DBW 71 (c)	41.73	4	38.99	2	35.31	2	38.68	2
DBW 173 (I)	41.69	5	36.87	4	30.95	6	36.50	5
PBW 752	46.67	1	41.15	1	34.63	3	40.82	1
HD 3086 (c)	37.99	8	34.57	8	31.87	5	34.81	8
PBW 757	37.85	9	35.50	7	33.07	4	35.47	7
WH 1105 (c)	39.93	7	34.50	9	28.28	9	34.24	9
WR 544 (c)	40.42	6	38.28	3	36.84	1	38.51	3
Mean	41.31		36.91		32.50		36.91	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.20		0.79		2.85	
Genotype(B)	**		0.30		0.87		2.47	
B within A	**		0.53		1.50			
A within B			0.54		1.61			
Date of Sowing:			12.11.2017		15.12.2017		05.01.2018	
Date of Harvesting:			05.04.2018		14.04.2018		23.04.2018	

Table 2.1.7. North Western Plains Zone IR-TAS-DOS Ludhiana 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	70.33	3	49.97	2	41.99	5	54.09	2
HD 3059 (c)	60.73	8	44.88	6	40.95	6	48.85	8
DBW 71 (c)	66.39	7	46.05	5	44.42	1	52.29	4
DBW 173 (I)	69.40	4	46.27	3	40.95	7	52.20	5
PBW 752	69.22	5	42.22	8	40.39	8	50.61	7
HD 3086 (c)	72.61	1	53.21	1	42.18	3	56.00	1
PBW 757	71.89	2	46.15	4	43.11	2	53.72	3
WH 1105 (c)	67.09	6	43.18	7	42.04	4	50.77	6
WR 544 (c)	45.69	9	40.20	9	37.71	9	41.20	9
Mean	65.93		45.79		41.52		51.08	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.05		4.11		10.66	
Genotype(B)	**		0.97		2.76		5.69	
B within A	**		1.68		4.77			
A within B			1.90		5.69			
			Grains/Earhead					
HD 3226	40.66	1	35.76	4	36.16	7	37.52	2
HD 3059 (c)	34.52	6	33.22	5	38.33	3	35.36	4
DBW 71 (c)	36.42	4	31.07	7	36.37	6	34.62	6
DBW 173 (I)	35.71	5	32.34	6	32.35	9	33.47	8
PBW 752	29.83	8	25.82	9	36.92	5	30.86	9
HD 3086 (c)	31.78	7	39.42	1	33.77	8	34.99	5
PBW 757	38.62	3	30.21	8	39.78	2	36.20	3
WH 1105 (c)	40.58	2	38.30	3	43.62	1	40.83	1
WR 544 (c)	27.28	9	38.34	2	37.98	4	34.53	7
Mean	35.04		33.83		37.25		35.38	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		1.27		4.98		18.65	
Genotype(B)	**		0.95		2.71		8.09	
B within A	**		1.65		4.70			
A within B			2.01		6.03			
			Earheads/sqm					
HD 3226	427	5	368	1	340	1	378	1
HD 3059 (c)	394	8	342	4	293	6	343	7
DBW 71 (c)	402	7	347	3	335	3	361	5
DBW 173 (I)	430	4	353	2	337	2	373	2
PBW 752	475	1	340	5	275	9	364	4
HD 3086 (c)	466	2	306	7	327	4	366	3
PBW 757	442	3	336	6	303	5	360	6
WH 1105 (c)	403	6	286	9	289	7	326	8
WR 544 (c)	367	9	297	8	282	8	315	9
Mean	423		331		309		354	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		9.99		39.24		14.67	
Genotype(B)	**		7.07		20.12		5.99	
B within A	**		12.25		34.84			
A within B			15.27		45.80			
			1000 Grains Weight, g					
HD 3226	41.30	8	38.11	8	34.08	8	37.83	9
HD 3059 (c)	44.67	6	39.60	7	36.82	4	40.36	6
DBW 71 (c)	45.56	4	42.72	4	36.64	5	41.64	3
DBW 173 (I)	45.27	5	40.73	5	38.02	3	41.34	4
PBW 752	48.78	2	48.33	1	39.71	1	45.61	1
HD 3086 (c)	49.13	1	44.17	3	38.31	2	43.87	2
PBW 757	42.46	7	45.70	2	35.82	6	41.33	5
WH 1105 (c)	41.09	9	39.95	6	33.64	9	38.23	8
WR 544 (c)	45.70	3	35.93	9	35.20	7	38.94	7
Mean	44.88		41.69		36.47		41.02	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.92		3.60		11.62	
Genotype(B)	**		0.91		2.59		6.66	
B within A	NS		1.58		4.49			
A within B			1.75		5.24			
Date of Sowing:			05.11.2017		10.12.2017		07.01.2018	
Date of Harvesting:			17.04.2018		24.04.2018		01.05.2018	

Table 2.1.8. North Western Plains Zone IR-TAS-DOS Delhi 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	52.05	4	48.08	1	31.78	1	43.97	1
HD 3059 (c)	52.55	3	45.83	8	31.24	2	43.20	3
DBW 71 (c)	50.17	7	46.32	7	30.49	4	42.32	6
DBW 173 (I)	52.72	2	46.65	5	29.13	6	42.83	4
PBW 752	50.68	5	46.63	6	30.83	3	42.71	5
HD 3086 (c)	46.94	9	47.13	4	28.11	8	40.72	8
PBW 757	47.96	8	45.78	9	27.77	9	40.50	9
WH 1105 (c)	53.23	1	47.76	2	29.64	5	43.54	2
WR 544 (c)	50.51	6	47.31	3	28.45	7	42.09	7
Mean	50.76		46.83		29.71		42.43	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.48		1.89		5.88	
Genotype(B)	**		0.41		1.17		2.92	
B within A	**		0.71		2.03			
A within B			0.83		2.48			
			Grains/Earhead					
HD 3226	31.73	6	29.30	7	35.84	3	32.29	7
HD 3059 (c)	25.98	9	28.49	8	34.44	6	29.64	8
DBW 71 (c)	32.25	5	36.71	2	39.03	1	36.00	1
DBW 173 (I)	33.74	3	36.03	3	36.42	2	35.40	3
PBW 752	32.59	4	33.96	6	35.62	4	34.06	4
HD 3086 (c)	28.32	7	26.11	9	31.07	9	28.50	9
PBW 757	34.40	2	34.09	5	33.55	7	34.02	5
WH 1105 (c)	36.62	1	35.84	4	35.28	5	35.91	2
WR 544 (c)	28.20	8	39.22	1	33.02	8	33.48	6
Mean	31.54		33.31		34.92		33.25	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		1.80		7.05		28.05	
Genotype(B)	**		1.30		3.69		11.70	
B within A	NS		2.25		6.39			
A within B			2.78		8.32			
			Earheads/sqm					
HD 3226	468	4	449	3	291	4	403	3
HD 3059 (c)	536	1	479	2	293	2	436	1
DBW 71 (c)	440	6	385	7	272	8	366	7
DBW 173 (I)	429	8	373	8	266	9	356	9
PBW 752	431	7	411	5	288	6	376	5
HD 3086 (c)	480	2	513	1	295	1	429	2
PBW 757	416	9	393	6	273	7	361	8
WH 1105 (c)	464	5	422	4	292	3	393	4
WR 544 (c)	469	3	356	9	289	5	372	6
Mean	459		420		284		388	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		13.26		52.07		17.77	
Genotype(B)	**		14.29		40.65		11.05	
B within A	NS		24.76		70.41			
A within B			26.85		80.49			
			1000 Grains Weight, g					
HD 3226	35.67	5	36.53	1	30.53	3	34.24	3
HD 3059 (c)	37.73	2	35.27	3	31.00	2	34.67	1
DBW 71 (c)	35.57	6	32.73	8	28.83	9	32.38	8
DBW 173 (I)	37.73	2	34.80	4	30.20	6	34.24	2
PBW 752	36.43	4	34.50	5	30.23	5	33.72	6
HD 3086 (c)	34.90	7	35.43	2	31.03	1	33.79	5
PBW 757	33.60	8	34.20	6	30.40	4	32.73	7
WH 1105 (c)	31.83	9	32.50	9	29.10	8	31.14	9
WR 544 (c)	38.17	1	33.97	7	29.90	7	34.01	4
Mean	35.74		34.44		30.14		33.44	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.13		0.52		2.05	
Genotype(B)	**		0.56		1.60		5.04	
B within A	NS		0.97		2.77			
A within B			0.93		2.78			
Date of Sowing:			11.11.2017		14.12.2017		06.01.2018	
Date of Harvesting:			20.04.2018		22.04.2018		25.04.2018	

Table 2.1.9. North Western Plains Zone IR-TAS-DOS Pantnagar 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	53.87	4	42.43	9	40.47	8	45.59	6
HD 3059 (c)	54.07	3	44.10	6	41.93	6	46.70	4
DBW 71 (c)	50.17	6	51.00	2	40.77	7	47.31	3
DBW 173 (I)	45.93	8	42.53	7	43.57	2	44.01	8
PBW 752	59.87	1	47.97	3	46.17	1	51.33	1
HD 3086 (c)	52.67	5	52.00	1	42.27	4	48.98	2
PBW 757	48.83	7	44.27	5	42.87	3	45.32	7
WH 1105 (c)	55.40	2	42.47	8	42.10	5	46.66	5
WR 544 (c)	39.90	9	47.37	4	35.00	9	40.76	9
Mean	51.19		46.01		41.68		46.30	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.90		3.54		10.13	
Genotype(B)	**		1.07		3.06		6.97	
B within A	**		1.86		5.29			
A within B			1.97		5.92			
			Grains/Earhead					
HD 3226	30.52	6	25.51	9	26.90	6	27.64	7
HD 3059 (c)	37.11	1	28.06	8	25.39	7	30.19	5
DBW 71 (c)	25.60	8	29.41	6	23.06	8	26.02	8
DBW 173 (I)	28.93	7	31.36	4	29.60	3	29.96	6
PBW 752	34.84	5	28.97	7	30.28	2	31.36	4
HD 3086 (c)	35.75	4	32.02	2	28.10	4	31.96	2
PBW 757	36.83	2	29.99	5	27.50	5	31.44	3
WH 1105 (c)	36.33	3	34.65	1	31.55	1	34.18	1
WR 544 (c)	17.97	9	31.87	3	22.71	9	24.18	9
Mean	31.54		30.20		27.23		29.66	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.98		3.83		17.10	
Genotype(B)	**		1.39		3.95		14.05	
B within A	**		2.41		6.84			
A within B			2.47		7.41			
			Earheads/sqm					
HD 3226	427	3	431	3	424	5	428	3
HD 3059 (c)	384	9	407	6	440	2	410	6
DBW 71 (c)	472	2	460	1	489	1	474	1
DBW 173 (I)	423	4	375	8	429	4	409	7
PBW 752	387	8	416	5	419	6	407	8
HD 3086 (c)	405	7	454	2	415	7	425	4
PBW 757	409	5	417	4	438	3	421	5
WH 1105 (c)	407	6	345	9	413	8	388	9
WR 544 (c)	520	1	392	7	402	9	438	2
Mean	426		411		430		422	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		11.05		43.38		13.60	
Genotype(B)	*		14.43		41.05		10.25	
B within A	NS		25.00		71.10			
A within B			26.03		78.05			
			1000 Grains Weight, g					
HD 3226	41.33	4	38.83	2	36.40	6	38.86	3
HD 3059 (c)	38.47	6	38.83	2	37.70	2	38.33	5
DBW 71 (c)	41.77	3	37.87	5	36.73	4	38.79	4
DBW 173 (I)	38.57	5	36.17	6	34.63	8	36.46	7
PBW 752	44.87	1	40.03	1	37.07	3	40.66	1
HD 3086 (c)	38.07	8	36.00	7	36.47	5	36.84	6
PBW 757	32.43	9	35.83	8	35.73	7	34.67	9
WH 1105 (c)	38.13	7	35.53	9	32.53	9	35.40	8
WR 544 (c)	42.83	2	37.90	4	38.43	1	39.72	2
Mean	39.61		37.44		36.19		37.75	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.54		2.10		7.37	
Genotype(B)	**		0.71		2.03		5.67	
B within A	*		1.24		3.52			
A within B			1.28		3.85			
Date of Sowing:			05.11.2017		12.12.2017		03.01.2018	
Date of Harvesting:			19.04.2018		24.04.2018		26.04.2018	

Table 2.1.10. North Western Plains Zone IR-TAS-DOS Sriganganagar 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha					
HD 3226	76.73	4	60.67	1	29.75	4	55.72	3
HD 3059 (c)	82.17	2	55.90	5	35.42	1	57.83	1
DBW 71 (c)	83.21	1	55.67	6	29.74	5	56.21	2
DBW 173 (I)	71.06	6	58.45	2	28.94	7	52.82	5
PBW 752	78.59	3	57.41	3	29.05	6	55.02	4
HD 3086 (c)	70.95	7	51.62	9	26.04	8	49.54	8
PBW 757	65.97	9	55.09	7	34.61	2	51.89	7
WH 1105 (c)	73.03	5	53.58	8	20.94	9	49.18	9
WR 544 (c)	70.13	8	56.01	4	30.32	3	52.15	6
Mean	74.65		56.05		29.42		53.37	
	F. Test		SEm		CD(0.05)		CV(%)	
Date of sowing (A)	**		0.59		2.34		5.79	
Genotype(B)	**		0.72		2.05		4.04	
B within A	**		SEm		3.54			
A within B			1.32		3.95			
			Grains/Earhead					
HD 3226	42.60	2	46.90	4	36.26	3	41.92	3
HD 3059 (c)	39.84	5	45.29	5	38.37	2	41.17	4
DBW 71 (c)	38.29	6	42.63	7	35.36	5	38.76	7
DBW 173 (I)	42.11	3	49.18	2	41.25	1	44.18	2
PBW 752	37.94	7	41.54	9	34.16	6	37.88	8
HD 3086 (c)	60.90	1	66.00	1	33.93	7	53.61	1
PBW 757	37.86	8	44.20	6	35.64	4	39.24	6
WH 1105 (c)	41.98	4	48.05	3	29.54	9	39.86	5
WR 544 (c)	36.42	9	41.57	8	33.67	8	37.22	9
Mean	41.99		47.26		35.35		41.54	
	F. Test		SEm		CD(0.05)		CV(%)	
Date of sowing (A)	**		0.62		2.42		7.71	
Genotype(B)	**		1.27		3.62		9.19	
B within A	**		2.20		6.27			
A within B			2.17		6.50			
			Earheads/sqm					
HD 3226	501	4	380	1	251	4	377	3
HD 3059 (c)	536	2	350	5	275	2	387	1
DBW 71 (c)	545	1	346	7	246	6	379	2
DBW 173 (I)	478	6	366	2	241	8	362	6
PBW 752	519	3	361	3	250	5	377	4
HD 3086 (c)	334	9	242	9	242	7	273	9
PBW 757	460	8	347	6	283	1	363	5
WH 1105 (c)	489	5	341	8	227	9	352	8
WR 544 (c)	476	7	352	4	256	3	361	7
Mean	482		343		252		359	
	F. Test		SEm		CD(0.05)		CV(%)	
Date of sowing (A)	**		7.13		28.01		10.33	
Genotype(B)	**		6.46		18.37		5.40	
B within A	**		11.19		31.81			
A within B			12.73		38.18			
			1000 Grains Weight, g					
HD 3226	36.16	6	34.34	6	32.78	6	34.43	6
HD 3059 (c)	38.58	4	35.29	5	33.74	5	35.87	5
DBW 71 (c)	39.99	3	37.97	3	34.27	4	37.41	3
DBW 173 (I)	35.42	8	32.56	8	29.15	9	32.37	9
PBW 752	40.08	2	38.36	2	34.29	3	37.58	2
HD 3086 (c)	34.94	9	32.41	9	31.77	7	33.04	8
PBW 757	37.93	5	36.02	4	34.41	2	36.12	4
WH 1105 (c)	35.98	7	33.09	7	31.31	8	33.46	7
WR 544 (c)	40.53	1	38.56	1	35.26	1	38.12	1
Mean	37.73		35.40		33.00		35.38	
	F. Test		SEm		CD(0.05)		CV(%)	
Date of sowing (A)	**		0.26		1.04		3.89	
Genotype(B)	**		0.62		1.76		5.24	
B within A	NS		1.07		3.04			
A within B			1.04		3.13			
Date of Sowing:			11.11.2017		16.12.2017		07.01.2018	
Date of Harvesting:			09.04.2018		14.04.2018		21.04.2018	

Table 2.2.1. North Western Plains Zone RIR-TS-TAS Agra 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	25.12	3	33.84	3	40.49	3	33.15	3
WH 1080 (c)	24.12	6	32.46	6	39.39	6	31.99	6
WH 1142 (c)	25.58	2	33.92	2	40.69	2	33.40	2
HD 3237	25.92	1	34.05	1	41.32	1	33.76	1
HD 3043 (c)	24.90	4	33.71	4	40.31	4	32.97	4
PBW 644 (c)	24.48	5	32.65	5	39.56	5	32.23	5
Mean	25.02		33.44		40.29		32.92	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.07		0.29		0.95	
Genotype(B)	**		0.11		0.32		1.01	
B within A	NS		0.19		0.55			
A within B			0.19		0.55			
			Grains/Earhead					
HI 1620	19.64	1	21.99	2	22.96	3	21.53	3
WH 1080 (c)	18.64	6	20.88	6	22.38	5	20.63	6
WH 1142 (c)	19.62	2	21.95	3	23.04	2	21.54	2
HD 3237	18.98	4	21.27	4	22.66	4	20.97	4
HD 3043 (c)	19.49	3	22.04	1	23.19	1	21.57	1
PBW 644 (c)	18.74	5	20.92	5	22.31	6	20.66	5
Mean	19.19		21.51		22.76		21.15	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.04		0.15		0.76	
Genotype(B)	**		0.10		0.30		1.47	
B within A	NS		0.18		0.52			
A within B			0.17		0.49			
			Earheads/sqm					
HI 1620	360	3	415	3	463	3	413	3
WH 1080 (c)	354	6	410	6	453	6	406	6
WH 1142 (c)	368	2	418	2	464	2	416	2
HD 3237	370	1	422	1	468	1	420	1
HD 3043 (c)	358	4	413	4	458	4	409	4
PBW 644 (c)	356	5	411	5	455	5	407	5
Mean	361		415		460		412	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.47		1.83		0.48	
Genotype(B)	**		0.93		2.68		0.68	
B within A	NS		1.61		4.64			
A within B			1.54		4.45			
			1000 Grains Weight, g					
HI 1620	35.52	5	37.08	4	38.13	4	36.91	5
WH 1080 (c)	36.54	3	37.92	3	38.90	3	37.79	3
WH 1142 (c)	35.48	6	37.01	6	38.09	5	36.86	6
HD 3237	36.90	1	37.93	2	38.96	2	37.93	1
HD 3043 (c)	35.72	4	37.05	5	38.00	6	36.92	4
PBW 644 (c)	36.69	2	37.95	1	38.97	1	37.87	2
Mean	36.14		37.49		38.51		37.38	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.02		0.07		0.20	
Genotype(B)	**		0.02		0.07		0.18	
B within A	**		0.04		0.11			
A within B			0.04		0.12			
Date of Sowing:			03.12.2017					
Date of Harvesting:			01.04.2018		05.04.2018		10.04.2018	

Table 2.2.2 North Western Plains Zone RIR-TS-TAS Gurdaspur 2017-18

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	53.44	2	09.11.2017	1	14.12.2017	2	05.01.2018	3
WH 1080 (c)	50.80	6	53.54	6	54.23	6	52.86	6
WH 1142 (c)	51.48	5	56.96	2	61.21	1	56.55	1
HD 3237	55.90	1	56.26	3	57.14	3	56.43	2
HD 3043 (c)	52.06	4	53.98	5	55.10	4	53.71	5
PBW 644 (c)	52.60	3	54.44	4	54.78	5	53.94	4
Mean	52.71		55.38		56.85		54.98	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.31		1.20		2.36	
Genotype(B)	*		0.94		2.72		5.13	
B within A	NS		1.63		4.71			
A within B			1.52		4.39			
			Grains/Earhead					
HI 1620	29.25	6	26.46	6	27.25	6	27.65	6
WH 1080 (c)	31.40	5	33.15	5	32.03	4	32.19	5
WH 1142 (c)	34.92	3	39.36	1	39.75	1	38.01	1
HD 3237	35.53	2	34.42	3	33.05	3	34.33	3
HD 3043 (c)	39.44	1	36.82	2	35.28	2	37.18	2
PBW 644 (c)	32.92	4	33.38	4	31.05	5	32.45	4
Mean	33.91		33.93		33.07		33.64	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		0.78		3.07		9.87	
Genotype(B)	**		1.02		2.96		9.13	
B within A	NS		1.77		5.12			
A within B			1.80		5.19			
			Earheads/sqm					
HI 1620	369	5	464	1	470	1	434	2
WH 1080 (c)	397	2	416	3	438	4	417	3
WH 1142 (c)	423	1	432	2	464	2	440	1
HD 3237	360	6	400	5	413	6	391	6
HD 3043 (c)	374	4	414	4	438	3	409	4
PBW 644 (c)	393	3	399	6	430	5	407	5
Mean	386		421		442		416	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		5.25		20.61		5.35	
Genotype(B)	**		6.31		18.22		4.55	
B within A	*		10.93		31.56			
A within B			11.27		32.55			
			1000 Grains Weight, g					
HI 1620	49.69	1	46.56	1	45.93	1	47.39	1
WH 1080 (c)	40.96	3	38.87	4	38.77	4	39.53	4
WH 1142 (c)	34.89	6	33.54	6	33.23	6	33.89	6
HD 3237	44.03	2	41.94	2	41.87	2	42.61	2
HD 3043 (c)	35.39	5	35.45	5	35.71	5	35.52	5
PBW 644 (c)	40.94	4	40.82	3	41.10	3	40.95	3
Mean	40.98		39.53		39.44		39.98	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		0.55		2.17		5.86	
Genotype(B)	**		0.51		1.46		3.79	
B within A	NS		0.88		2.53			
A within B			0.97		2.80			
Date of Sowing:			13.11.2017					
Date of Harvesting:			23.04.2018		25.04.2018		26.04.2018	

Table 2.2.3 North Western Plains Zone RIR-TS-TAS Hisar 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	43.03	2	55.41	2	60.07	2	52.83	2
WH 1080 (c)	39.12	6	48.95	4	54.63	3	47.56	4
WH 1142 (c)	40.78	4	57.55	1	60.92	1	53.08	1
HD 3237	44.97	1	50.31	3	52.45	4	49.24	3
HD 3043 (c)	40.00	5	45.78	6	47.04	6	44.27	6
PBW 644 (c)	42.01	3	46.22	5	48.57	5	45.60	5
Mean	41.65		50.70		53.95		48.77	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		1.32		5.18		11.48	
Genotype(B)	**		0.75		2.16		4.59	
B within A	**		1.29		3.74			
A within B			1.77		5.11			
			Grains/Earhead					
HI 1620	28.98	6	34.81	3	37.53	2	33.77	4
WH 1080 (c)	31.77	3	32.58	6	34.93	3	33.09	5
WH 1142 (c)	31.03	4	38.61	1	40.26	1	36.63	1
HD 3237	31.01	5	33.23	5	34.06	5	32.76	6
HD 3043 (c)	33.53	1	34.78	4	33.41	6	33.90	3
PBW 644 (c)	32.34	2	34.81	2	34.64	4	33.93	2
Mean	31.44		34.80		35.80		34.02	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.50		1.97		6.25	
Genotype(B)	*		0.77		2.22		6.78	
B within A	*		1.33		3.85			
A within B			1.31		3.80			
			Earheads/sqm					
HI 1620	363	1	415	2	423	3	401	2
WH 1080 (c)	338	5	413	3	428	1	393	3
WH 1142 (c)	360	2	422	1	425	2	402	1
HD 3237	358	3	403	4	413	4	392	4
HD 3043 (c)	338	5	393	5	408	5	380	5
PBW 644 (c)	342	4	385	6	407	6	378	6
Mean	350		405		418		391	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		6.12		24.01		6.64	
Genotype(B)	NS		8.29		23.95		6.36	
B within A	NS		14.37		41.48			
A within B			14.47		41.79			
			1000 Grains Weight, g					
HI 1620	41.03	1	38.39	1	37.98	1	39.13	1
WH 1080 (c)	36.51	5	36.37	3	36.61	3	36.49	3
WH 1142 (c)	36.52	4	35.39	4	35.78	4	35.90	4
HD 3237	40.53	2	37.57	2	37.29	2	38.46	2
HD 3043 (c)	35.33	6	33.49	6	34.52	5	34.45	6
PBW 644 (c)	38.08	3	34.65	5	34.45	6	35.72	5
Mean	38.00		35.98		36.10		36.69	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.23		0.89		2.62	
Genotype(B)	**		0.30		0.87		2.46	
B within A	*		0.52		1.51			
A within B			0.53		1.52			
Date of Sowing:			08.11.2017					
Date of Harvesting:			04.04.2018		08.04.2018		08.04.2018	

Table 2.2.4 North Western Plains Zone RIR-TS-TAS Durgapura 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	17.51	1	18.79	4	31.93	3	22.74	2
WH 1080 (c)	14.50	4	19.48	2	27.53	5	20.50	5
WH 1142 (c)	14.27	5	19.48	2	25.21	6	19.65	6
HD 3237	16.00	2	18.32	6	32.29	2	22.20	4
HD 3043 (c)	15.19	3	18.67	5	33.10	1	22.32	3
PBW 644 (c)	12.88	6	31.52	1	31.00	4	25.13	1
Mean	15.06		21.04		30.18		22.09	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.61		2.39		11.69	
Genotype(B)	**		0.71		2.04		9.59	
B within A	**		1.22		3.53			
A within B			1.27		3.67			
			Grains/Earhead					
HI 1620	23.29	5	21.29	4	23.31	3	22.63	5
WH 1080 (c)	27.61	2	19.47	5	31.46	2	26.18	2
WH 1142 (c)	26.87	3	19.01	6	37.71	1	27.86	1
HD 3237	26.25	4	21.65	2	23.26	4	23.72	4
HD 3043 (c)	28.07	1	21.60	3	21.93	5	23.87	3
PBW 644 (c)	17.57	6	28.81	1	20.52	6	22.30	6
Mean	24.95		21.97		26.36		24.43	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		0.68		2.67		11.83	
Genotype(B)	**		0.98		2.84		12.09	
B within A	**		1.70		4.92			
A within B			1.70		4.91			
			Earheads/sqm					
HI 1620	235	1	280	4	357	4	291	2
WH 1080 (c)	191	5	289	2	291	5	257	5
WH 1142 (c)	188	6	288	3	256	6	244	6
HD 3237	212	3	272	6	361	3	282	4
HD 3043 (c)	201	4	277	5	373	2	283	3
PBW 644 (c)	215	2	298	1	403	1	306	1
Mean	207		284		340		277	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		8.19		32.17		12.55	
Genotype(B)	**		9.21		26.59		9.97	
B within A	**		15.95		46.05			
A within B			16.70		48.24			
			1000 Grains Weight, g					
HI 1620	32.05	2	32.33	4	38.47	3	34.28	2
WH 1080 (c)	27.68	5	35.63	3	30.81	5	31.37	5
WH 1142 (c)	28.30	4	36.40	2	26.83	6	30.51	6
HD 3237	28.73	3	31.29	6	38.99	2	33.00	4
HD 3043 (c)	27.11	6	31.81	5	40.64	1	33.19	3
PBW 644 (c)	34.23	1	37.13	1	37.56	4	36.31	1
Mean	29.68		34.10		35.55		33.11	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		1.38		5.41		17.67	
Genotype(B)	**		1.00		2.89		9.06	
B within A	**		1.73		5.00			
A within B			2.10		6.06			
Date of Sowing:			14.11.2017					
Date of Harvesting:			27.03.2018		04.04.2018		08.04.2018	

Table 2.2.5 North Western Plains Zone RIR-TS-TAS Jammu 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	43.45	3	42.86	1	43.29	3	43.20	2
WH 1080 (c)	44.22	2	42.02	3	43.93	2	43.39	1
WH 1142 (c)	40.35	6	38.88	6	39.90	6	39.71	6
HD 3237	44.25	1	41.29	4	43.94	1	43.16	3
HD 3043 (c)	42.17	5	39.25	5	42.03	5	41.15	5
PBW 644 (c)	43.30	4	42.37	2	43.17	4	42.95	4
Mean	42.96		41.11		42.71		42.26	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		1.03		4.03		10.31	
Genotype(B)	*		0.86		2.49		6.11	
B within A	NS		1.49		4.31			
A within B			1.71		4.93			
			Grains/Earhead					
HI 1620	28.06	6	30.39	1	25.93	6	28.13	2
WH 1080 (c)	28.62	2	25.90	5	28.30	3	27.61	4
WH 1142 (c)	28.81	1	27.35	4	26.61	5	27.59	5
HD 3237	28.23	4	27.63	3	29.80	1	28.55	1
HD 3043 (c)	28.26	3	25.80	6	28.44	2	27.50	6
PBW 644 (c)	28.12	5	27.86	2	28.22	4	28.07	3
Mean	28.35		27.49		27.88		27.91	
Irrigation (A)	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		1.02		3.99		15.44	
Genotype(B)	NS		0.85		2.45		9.11	
B within A	NS		1.47		4.24			
A within B			1.68		4.85			
			Earheads/sqm					
HI 1620	432	1	379	6	434	1	415	3
WH 1080 (c)	432	1	432	1	430	2	431	1
WH 1142 (c)	396	5	396	4	388	6	393	6
HD 3237	418	3	418	2	412	3	416	2
HD 3043 (c)	394	6	394	5	411	4	400	5
PBW 644 (c)	415	4	415	3	405	5	412	4
Mean	414		406		413		411	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		3.34		13.11		3.44	
Genotype(B)	*		7.09		20.47		5.17	
B within A	NS		12.28		35.45			
A within B			11.69		33.77			
			1000 Grains Weight, g					
HI 1620	35.90	4	37.27	3	38.54	2	37.24	3
WH 1080 (c)	35.82	5	37.66	2	36.11	5	36.53	5
WH 1142 (c)	35.74	6	36.08	5	38.79	1	36.87	4
HD 3237	37.59	2	35.78	6	35.86	6	36.41	6
HD 3043 (c)	38.15	1	38.83	1	36.14	4	37.71	1
PBW 644 (c)	37.28	3	36.82	4	37.82	3	37.31	2
Mean	36.75		37.07		37.21		37.01	
Irrigation (A)	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		0.27		1.04		3.04	
Genotype(B)	NS		0.34		0.98		2.74	
B within A	**		0.59		1.69			
A within B			0.60		1.72			
Date of Sowing:			05.11.2017					
Date of Harvesting:			30.04.2018		30.04.2018		30.04.2018	

Table 2.2.6 North Western Plains Zone RIR-TS-TAS Karnal 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	40.17	3	52.56	1	53.93	1	48.89	1
WH 1080 (c)	40.93	2	49.04	4	51.98	3	47.32	4
WH 1142 (c)	38.97	4	49.36	3	53.76	2	47.36	3
HD 3237	42.03	1	50.52	2	51.39	4	47.98	2
HD 3043 (c)	32.00	6	40.92	6	47.21	6	40.04	6
PBW 644 (c)	36.37	5	48.12	5	49.27	5	44.59	5
Mean	38.41		48.42		51.26		46.03	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.40		1.56		3.67	
Genotype(B)	**		0.74		2.13		4.80	
B within A	NS		1.27		3.68			
A within B			1.23		3.55			
			Grains/Earhead					
HI 1620	23.76	5	28.32	5	32.55	3	28.21	4
WH 1080 (c)	21.82	6	25.38	6	29.86	4	25.69	6
WH 1142 (c)	29.26	2	34.57	1	32.82	2	32.22	1
HD 3237	26.88	3	32.95	2	34.96	1	31.59	2
HD 3043 (c)	24.82	4	30.93	4	27.26	6	27.67	5
PBW 644 (c)	29.31	1	31.54	3	29.43	5	30.09	3
Mean	25.98		30.61		31.15		29.25	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		1.50		5.90		21.82	
Genotype(B)	*		1.33		3.84		13.63	
B within A	NS		2.30		6.65			
A within B			2.58		7.46			
			Earheads/sqm					
HI 1620	316	5	442	2	359	5	372	4
WH 1080 (c)	430	1	527	1	458	2	472	1
WH 1142 (c)	361	2	427	3	453	3	414	2
HD 3237	331	4	386	4	344	6	353	6
HD 3043 (c)	359	3	366	6	462	1	396	3
PBW 644 (c)	307	6	371	5	416	4	364	5
Mean	351		420		415		395	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		20.02		78.61		21.50	
Genotype(B)	**		15.56		44.93		11.81	
B within A	NS		26.95		77.81			
A within B			31.72		91.60			
			1000 Grains Weight, g					
HI 1620	53.47	1	42.23	1	46.83	1	47.51	1
WH 1080 (c)	43.87	3	36.64	4	40.70	3	40.40	4
WH 1142 (c)	36.99	5	33.56	6	36.21	6	35.59	6
HD 3237	47.51	2	40.31	3	43.44	2	43.75	2
HD 3043 (c)	36.58	6	36.52	5	39.03	5	37.38	5
PBW 644 (c)	40.80	4	41.30	2	40.48	4	40.86	3
Mean	43.20		38.42		41.12		40.91	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.45		1.75		4.63	
Genotype(B)	**		0.70		2.02		5.14	
B within A	**		1.21		3.51			
A within B			1.20		3.45			
Date of Sowing:			27.10.2017					
Date of Harvesting:			16.04.2018					

Table 2.2.7 North Western Plains Zone RIR-TS-TAS Ludhiana 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha		02.05.2018			
HI 1620	40.52	1	44.14	1	48.54	1	44.40	1
WH 1080 (c)	28.69	3	35.48	3	41.22	3	35.13	3
WH 1142 (c)	26.47	4	32.08	4	38.87	4	32.48	4
HD 3237	38.05	2	41.13	2	47.61	2	42.26	2
HD 3043 (c)	16.37	6	21.93	6	24.47	6	20.92	6
PBW 644 (c)	23.14	5	27.15	5	36.20	5	28.83	5
Mean	28.87		33.65		39.48		34.00	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.67		2.61		8.31	
Genotype(B)	**		1.02		2.95		9.03	
B within A	NS		1.77		5.12			
A within B			1.75		5.05			
			Grains/Earhead					
HI 1620	33.08	3	37.63	3	40.18	2	36.97	3
WH 1080 (c)	23.30	5	32.77	6	34.48	4	30.18	5
WH 1142 (c)	29.96	4	38.94	2	42.80	1	37.23	2
HD 3237	36.14	1	37.08	4	33.32	5	35.51	4
HD 3043 (c)	23.00	6	33.18	5	29.36	6	28.51	6
PBW 644 (c)	34.36	2	39.20	1	38.37	3	37.31	1
Mean	29.97		36.47		36.42		34.29	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		1.39		5.44		17.15	
Genotype(B)	**		1.15		3.33		10.09	
B within A	*		2.00		5.77			
A within B			2.29		6.61			
			Earheads/sqm					
HI 1620	308	4	334	2	338	3	327	4
WH 1080 (c)	319	2	329	3	355	2	334	2
WH 1142 (c)	309	3	345	1	358	1	337	1
HD 3237	325	1	328	4	333	4	328	3
HD 3043 (c)	260	5	270	5	289	6	273	5
PBW 644 (c)	256	6	262	6	296	5	271	6
Mean	296		311		328		312	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		3.75		14.72		5.10	
Genotype(B)	**		8.17		23.59		7.86	
B within A	NS		14.15		40.86			
A within B			13.45		38.84			
			1000 Grains Weight, g					
HI 1620	39.99	1	35.47	1	35.88	2	37.11	1
WH 1080 (c)	38.62	2	33.08	3	33.63	3	35.11	3
WH 1142 (c)	29.07	4	23.92	6	25.75	6	26.25	6
HD 3237	32.49	3	34.06	2	42.95	1	36.50	2
HD 3043 (c)	27.59	5	24.54	5	29.03	5	27.05	5
PBW 644 (c)	26.45	6	26.65	4	32.11	4	28.41	4
Mean	32.37		29.62		33.23		31.74	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		0.45		1.79		6.08	
Genotype(B)	**		0.72		2.07		6.78	
B within A	**		1.24		3.59			
A within B			1.22		3.53			
Date of Sowing:			05.11.2017					
Date of Harvesting:			17.04.2018					

Table 2.2.8 North Western Plains Zone RIR-TS-TAS Delhi 2017-18

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield, q/ha					
HI 1620	46.94	2	49.32	1	52.72	1	49.66	1
WH 1080 (c)	45.24	5	47.28	4	50.51	5	47.68	5
WH 1142 (c)	43.88	6	46.09	6	49.32	6	46.43	6
HD 3237	48.30	1	46.94	5	52.21	2	49.15	2
HD 3043 (c)	46.77	3	48.81	2	51.36	3	48.98	3
PBW 644 (c)	45.58	4	47.96	3	51.02	4	48.19	4
Mean	46.12		47.73		51.19		48.35	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		0.79		3.12		6.98	
Genotype(B)	*		0.63		1.83		3.93	
B within A	NS		1.10		3.17			
A within B			1.28		3.69			
			Grains/Earhead					
HI 1620	35.46	1	33.01	2	28.82	3	32.43	2
WH 1080 (c)	30.64	6	26.92	6	23.42	6	26.99	6
WH 1142 (c)	32.26	4	30.08	4	27.50	5	29.95	5
HD 3237	32.63	3	27.74	5	30.13	2	30.17	4
HD 3043 (c)	31.92	5	30.47	3	28.50	4	30.29	3
PBW 644 (c)	34.56	2	33.04	1	32.79	1	33.46	1
Mean	32.91		30.21		28.53		30.55	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		2.69		10.56		37.35	
Genotype(B)	**		1.12		3.24		11.03	
B within A	NS		1.95		5.62			
A within B			3.22		9.31			
			Earheads/sqm					
HI 1620	384	6	413	6	476	5	424	6
WH 1080 (c)	441	2	512	2	577	1	510	1
WH 1142 (c)	427	4	449	5	502	3	459	4
HD 3237	439	3	479	3	480	4	466	3
HD 3043 (c)	461	1	517	1	533	2	504	2
PBW 644 (c)	427	4	456	4	464	6	449	5
Mean	430		471		505		469	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		27.17		106.65		24.59	
Genotype(B)	**		15.22		43.95		9.74	
B within A	NS		26.36		76.13			
A within B			36.29		104.81			
			1000 Grains Weight, g					
HI 1620	35.80	1	37.23	1	38.50	1	37.18	1
WH 1080 (c)	34.63	2	36.53	2	37.63	2	36.27	2
WH 1142 (c)	32.33	5	34.57	4	36.07	4	34.32	4
HD 3237	34.50	3	35.53	3	36.67	3	35.57	3
HD 3043 (c)	33.57	4	31.53	6	33.90	6	33.00	5
PBW 644 (c)	31.80	6	32.47	5	34.13	5	32.80	6
Mean	33.77		34.65		36.15		34.86	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		0.37		1.44		4.48	
Genotype(B)	**		0.58		1.68		5.02	
B within A	NS		1.01		2.92			
A within B			0.99		2.87			
Date of Sowing:			28.11.2017					
Date of Harvesting:			24.05.2018					

Table 2.2.9 North Western Plains Zone RIR-TS-TAS Pantnagar 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	24.53	3	45.33	1	47.77	2	39.21	1
WH 1080 (c)	24.13	4	42.73	2	41.43	5	36.10	4
WH 1142 (c)	21.50	6	37.70	6	38.47	6	32.56	6
HD 3237	26.20	2	40.87	4	49.50	1	38.86	2
HD 3043 (c)	21.53	5	39.77	5	43.23	4	34.84	5
PBW 644 (c)	26.93	1	41.57	3	43.53	3	37.34	3
Mean	24.14		41.33		43.99		36.49	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.78		3.04		9.02	
Genotype(B)	**		0.66		1.90		5.42	
B within A	**		1.14		3.30			
A within B			1.30		3.75			
			Grains/Earhead					
HI 1620	22.94	3	26.17	6	26.24	6	25.12	6
WH 1080 (c)	21.64	5	28.61	4	27.47	5	25.91	5
WH 1142 (c)	22.87	4	30.85	2	30.79	4	28.17	3
HD 3237	24.57	2	34.11	1	32.92	1	30.54	1
HD 3043 (c)	20.43	6	28.06	5	31.56	3	26.68	4
PBW 644 (c)	29.79	1	28.72	3	32.34	2	30.28	2
Mean	23.71		29.42		30.22		27.78	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.77		3.04		11.81	
Genotype(B)	*		1.29		3.73		13.95	
B within A	NS		2.24		6.46			
A within B			2.18		6.31			
			Earheads/sqm					
HI 1620	275	3	352	4	408	1	345	3
WH 1080 (c)	259	4	394	1	395	2	349	2
WH 1142 (c)	253	5	341	5	389	3	328	5
HD 3237	291	2	319	6	376	5	329	4
HD 3043 (c)	301	1	376	2	381	4	353	1
PBW 644 (c)	249	6	353	3	373	6	325	6
Mean	272		356		387		338	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		2.90		11.39		3.64	
Genotype(B)	NS		10.97		31.67		9.73	
B within A	NS		19.00		54.86			
A within B			17.58		50.77			
			1000 Grains Weight, g					
HI 1620	39.13	2	49.37	1	45.10	1	44.53	1
WH 1080 (c)	43.33	1	38.67	3	38.80	3	40.27	2
WH 1142 (c)	37.60	3	36.00	6	32.27	6	35.29	6
HD 3237	36.63	5	38.43	4	40.77	2	38.61	3
HD 3043 (c)	34.97	6	37.70	5	36.20	4	36.29	5
PBW 644 (c)	37.20	4	41.30	2	36.10	5	38.20	4
Mean	38.14		40.24		38.21		38.86	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	*		0.49		1.91		5.31	
Genotype(B)	**		0.97		2.81		7.52	
B within A	**		1.69		4.87			
A within B			1.62		4.66			
Date of Sowing:			22.11.2017					
Date of Harvesting:			15.04.2018		17.04.2018		17.04.2018	

Table 2.2.10 North Western Plains Zone RIR-TS-TAS Sriganganagar 2017-18

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 1620	31.56	1	72.51	1	77.94	1	60.67	1
WH 1080 (c)	28.11	3	57.04	6	65.34	6	50.16	6
WH 1142 (c)	25.78	5	59.67	5	66.47	4	50.64	5
HD 3237	27.99	4	60.28	4	65.57	5	51.28	4
HD 3043 (c)	23.47	6	63.60	2	69.62	2	52.23	3
PBW 644 (c)	28.51	2	62.06	3	68.10	3	52.89	2
Mean	27.57		62.53		68.84		52.98	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		1.40		5.49		11.20	
Genotype(B)	**		1.09		3.14		6.16	
B within A	NS		1.88		5.44			
A within B			2.22		6.40			
			Grains/Earhead					
HI 1620	30.44	6	33.17	4	32.02	5	31.88	6
WH 1080 (c)	35.98	3	31.44	6	32.02	6	33.15	4
WH 1142 (c)	38.24	2	37.34	2	36.43	2	37.34	2
HD 3237	33.13	5	31.88	5	32.65	4	32.55	5
HD 3043 (c)	38.85	1	37.64	1	40.71	1	39.06	1
PBW 644 (c)	33.70	4	35.54	3	35.92	3	35.05	3
Mean	35.05		34.50		34.96		34.84	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	NS		0.72		2.84		8.81	
Genotype(B)	*		1.64		4.75		14.16	
B within A	NS		2.85		8.23			
A within B			2.70		7.80			
			Earheads/sqm					
HI 1620	295	1	589	1	594	1	493	1
WH 1080 (c)	269	3	526	5	528	5	441	4
WH 1142 (c)	248	5	535	2	541	2	441	3
HD 3237	260	4	520	6	526	6	435	5
HD 3043 (c)	212	6	533	3	533	4	426	6
PBW 644 (c)	270	2	531	4	538	3	446	2
Mean	259		539		543		447	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		4.92		19.32		4.67	
Genotype(B)	*		14.18		40.96		9.52	
B within A	NS		24.57		70.94			
A within B			22.96		66.30			
			1000 Grains Weight, g					
HI 1620	35.41	1	37.34	1	41.21	1	37.99	1
WH 1080 (c)	29.29	4	34.51	3	38.63	2	34.14	3
WH 1142 (c)	27.72	6	30.41	6	33.74	5	30.62	6
HD 3237	33.68	2	36.34	2	38.57	3	36.20	2
HD 3043 (c)	28.54	5	31.95	5	32.58	6	31.02	5
PBW 644 (c)	31.33	3	32.96	4	35.26	4	33.18	4
Mean	31.00		33.92		36.67		33.86	
	F. Test		SEm		CD(0.05)		CV(%)	
Irrigation (A)	**		0.10		0.40		1.27	
Genotype(B)	**		0.25		0.72		2.22	
B within A	**		0.43		1.25			
A within B			0.41		1.18			
Date of Sowing:			15.11.2017					
Date of Harvesting:			04.04.2018		06.04.2018		08.04.2018	

Table 3.1.1. North Eastern Plains Zone IR-TAS-DOS Burdwan 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	37.59	7	34.35	3	30.41	2	34.12	6
HD 2733 (c)	45.35	5	33.84	5	24.03	7	34.40	5
HD 2967 (c)	40.67	6	26.90	7	22.18	8	29.92	8
WR 544 (c)	29.86	8	36.30	2	28.70	4	31.62	7
DBW 39 (c)	49.54	4	26.53	8	27.59	5	34.55	4
PBW 757	49.91	3	32.20	6	29.21	3	37.11	3
DBW 71 (c)	56.18	2	33.84	4	33.63	1	41.22	1
DBW 187	56.69	1	36.64	1	27.02	6	40.12	2
Mean	45.72		32.58		27.85		35.38	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.25		0.97		3.43	
Genotype (B)	**		0.44		1.25		3.71	
B within A	**		0.76		2.16			
A within B			0.75		2.17			
			Grains/Earhead					
DBW 14 (c)	31.55	6	31.92	2	33.56	3	32.34	4
HD 2733 (c)	31.33	7	28.47	6	25.13	8	28.31	8
HD 2967 (c)	35.42	3	27.08	8	26.50	7	29.67	7
WR 544 (c)	30.65	8	31.16	3	30.28	5	30.70	6
DBW 39 (c)	38.90	1	28.37	7	35.23	1	34.17	1
PBW 757	34.34	5	32.37	1	32.01	4	32.91	3
DBW 71 (c)	36.17	2	29.79	5	34.90	2	33.62	2
DBW 187	35.19	4	30.83	4	29.99	6	32.00	5
Mean	34.19		30.00		30.95		31.71	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.35		1.39		5.45	
Genotype(B)	**		0.33		0.94		3.12	
B within A	**		0.57		1.63			
A within B			0.64		1.85			
			Earheads/sqm					
DBW 14 (c)	280	7	272	7	265	5	272	5
HD 2733 (c)	307	5	285	4	232	8	274	4
HD 2967 (c)	290	6	273	6	250	6	271	6
WR 544 (c)	237	8	297	3	267	3	267	7
DBW 39 (c)	313	4	237	8	235	7	262	8
PBW 757	330	3	280	5	268	2	293	3
DBW 71 (c)	362	1	308	1	292	1	321	1
DBW 187	352	2	302	2	267	3	307	2
Mean	309		282		259		283	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.14		4.47		1.97	
Genotype (B)	**		4.47		12.76		4.73	
B within A	**		7.74		22.10			
A within B			7.33		21.16			
			1000 Grains Weight, g					
DBW 14 (c)	42.57	5	39.63	2	34.24	3	38.81	3
HD 2733 (c)	47.25	1	41.76	1	41.31	1	43.44	1
HD 2967 (c)	39.67	8	36.38	7	33.49	6	36.51	8
WR 544 (c)	41.19	6	39.30	5	35.58	2	38.69	4
DBW 39 (c)	40.70	7	39.60	3	33.40	7	37.90	6
PBW 757	44.07	3	35.60	8	34.08	4	37.91	5
DBW 71 (c)	42.97	4	03.12.2017	6	33.02	8	37.62	7
DBW 187	45.83	2	01.04.2018	4	33.79	5	39.68	2
Mean	43.03		38.57		34.86		38.82	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.21		0.82		2.62	
Genotype(B)	**		0.45		1.27		3.44	
B within A	**		0.77		2.20			
A within B			0.75		2.17			
Date of Sowing:			09.11.2017		14.12.2017		05.01.2018	
Date of Harvesting:			23.03.2018		04.04.2018		11.04.2018	

Table 3.1.2. North Eastern Plains Zone IR-TAS-DOS Coochbehar 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	18.23	8	22.30	7	11.10	7	17.21	7
HD 2733 (c)	34.80	2	36.57	4	18.47	4	29.94	4
HD 2967 (c)	30.53	5	40.97	1	22.77	1	31.42	2
WR 544 (c)	19.47	7	18.47	8	11.03	8	16.32	8
DBW 39 (c)	42.17	1	37.43	3	22.35	2	33.98	1
PBW 757	30.20	6	29.30	6	15.63	5	25.04	5
DBW 71 (c)	32.30	3	39.07	2	21.63	3	31.00	3
DBW 187	31.53	4	31.83	5	11.47	6	24.94	6
Mean	29.90		31.99		16.81		26.23	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.24		0.93		4.40	
Genotype (B)	**		0.96		2.73		10.93	
B within A	**		1.66		4.73			
A within B			1.57		4.52			
			Grains/Earhead					
DBW 14 (c)	28.82	8	29.89	7	22.11	7	26.94	7
HD 2733 (c)	36.33	3	35.86	3	32.88	3	35.02	3
HD 2967 (c)	33.99	5	37.37	2	29.72	5	33.69	5
WR 544 (c)	29.91	7	28.16	8	21.24	8	26.44	8
DBW 39 (c)	46.96	1	38.00	1	33.93	2	39.63	1
PBW 757	32.56	6	30.07	6	30.58	4	31.07	6
DBW 71 (c)	35.99	4	34.48	5	34.78	1	35.08	2
DBW 187	36.46	2	35.36	4	29.51	6	33.78	4
Mean	35.13		33.65		29.34		32.71	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.67		2.65		10.09	
Genotype(B)	**		1.56		4.45		14.31	
B within A	NS		2.70		7.71			
A within B			2.62		7.55			
			Earheads/sqm					
DBW 14 (c)	189	8	224	7	163	6	192	7
HD 2733 (c)	250	4	276	5	160	7	229	5
HD 2967 (c)	221	6	278	4	199	2	233	4
WR 544 (c)	191	7	195	8	163	5	183	8
DBW 39 (c)	274	1	313	2	217	1	268	1
PBW 757	267	2	290	3	165	4	241	3
DBW 71 (c)	259	3	339	1	191	3	263	2
DBW 187	230	5	245	6	117	8	197	6
Mean	235		270		172		226	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.87		7.33		4.05	
Genotype (B)	**		5.82		16.62		7.74	
B within A	**		10.08		28.79			
A within B			13.11.2017		27.77			
			1000 Grains Weight, g					
DBW 14 (c)	33.43	7	33.30	7	31.30	7	32.68	7
HD 2733 (c)	38.43	2	37.00	2	35.13	2	36.86	2
HD 2967 (c)	40.83	1	39.47	1	38.50	1	39.60	1
WR 544 (c)	34.40	6	33.60	5	32.13	6	33.38	6
DBW 39 (c)	32.73	8	31.70	8	30.90	8	31.78	8
PBW 757	34.90	4	33.63	4	32.77	5	33.77	4
DBW 71 (c)	34.73	5	33.40	6	32.80	4	33.64	5
DBW 187	37.57	3	36.70	3	33.63	3	35.97	3
Mean	35.88		34.85		33.40		34.71	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.17		0.68		2.45	
Genotype(B)	**		0.35		1.01		3.04	
B within A	NS		0.61		1.74			
A within B			0.60		1.72			
Date of Sowing:			09.11.2017		15.12.2017		03.01.2018	
Date of Harvesting:			28.02.2018		30.03.2018		07.04.2018	

Table 3.1.3. North Eastern Plains Zone IR-TAS-DOS Faizabad 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	49.07	7	46.26	3	25.00	7	40.11	6
HD 2733 (c)	50.00	5	45.49	5	28.15	3	41.21	5
HD 2967 (c)	50.94	2	44.30	7	24.83	8	40.02	7
WR 544 (c)	48.89	8	44.98	6	30.61	1	41.50	4
DBW 39 (c)	52.72	1	45.83	4	27.21	5	41.92	3
PBW 757	50.08	4	48.47	1	29.34	2	42.63	1
DBW 71 (c)	49.83	6	43.88	8	25.26	6	39.66	8
DBW 187	50.68	3	47.79	2	27.72	4	42.06	2
Mean	50.28		45.88		27.26		41.14	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.25		1.00		3.03	
Genotype (B)	**		0.47		1.35		3.46	
B within A	**		0.82		2.35			
A within B			0.81		2.34			
			Grains/Earhead					
DBW 14 (c)	37.25	2	27.77	8	25.65	8	30.23	8
HD 2733 (c)	35.94	6	34.71	5	29.06	3	33.24	4
HD 2967 (c)	33.52	8	36.18	2	31.20	2	33.63	3
WR 544 (c)	37.08	3	30.63	7	28.34	5	32.02	7
DBW 39 (c)	34.25	7	35.29	4	34.13	1	34.56	2
PBW 757	36.75	4	31.77	6	28.92	4	32.48	6
DBW 71 (c)	38.72	1	38.51	1	27.40	7	34.88	1
DBW 187	36.25	5	35.32	3	27.96	6	33.17	5
Mean	36.22		33.77		29.08		33.03	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.47		1.85		6.98	
Genotype(B)	**		0.85		2.44		7.76	
B within A	**		1.48		4.23			
A within B			1.46		4.22			
			Earheads/sqm					
DBW 14 (c)	316	7	411	1	313	5	347	2
HD 2733 (c)	319	6	377	5	332	2	343	6
HD 2967 (c)	358	1	373	6	289	8	340	7
WR 544 (c)	315	8	371	7	345	1	343	5
DBW 39 (c)	336	3	382	4	320	4	346	3
PBW 757	331	4	08.11.2017	2	300	6	344	4
DBW 71 (c)	326	5	04.04.2018	8	08.04.2018	7	08.04.2018	8
DBW 187	344	2	386	3	328	3	353	1
Mean	331		383		315		343	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.60		2.34		0.85	
Genotype (B)	**		2.76		7.87		2.41	
B within A	**		4.77		13.63			
A within B			4.51		13.01			
			1000 Grains Weight, g					
DBW 14 (c)	41.80	5	40.60	1	31.37	4	37.92	1
HD 2733 (c)	43.70	2	34.80	5	29.40	6	35.97	4
HD 2967 (c)	42.50	3	32.90	7	27.60	7	34.33	7
WR 544 (c)	42.00	4	39.80	2	31.50	3	37.77	3
DBW 39 (c)	45.80	1	34.10	6	25.10	8	35.00	6
PBW 757	41.30	6	38.30	3	34.00	1	37.87	2
DBW 71 (c)	39.50	8	31.60	8	31.80	2	34.30	8
DBW 187	40.70	7	35.20	4	30.30	5	35.40	5
Mean	42.16		35.91		30.13		36.07	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.32		1.27		4.40	
Genotype(B)	**		0.83		2.37		6.89	
B within A	**		1.44		4.10			
A within B			1.38		3.99			
Date of Sowing:			11.11.2017		16.12.2017		01.07.2018	
Date of Harvesting:			15.04.2018		20.04.2018		05.01.2018	

Table 3.1.4. North Eastern Plains Zone IR-TAS-DOS IARI PUSA 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	31.67	8	42.18	7	40.99	3	38.28	8
HD 2733 (c)	52.96	1	48.88	4	46.33	1	49.39	2
HD 2967 (c)	45.07	6	48.13	5	37.55	7	43.58	6
WR 544 (c)	39.12	7	38.30	8	40.51	5	39.31	7
DBW 39 (c)	46.73	4	47.31	6	40.85	4	44.97	4
PBW 757	46.63	5	49.52	3	38.30	6	44.82	5
DBW 71 (c)	51.02	2	53.50	2	45.68	2	50.07	1
DBW 187	47.38	3	54.42	1	36.67	8	46.16	3
Mean	45.07		47.78		40.86		44.57	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		1.33		5.23		14.66	
Genotype (B)	**		1.61		4.59		10.83	
B within A	*		2.79		7.96			
A within B			2.93		8.46			
			Grains/Earhead					
DBW 14 (c)	14.96	8	25.99	6	26.85	7	22.60	8
HD 2733 (c)	27.65	7	22.84	7	24.66	8	25.05	7
HD 2967 (c)	31.55	6	33.44	2	29.07	3	31.35	4
WR 544 (c)	32.15	5	22.20	8	27.41	5	27.25	6
DBW 39 (c)	34.13	4	27.86	5	28.50	4	30.16	5
PBW 757	36.90	2	31.30	4	29.26	2	32.49	3
DBW 71 (c)	39.92	1	32.57	3	33.92	1	35.47	1
DBW 187	34.41	3	36.54	1	27.11	6	32.69	2
Mean	31.46		29.09		28.35		29.63	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.82		3.21		13.52	
Genotype(B)	**		1.35		3.85		13.64	
B within A	**		2.33		6.66			
A within B			2.33		6.73			
			Earheads/sqm					
DBW 14 (c)	506	1	403	4	397	3	435	2
HD 2733 (c)	418	2	478	1	455	1	450	1
HD 2967 (c)	346	6	411	2	449	2	402	3
WR 544 (c)	287	8	377	7	351	8	338	8
DBW 39 (c)	347	5	387	6	388	5	374	5
PBW 757	326	7	410	3	363	7	366	6
DBW 71 (c)	347	4	393	5	396	4	379	4
DBW 187	362	3	360	8	370	6	364	7
Mean	367		402		396		388	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		15.57		61.12		19.63	
Genotype (B)	**		12.88		36.76		9.94	
B within A	**		22.30		63.67			
A within B			26.03		75.17			
			1000 Grains Weight, g					
DBW 14 (c)	41.79	3	40.76	6	39.03	3	40.53	4
HD 2733 (c)	46.30	1	45.48	2	41.11	2	44.30	1
HD 2967 (c)	41.38	4	35.09	8	29.04	8	35.17	8
WR 544 (c)	42.71	2	45.92	1	42.25	1	43.63	2
DBW 39 (c)	40.43	5	44.04	3	37.15	5	40.54	3
PBW 757	39.33	7	39.26	7	36.37	6	38.32	6
DBW 71 (c)	36.77	8	41.94	4	33.95	7	37.55	7
DBW 187	39.79	6	41.46	5	37.34	4	39.53	5
Mean	41.06		41.74		37.03		39.95	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.61		2.38		7.44	
Genotype(B)	**		1.08		3.09		8.13	
B within A	NS		1.87		5.35			
A within B			1.85		5.36			
Date of Sowing:			07.11.2017		14.12.2017		03.01.2018	
Date of Harvesting:			05.04.2018		12.04.2018		17.04.2018	

Table 3.1.5. North Eastern Plains Zone IR-TAS-DOS Kalyani 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	38.02	5	29.68	8	23.72	3	30.47	6
HD 2733 (c)	42.58	1	36.11	3	18.04	8	32.24	5
HD 2967 (c)	41.41	2	40.00	1	22.89	5	34.77	1
WR 544 (c)	32.65	8	31.31	7	19.42	7	27.79	8
DBW 39 (c)	38.28	4	37.59	2	23.41	4	33.09	2
PBW 757	39.62	3	33.64	4	24.44	2	32.57	3
DBW 71 (c)	37.70	6	32.85	5	26.44	1	32.33	4
DBW 187	34.98	7	32.56	6	20.28	6	29.27	7
Mean	38.16		34.22		22.33		31.57	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.84		3.30		13.06	
Genotype (B)	**		1.27		3.64		12.11	
B within A	NS		2.21		6.30			
A within B			2.23		6.44			
			Grains/Earhead					
DBW 14 (c)	52.11	6	37.60	7	37.09	4	42.27	7
HD 2733 (c)	60.68	4	44.38	4	25.85	8	43.64	6
HD 2967 (c)	49.13	7	56.87	1	35.85	5	47.28	4
WR 544 (c)	45.71	8	34.53	8	28.61	7	36.28	8
DBW 39 (c)	67.70	3	54.30	2	42.21	2	54.74	2
PBW 757	88.95	1	39.51	6	38.53	3	55.66	1
DBW 71 (c)	69.62	2	42.89	5	43.27	1	51.93	3
DBW 187	58.49	5	47.57	3	34.46	6	46.84	5
Mean	61.55		44.71		35.73		47.33	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.70		6.66		17.57	
Genotype(B)	*		3.95		11.29		25.06	
B within A	NS		6.85		19.55			
A within B			6.63		19.14			
			Earheads/sqm					
DBW 14 (c)	168	3	241	5	175	7	195	5
HD 2733 (c)	188	2	247	3	200	2	211	1
HD 2967 (c)	221	1	219	7	193	3	211	2
WR 544 (c)	163	4	241	4	203	1	202	3
DBW 39 (c)	156	6	228	6	164	8	183	7
PBW 757	139	8	251	1	187	5	192	6
DBW 71 (c)	155	7	248	2	190	4	197	4
DBW 187	157	5	204	8	184	6	182	8
Mean	168		235		187		197	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		9.75		38.29		24.30	
Genotype (B)	NS		9.80		27.99		14.95	
B within A	NS		16.98		48.47			
A within B			18.64		53.82			
			1000 Grains Weight, g					
DBW 14 (c)	44.87	1	32.89	6	36.72	1	38.16	2
HD 2733 (c)	39.47	3	36.00	2	34.93	2	36.80	3
HD 2967 (c)	38.58	4	34.55	4	33.27	6	35.47	4
WR 544 (c)	43.95	2	37.72	1	33.72	5	38.46	1
DBW 39 (c)	36.61	6	32.18	8	34.24	3	34.34	6
PBW 757	33.29	8	34.94	3	33.79	4	34.01	7
DBW 71 (c)	36.42	7	32.73	7	32.57	8	33.91	8
DBW 187	38.35	5	34.04	5	33.12	7	35.17	5
Mean	38.94		34.38		34.04		35.79	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.41		1.62		5.66	
Genotype(B)	NS		1.40		4.01		11.76	
B within A	NS		2.43		6.94			
A within B			2.31		6.67			
Date of Sowing:			11.11.2017		15.12.2017		03.01.2018	
Date of Harvesting:			08.03.2018		28.03.2018		19.04.2018	

Table 3.1.6. North Eastern Plains Zone IR-TAS-DOS Kanpur 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	38.74	8	32.02	6	33.25	1	34.67	7
HD 2733 (c)	48.26	3	31.02	7	26.14	4	35.14	5
HD 2967 (c)	44.86	4	37.01	4	23.20	7	35.02	6
WR 544 (c)	40.19	7	34.93	5	26.18	3	33.77	8
DBW 39 (c)	52.08	2	30.83	8	24.47	5	35.79	4
PBW 757	58.47	1	38.01	3	22.20	8	39.56	1
DBW 71 (c)	42.27	6	41.84	1	23.90	6	36.00	3
DBW 187	44.44	5	38.10	2	26.38	2	36.31	2
Mean	46.16		35.47		25.72		35.78	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.41		1.60		5.58	
Genotype (B)	**		0.66		1.89		5.55	
B within A	**		1.15		3.28			
A within B			1.15		3.31			
			Grains/Earhead					
DBW 14 (c)	28.42	6	22.90	8	28.66	1	26.66	2
HD 2733 (c)	28.42	7	24.69	7	25.75	2	26.29	4
HD 2967 (c)	30.35	3	25.44	4	21.24	8	25.68	8
WR 544 (c)	28.39	8	25.95	3	02.05.2018	5	25.72	7
DBW 39 (c)	31.03	1	26.14	2	22.89	4	26.68	1
PBW 757	29.55	5	25.40	5	22.69	6	25.88	5
DBW 71 (c)	29.71	4	26.30	1	23.29	3	26.43	3
DBW 187	30.53	2	24.70	6	21.99	7	25.74	6
Mean	29.55		25.19		23.67		26.14	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.31		1.23		5.87	
Genotype(B)	NS		0.68		1.93		7.78	
B within A	**		1.17		3.35			
A within B			1.14		3.30			
			Earheads/sqm					
DBW 14 (c)	358	8	370	5	312	2	347	5
HD 2733 (c)	416	2	336	7	279	6	344	6
HD 2967 (c)	382	4	380	4	297	4	353	3
WR 544 (c)	372	5	362	6	310	3	348	4
DBW 39 (c)	397	3	323	8	293	5	338	8
PBW 757	454	1	382	3	273	8	370	1
DBW 71 (c)	362	7	390	1	276	7	343	7
DBW 187	366	6	386	2	313	1	355	2
Mean	388		366		294		350	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		2.84		11.17		3.99	
Genotype (B)	**		3.94		11.24		3.38	
B within A	**		6.82		19.47			
A within B			6.98		20.16			
			1000 Grains Weight, g					
DBW 14 (c)	38.10	8	37.80	5	37.20	2	37.70	7
HD 2733 (c)	40.88	3	37.40	6	36.40	7	38.23	5
HD 2967 (c)	38.80	6	38.40	4	36.80	5	38.00	6
WR 544 (c)	38.20	7	37.20	7	37.00	4	37.47	8
DBW 39 (c)	42.70	2	36.80	8	36.53	6	38.68	4
PBW 757	43.60	1	39.17	3	35.80	8	39.52	1
DBW 71 (c)	39.40	5	40.80	1	37.20	3	39.13	3
DBW 187	39.80	4	39.93	2	38.40	1	39.38	2
Mean	40.18		38.44		36.92		38.51	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.40		1.55		5.03	
Genotype(B)	*		0.49		1.40		3.83	
B within A	**		0.85		2.43			
A within B			0.89		2.57			
Date of Sowing:			10.11.2017		13.12.2017		07.01.2018	
Date of Harvesting:			18.04.2018		20.04.2018		22.04.2018	

Table 3.1.7. North Eastern Plains Zone IR-TAS-DOS Ranchi 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	41.97	7	36.80	5	30.67	4	36.48	7
HD 2733 (c)	50.57	1	41.93	3	28.07	7	40.19	1
HD 2967 (c)	42.83	6	35.37	6	31.27	3	36.49	6
WR 544 (c)	40.50	8	33.07	8	29.90	6	34.49	8
DBW 39 (c)	43.37	5	39.57	4	30.27	5	37.73	4
PBW 757	44.17	4	33.67	7	32.23	2	36.69	5
DBW 71 (c)	44.33	3	42.07	2	32.33	1	39.58	2
DBW 187	44.77	2	43.23	1	27.47	8	38.49	3
Mean	44.06		38.21		30.28		37.52	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.72		2.82		9.40	
Genotype (B)	**		1.04		2.96		8.29	
B within A	**		1.80		5.13			
A within B			1.83		5.28			
			Grains/Earhead					
DBW 14 (c)	26.82	7	25.62	6	30.29	4	27.58	7
HD 2733 (c)	31.81	1	29.53	1	27.12	8	29.49	3
HD 2967 (c)	26.52	8	28.92	2	30.95	3	28.80	5
WR 544 (c)	31.58	2	22.42	8	28.46	7	27.49	8
DBW 39 (c)	27.87	5	27.39	5	29.07	5	28.11	6
PBW 757	30.93	4	23.94	7	33.75	1	29.54	2
DBW 71 (c)	31.53	3	28.79	3	28.61	6	29.64	1
DBW 187	27.42	6	28.74	4	31.05	2	29.07	4
Mean	29.31		26.92		29.91		28.71	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		1.00		3.94		17.14	
Genotype(B)	NS		1.35		3.86		14.12	
B within A	NS		2.34		6.68			
A within B			2.41		6.96			
			Earheads/sqm					
DBW 14 (c)	357	6	335	8	282	5	324	5
HD 2733 (c)	420	1	385	1	287	2	364	1
HD 2967 (c)	400	2	342	6	285	3	342	2
WR 544 (c)	318	7	355	2	285	3	319	7
DBW 39 (c)	372	3	355	2	277	6	334	4
PBW 757	317	8	340	7	275	7	311	8
DBW 71 (c)	362	4	345	5	305	1	337	3
DBW 187	360	5	353	4	250	8	321	6
Mean	363		351		281		332	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		6.83		26.82		10.09	
Genotype (B)	NS		12.67		36.18		11.46	
B within A	NS		21.95		62.67			
A within B			21.64		62.48			
			1000 Grains Weight, g					
DBW 14 (c)	44.40	3	42.93	2	36.17	6	41.17	2
HD 2733 (c)	37.97	8	37.27	7	36.20	5	37.14	8
HD 2967 (c)	40.50	6	36.63	8	36.57	4	37.90	7
WR 544 (c)	41.60	5	41.57	5	37.70	1	40.29	4
DBW 39 (c)	41.87	4	40.87	6	37.43	2	40.06	5
PBW 757	45.13	2	42.13	4	34.73	8	40.67	3
DBW 71 (c)	39.03	7	42.50	3	37.13	3	39.56	6
DBW 187	45.40	1	43.40	1	35.43	7	41.41	1
Mean	41.99		40.91		36.42		39.77	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.15		0.57		1.80	
Genotype(B)	**		0.38		1.09		2.88	
B within A	**		0.66		1.89			
A within B			0.63		1.83			
Date of Sowing:			11.11.2017		02.12.2017		26.12.2017	
Date of Harvesting:			10.04.2018		16.04.2018		20.04.2018	

Table 3.1.8. North Eastern Plains Zone IR-TAS-DOS RAU PUSA 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	46.28	6	44.65	5	38.88	5	43.27	5
HD 2733 (c)	45.75	7	42.15	7	37.95	7	41.95	7
HD 2967 (c)	47.26	5	42.87	6	38.54	6	42.89	6
WR 544 (c)	44.59	8	38.59	8	34.86	8	39.35	8
DBW 39 (c)	48.95	4	47.85	3	42.66	2	46.49	3
PBW 757	51.63	1	45.44	4	40.89	4	45.99	4
DBW 71 (c)	49.87	3	48.52	1	42.55	3	46.98	2
DBW 187	50.66	2	47.98	2	44.72	1	47.79	1
Mean	48.12		44.76		40.13		44.34	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		1.02		3.99		11.22	
Genotype (B)	**		0.88		2.53		5.98	
B within A	NS		1.53		4.37			
A within B			1.76		5.07			
			Grains/Earhead					
DBW 14 (c)	39.43	7	41.94	5	42.74	6	41.37	7
HD 2733 (c)	43.20	3	44.83	3	46.70	3	44.91	3
HD 2967 (c)	38.27	8	38.01	8	39.11	8	38.46	8
WR 544 (c)	40.47	5	43.86	4	41.77	7	42.03	5
DBW 39 (c)	43.39	2	47.69	1	49.69	1	46.92	1
PBW 757	43.02	4	40.93	7	43.11	5	42.35	4
DBW 71 (c)	44.13	1	46.58	2	48.29	2	46.33	2
DBW 187	40.08	6	41.36	6	43.44	4	41.63	6
Mean	41.50		43.15		44.36		43.00	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		1.28		5.04		14.63	
Genotype(B)	**		1.12		3.19		7.79	
B within A	NS		1.93		5.52			
A within B			2.22		6.41			
			Earheads/sqm					
DBW 14 (c)	276	4	259	4	238	4	258	4
HD 2733 (c)	263	8	244	8	221	8	243	8
HD 2967 (c)	281	2	268	2	251	2	267	2
WR 544 (c)	269	7	247	7	225	7	247	7
DBW 39 (c)	273	6	250	6	228	6	250	6
PBW 757	278	3	265	3	244	3	262	3
DBW 71 (c)	274	5	255	5	232	5	254	5
DBW 187	285	1	272	1	258	1	272	1
Mean	275		258		237		257	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.24		4.86		2.36	
Genotype (B)	**		2.02		5.76		2.36	
B within A	NS		3.49		9.97			
A within B			3.49		10.09			
			1000 Grains Weight, g					
DBW 14 (c)	42.67	4	41.12	4	38.22	4	40.67	4
HD 2733 (c)	40.32	8	38.48	7	36.72	8	38.51	7
HD 2967 (c)	43.87	2	42.08	2	39.29	2	41.75	2
WR 544 (c)	40.95	7	35.69	8	37.08	7	37.91	8
DBW 39 (c)	41.35	6	40.23	6	37.62	6	39.73	6
PBW 757	43.22	3	41.87	3	38.87	3	41.32	3
DBW 71 (c)	41.87	5	40.88	5	37.95	5	40.23	5
DBW 187	44.35	1	42.65	1	39.89	1	42.30	1
Mean	42.33		40.38		38.21		40.30	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.11		0.45		1.39	
Genotype(B)	**		0.32		0.90		2.35	
B within A	*		0.55		1.56			
A within B			0.52		1.52			
Date of Sowing:			10.11.2017		15.12.2017		05.01.2018	
Date of Harvesting:			27.03.2018		10.04.2018		20.04.2018	

Table 3.1.9. North Eastern Plains Zone IR-TAS-DOS Shillongani 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	23.13	6	42.48	1	20.73	5	28.78	5
HD 2733 (c)	35.22	3	30.52	6	25.96	1	30.57	3
HD 2967 (c)	41.42	1	40.02	2	23.01	3	34.81	1
WR 544 (c)	20.87	8	27.94	8	19.74	7	22.85	8
DBW 39 (c)	27.95	4	29.24	7	23.88	2	27.02	6
PBW 757	39.07	2	38.89	3	19.04	8	32.33	2
DBW 71 (c)	22.49	7	32.01	5	20.67	6	25.06	7
DBW 187	26.96	5	37.80	4	22.62	4	29.13	4
Mean	29.64		34.86		21.96		28.82	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.51		2.00		8.68	
Genotype (B)	**		0.40		1.14		4.14	
B within A	**		0.69		1.97			
A within B			0.82		2.38			
			Grains/Earhead					
DBW 14 (c)	35.43	6	43.00	2	36.37	7	38.27	5
HD 2733 (c)	32.60	7	30.67	8	37.87	6	33.71	7
HD 2967 (c)	48.00	1	41.53	3	39.07	3	42.87	2
WR 544 (c)	31.10	8	30.67	7	38.41	5	33.39	8
DBW 39 (c)	47.33	2	39.03	4	48.14	1	44.83	1
PBW 757	41.87	4	44.80	1	38.94	4	41.87	3
DBW 71 (c)	38.20	5	36.74	5	40.01	2	38.31	4
DBW 187	43.73	3	34.73	6	35.53	8	38.00	6
Mean	39.78		37.65		39.29		38.91	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	NS		1.06		4.18		13.39	
Genotype(B)	**		0.78		2.24		6.05	
B within A	**		1.36		3.88			
A within B			1.66		4.79			
			Earheads/sqm					
DBW 14 (c)	162	5	217	5	132	5	170	6
HD 2733 (c)	203	2	224	3	140	4	189	2
HD 2967 (c)	199	3	242	2	145	3	195	1
WR 544 (c)	174	4	207	7	124	8	168	7
DBW 39 (c)	130	8	185	8	127	6	148	8
PBW 757	211	1	216	6	124	7	184	3
DBW 71 (c)	159	6	220	4	151	2	177	5
DBW 187	135	7	247	1	153	1	179	4
Mean	172		220		137		176	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		1.79		7.04		4.99	
Genotype (B)	**		1.67		4.76		2.84	
B within A	**		2.89		8.25			
A within B			3.24		9.36			
			1000 Grains Weight, g					
DBW 14 (c)	40.40	6	45.67	1	43.37	2	43.14	3
HD 2733 (c)	53.13	1	44.53	2	49.23	1	48.97	1
HD 2967 (c)	43.47	5	39.90	7	40.73	5	41.37	6
WR 544 (c)	38.67	7	44.03	3	41.53	4	41.41	5
DBW 39 (c)	45.30	3	40.67	5	38.97	7	41.64	4
PBW 757	44.20	4	40.20	6	39.37	6	41.26	7
DBW 71 (c)	37.03	8	39.53	8	34.23	8	36.93	8
DBW 187	45.57	2	44.00	4	41.60	3	43.72	2
Mean	43.47		42.32		41.13		42.31	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	*		0.36		1.43		4.23	
Genotype(B)	**		0.39		1.12		2.77	
B within A	**		0.68		1.93			
A within B			0.73		2.11			
Date of Sowing:			09.11.2017		13.12.2017		06.01.2018	
Date of Harvesting:			10.03.2018		29.03.2018		05.04.2018	

Table 3.1.10. North Eastern Plains Zone IR-TAS-DOS Varanasi 2017-18

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
DBW 14 (c)	43.82	7	37.12	7	26.17	8	35.70	8
HD 2733 (c)	52.29	3	47.38	3	43.83	2	47.83	3
HD 2967 (c)	48.08	4	47.17	4	36.67	5	43.97	4
WR 544 (c)	42.29	8	30.94	8	34.99	6	36.07	7
DBW 39 (c)	46.78	5	41.54	6	32.02	7	40.11	6
PBW 757	46.27	6	43.25	5	37.86	4	42.46	5
DBW 71 (c)	53.40	2	48.11	2	42.57	3	48.03	2
DBW 187	53.93	1	51.20	1	44.02	1	49.72	1
Mean	48.36		43.34		37.27		42.99	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.24		0.96		2.79	
Genotype (B)	**		0.45		1.29		3.14	
B within A	**		0.78		2.23			
A within B			0.77		2.22			
			Grains/Earhead					
DBW 14 (c)	37.53	4	23.59	8	16.56	8	25.89	8
HD 2733 (c)	35.85	7	30.48	5	29.78	4	32.04	5
HD 2967 (c)	37.99	3	34.18	2	26.17	6	32.78	3
WR 544 (c)	40.99	1	23.79	7	24.16	7	29.65	7
DBW 39 (c)	36.09	6	27.64	6	32.10	2	31.95	6
PBW 757	36.24	5	36.12	1	31.90	3	34.75	1
DBW 71 (c)	40.97	2	33.64	4	29.50	5	34.70	2
DBW 187	30.52	8	33.98	3	33.36	1	32.62	4
Mean	37.02		30.43		27.94		31.80	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.41		1.62		6.35	
Genotype(B)	**		0.82		2.35		7.75	
B within A	**		1.42		4.07			
A within B			1.39		4.03			
			Earheads/sqm					
DBW 14 (c)	281	7	410	2	453	2	381	5
HD 2733 (c)	334	3	398	3	426	4	386	4
HD 2967 (c)	336	2	383	6	465	1	395	1
WR 544 (c)	239	8	347	7	407	5	331	8
DBW 39 (c)	296	6	421	1	328	8	348	6
PBW 757	303	5	331	8	384	7	339	7
DBW 71 (c)	331	4	394	4	440	3	388	3
DBW 187	381	1	389	5	402	6	391	2
Mean	313		384		413		370	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		4.10		16.10		5.43	
Genotype (B)	**		8.45		24.12		6.85	
B within A	**		14.63		41.77			
A within B			14.29		41.26			
			1000 Grains Weight, g					
DBW 14 (c)	41.79	6	38.37	3	34.92	2	38.36	4
HD 2733 (c)	43.84	2	39.11	1	34.59	3	39.18	2
HD 2967 (c)	37.73	8	36.53	6	30.22	8	34.83	8
WR 544 (c)	43.23	4	37.69	4	35.59	1	38.84	3
DBW 39 (c)	43.81	3	35.71	8	30.45	7	36.66	5
PBW 757	42.32	5	36.33	7	30.91	6	36.52	6
DBW 71 (c)	39.65	7	36.81	5	32.80	5	36.42	7
DBW 187	46.37	1	38.77	2	32.86	4	39.33	1
Mean	42.34		37.42		32.79		37.52	
	F. Test		SEm		CD(0.05)		CV(%)	
Sowing (A)	**		0.15		0.57		1.89	
Genotype(B)	**		0.17		0.49		1.36	
B within A	**		0.29		0.84			
A within B			0.31		0.90			
Date of Sowing:			06.11.2017		10.12.2017		05.01.2018	
Date of Harvesting:			10.04.2018		12.04.2018		16.04.2018	

Table 6.1.1. Northern Hills Zone **SPL-1** **Almora** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	457	48.34	26.28	57.85	5.06(24.7)	1.00(0.0)
Metsulfuron+S	4	450	47.10	28.66	60.60	5.03(24.3)	1.08(0.2)
Carfentrazone	20	437	49.59	27.02	58.59	7.16(50.3)	3.13(8.8)
2,4-D Na	500	468	48.32	27.55	62.43	5.48(29.0)	1.37(0.9)
2,4-D E	500	420	49.43	26.94	55.87	5.44(28.7)	1.54(1.4)
Metsulfuron+Carfentrazone+S	4+20	427	46.48	32.34	63.95	5.07(24.7)	1.10(0.2)
2,4-D Na+Carfentrazone	400+20	413	49.87	30.15	62.02	4.62(20.3)	1.41(1.0)
2,4-D E+Carfentrazone	400+20	427	48.63	25.41	52.59	3.87(14.0)	1.40(1.0)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	448	48.60	26.27	56.85	4.16(16.3)	1.00(0.0)
Weedy check		412	47.10	27.45	53.05	12.27(149.7)	7.98(62.7)
Weed free		468	49.89	27.49	64.02	1.00(0.0)	1.00(0.0)
CD (0.05)		40.03	4.06	5.22	10.65	0.39	0.19
Date of Sowing:	12.11.2017		Date of Harvesting: 18.05.2018				

Table 6.1.2. Northern Hills Zone **SPL-1** **Bajaura** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	349	45.31	29.02	45.65	6.95(48.0)	4.35(18.0)
Metsulfuron+S	4	338	46.00	30.81	47.02	3.28(10.0)	3.11(9.0)
Carfentrazone	20	326	43.59	26.05	36.86	8.89(79.3)	6.63(43.9)
2,4-D Na	500	322	44.57	27.86	39.35	9.25(84.7)	5.79(33.7)
2,4-D E	500	326	43.13	28.90	40.80	8.83(77.7)	5.55(31.4)
Metsulfuron+Carfentrazone+S	4+20	359	45.74	29.35	48.05	2.88(7.33)	2.84(7.2)
2,4-D Na+Carfentrazone	400+20	338	43.76	27.18	40.26	7.16(50.7)	4.87(23.8)
2,4-D E+Carfentrazone	400+20	328	43.57	29.44	41.75	7.29(54.7)	5.05(24.7)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	357	45.85	28.80	47.05	5.82(33.3)	3.63(12.6)
Weedy check		316	41.91	26.78	35.42	14.36(207.3)	8.46(71.4)
Weed free		343	45.91	31.42	48.74	1.00(0.0)	1.00(0.0)
CD (0.05)		60.36	1.84	7.28	8.26	1.88	1.50
Date of Sowing:	21.11.2017		Date of Harvesting: 28.05.2018				

Table 6.1.3. Northern Hills Zone **SPL-1** **Khudwani** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	335	35.46	31.48	37.17	1.57(1.5)	2.90(7.4)
Metsulfuron+S	4	328	34.96	31.60	36.12	2.44(5.0)	4.96(23.6)
Carfentrazone	20	318	34.45	31.93	34.91	2.82(7.0)	5.48(29.1)
2,4-D Na	500	313	34.35	31.48	33.74	2.95(7.8)	5.76(32.2)
2,4-D E	500	310	34.30	31.38	33.39	3.01(8.1)	6.07(35.9)
Metsulfuron+Carfentrazone+S	4+20	331	35.06	31.86	36.98	1.64(1.7)	3.09(8.5)
2,4-D Na+Carfentrazone	400+20	325	34.70	31.73	35.54	2.57(5.6)	5.19(25.9)
2,4-D E+Carfentrazone	400+20	321	34.56	33.83	37.55	2.68(6.2)	3.02(8.2)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	350	35.54	31.97	39.69	1.46(1.1)	2.73(6.5)
Weedy check		257	26.54	33.76	23.00	3.82(13.6)	8.41(69.8)
Weed free		356	36.29	31.06	39.95	1.00(0.0)	1.00(0.0)
CD (0.05)		30.27	2.11	4.59	3.07	0.15	0.36
Date of Sowing:	07.11.2017		Date of Harvesting: 12.06.2018				

Table 6.1.4. Northern Hills Zone **SPL-1** **Malan** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	345	43.09	30.71	45.59	4.85(23.0)	3.50(11.4)
Metsulfuron+S	4	324	44.52	29.92	43.07	4.51(20.0)	3.84(14.0)
Carfentrazone	20	306	43.75	30.67	40.84	5.90(34.0)	3.84(13.9)
2,4-D Na	500	307	43.98	30.32	40.97	6.55(42.0)	4.64(20.7)
2,4-D E	500	291	44.13	30.28	38.83	5.47(29.3)	4.42(19.0)
Metsulfuron+Carfentrazone+S	4+20	296	44.47	31.57	41.48	5.08(25.3)	3.37(10.4)
2,4-D Na+Carfentrazone	400+20	297	44.85	30.91	41.12	5.81(33.0)	3.80(13.5)
2,4-D E+Carfentrazone	400+20	322	44.50	29.21	41.87	5.13(25.7)	3.78(13.3)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	328	43.96	31.95	46.04	4.90(24.0)	2.89(7.4)
Weedy check		269	42.69	28.46	32.71	10.48(109.3)	6.76(45.0)
Weed free		316	43.89	30.89	42.71	1.00(0.0)	1.00(0.0)
CD (0.05)		35.69	1.29	2.39	3.83	1.34	0.86
Date of Sowing:	22.11.2017		Date of Harvesting: 12.05.2018				

Table 6.2.1. North Western Plains Zone **SPL-1** **Bikaner** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	452	38.52	17.33	28.30	3.35(10.3)	8.57(72.8)
Metsulfuron+S	4	395	37.04	22.08	31.84	3.91(14.3)	9.62(91.8)
Carfentrazone	20	380	37.29	24.50	34.15	3.98(15.0)	9.74(94.3)
2,4-D Na	500	375	36.97	19.79	26.80	4.06(15.7)	9.37(87.9)
2,4-D E	500	388	36.58	24.73	33.13	4.27(17.3)	9.74(94.7)
Metsulfuron+Carfentrazone+S	4+20	403	36.41	20.20	29.12	4.04(15.3)	9.64(92.1)
2,4-D Na+Carfentrazone	400+20	415	34.30	21.41	30.00	3.74(13.0)	8.94(78.9)
2,4-D E+Carfentrazone	400+20	423	41.57	14.93	26.46	3.68(12.7)	9.09(81.8)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	415	37.69	17.68	27.69	3.20(9.3)	8.39(69.5)
Weedy check		372	27.64	22.41	21.84	7.40(54.0)	21.95(484.8)
Weed free		472	41.75	18.03	34.97	1.00(0.0)	1.00(0.0)
CD (0.05)		NS	NS	NS	NS	0.68	1.46
Date of Sowing:	17.11.2017		Date of Harvesting: 03.04.2018				

Table 6.2.2. North Western Plains Zone **SPL-1** **Durgapura** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	362	37.50	35.69	48.62	5.85(33.6)	11.93(141.4)
Metsulfuron+S	4	334	37.87	33.58	42.50	9.34(86.6)	15.16(229.4)
Carfentrazone	20	350	37.73	34.08	45.08	8.09(64.6)	14.37(205.5)
2,4-D Na	500	330	36.43	29.97	35.89	10.07(100.5)	16.18(262.3)
2,4-D E	500	336	38.11	32.48	41.70	8.79(76.4)	15.02(226.2)
Metsulfuron+Carfentrazone+S	4+20	351	38.00	32.90	43.87	8.59(72.9)	14.21(201.0)
2,4-D Na+Carfentrazone	400+20	356	38.93	34.52	47.89	7.64(58.2)	13.87(191.7)
2,4-D E+Carfentrazone	400+20	372	39.45	34.08	50.01	5.72(31.8)	11.85(139.7)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	375	39.15	35.58	52.29	5.96(34.6)	11.56(132.9)
Weedy check		292	34.80	25.09	25.28	14.76(217.1)	17.05(289.8)
Weed free		382	40.03	35.87	54.74	1.00(0.0)	1.00(0.0)
CD (0.05)		40.97	2.44	4.02	7.53	0.94	1.45
Date of Sowing:	14.11.2017		Date of Harvesting: 07.04.2018				

Table 6.2.3. North Western Plains Zone **SPL-1** **Gurdaspur** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	350	34.07	46.03	54.86	1.33(1.0)	1.11(0.2)
Metsulfuron+S	4	348	35.44	44.01	54.15	1.33(1.0)	1.11(0.3)
Carfentrazone	20	339	34.43	45.62	53.10	3.99(15.0)	3.38(10.6)
2,4-D Na	500	344	35.13	43.90	52.90	4.31(17.7)	3.09(8.9)
2,4-D E	500	348	34.31	45.01	53.69	3.69(12.7)	2.27(4.4)
Metsulfuron+Carfentrazone+S	4+20	346	34.79	45.28	54.26	1.33(1.0)	1.00(0.0)
2,4-D Na+Carfentrazone	400+20	339	34.36	45.94	53.25	3.10(8.7)	2.54(5.6)
2,4-D E+Carfentrazone	400+20	346	35.01	44.47	53.89	2.44(5.0)	1.96(2.9)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	342	35.65	44.78	54.54	1.00(0.0)	1.00(0.0)
Weedy check		310	33.65	44.39	46.17	4.55(20.0)	5.66(31.2)
Weed free		356	35.64	43.52	55.10	1.00(0.0)	1.00(0.0)
CD (0.05)		19.23	NS	NS	4.56	0.55	0.60
Date of Sowing:	17.11.2017		Date of Harvesting: 04.05.2018				

Table 6.2.4. North Western Plains Zone **SPL-1** **Hisar** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	422	38.07	34.54	55.41	4.40(20.0)	4.65(21.1)
Metsulfuron+S	4	418	37.17	34.54	53.54	4.96(24.0)	6.15(38.1)
Carfentrazone	20	425	37.80	35.04	56.19	4.17(17.3)	4.84(23.8)
2,4-D Na	500	402	36.50	34.94	51.19	6.48(41.3)	7.64(58.0)
2,4-D E	500	412	36.72	34.66	52.24	5.02(25.3)	5.94(35.8)
Metsulfuron+Carfentrazone+S	4+20	430	38.65	36.69	60.92	2.95(8.0)	3.11(9.3)
2,4-D Na+Carfentrazone	400+20	435	38.37	35.52	59.29	3.37(10.7)	4.01(15.2)
2,4-D E+Carfentrazone	400+20	432	37.55	34.97	56.53	4.00(16.0)	4.70(21.9)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	438	38.93	36.82	62.65	2.75(6.7)	3.18(9.2)
Weedy check		333	34.70	36.07	41.63	9.07(81.3)	12.71(161.0)
Weed free		442	38.98	35.98	61.90	1.00(0.0)	1.00(0.0)
CD (0.05)		30.86	2.03	NS	5.26	1.25	1.36
Date of Sowing:	15.11.2017		Date of Harvesting: 17.4.2018				

Table 6.2.5. North Western Plains Zone **SPL-1** **Jammu** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	369	35.57	33.61	43.98	6.09(36.3)	7.30(52.5)
Metsulfuron+S	4	379	37.78	30.44	43.10	4.64(20.7)	6.30(38.8)
Carfentrazone	20	376	35.44	34.45	45.56	5.20(26.0)	6.36(39.5)
2,4-D Na	500	362	37.24	31.37	42.23	5.86(33.3)	7.62(57.3)
2,4-D E	500	374	37.31	31.76	43.87	4.51(19.3)	6.15(36.8)
Metsulfuron+Carfentrazone+S	4+20	428	37.25	31.10	48.90	2.81(7.0)	3.85(13.8)
2,4-D Na+Carfentrazone	400+20	422	36.69	30.08	46.75	3.50(11.3)	4.56(19.9)
2,4-D E+Carfentrazone	400+20	416	38.07	30.26	47.97	3.09(8.7)	4.21(16.8)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	410	38.48	28.91	45.62	3.64(12.3)	4.91(23.2)
Weedy check		326	33.39	32.95	35.39	11.80(138.3)	16.81(281.8)
Weed free		440	39.02	29.40	50.34	1.00(0.0)	1.00(0.0)
CD (0.05)		49.76	NS	NS	5.26	0.61	0.60
Date of Sowing:	15.11.2017		Date of Harvesting: 28.04.2018				

Table 6.2.6. North Western Plains Zone **SPL-1** **Karnal** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	390	41.97	37.60	61.53	2.91(9.3)	1.56(1.6)
Metsulfuron+S	4	398	41.94	36.23	60.46	5.05(24.7)	2.56(5.6)
Carfentrazone	20	406	41.79	34.98	58.98	6.92(48.7)	4.31(17.7)
2,4-D Na	500	424	42.06	34.38	60.91	5.11(26.0)	2.75(6.6)
2,4-D E	500	389	42.41	36.63	60.37	5.37(28.7)	2.62(6.4)
Metsulfuron+Carfentrazone+S	4+20	414	42.03	35.54	61.66	2.32(5.3)	2.22(3.9)
2,4-D Na+Carfentrazone	400+20	395	42.55	37.21	62.52	2.43(5.3)	1.68(1.9)
2,4-D E+Carfentrazone	400+20	398	42.39	37.20	62.56	2.46(5.3)	1.51(1.4)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	426	42.35	35.09	63.20	1.91(3.3)	1.35(0.9)
Weedy check		303	38.02	36.19	41.53	13.50(182.7)	15.63(244.4)
Weed free		407	42.10	36.34	62.10	1.00(0.0)	1.00(0.0)
CD (0.05)		39.10	1.36	NS	3.91	1.87	0.92
Date of Sowing:	04.11.2017		Date of Harvesting: 21.04.2017				

Table 6.2.7. North Western Plains Zone **SPL-1** **Ludhiana** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	357	43.94	36.91	58.06	4.03(15.3)	3.09(8.5)
Metsulfuron+S	4	349	43.20	38.13	57.45	3.89(14.2)	2.63(5.9)
Carfentrazone	20	359	44.62	37.93	60.06	3.21(9.3)	1.95(3.1)
2,4-D Na	500	344	40.69	41.32	57.45	4.35(18.1)	3.04(8.3)
2,4-D E	500	350	43.91	37.56	57.91	3.45(11.0)	2.52(5.4)
Metsulfuron+Carfentrazone+S	4+20	366	44.66	37.28	60.77	2.31(4.3)	1.95(2.9)
2,4-D Na+Carfentrazone	400+20	358	44.63	37.39	59.59	2.66(6.2)	2.05(3.3)
2,4-D E+Carfentrazone	400+20	362	43.13	38.86	60.42	2.69(6.3)	1.76(2.2)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	350	44.25	37.31	57.87	3.96(14.9)	2.65(6.1)
Weedy check		321	40.78	26.63	34.68	5.77(32.3)	3.74(13.1)
Weed free		367	44.50	38.31	62.45	1.00(0.0)	1.00(0.0)
CD (0.05)		22.80	NS	5.72	8.72	0.55	0.53
Date of Sowing:	06.11.2017		Date of Harvesting: 24.04.2018				

Table 6.2.8. North Western Plains Zone **SPL-1** **Pantnagar** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	457	39.30	30.22	54.27	3.67(13.3)	1.50(1.4)
Metsulfuron+S	4	422	38.57	33.50	54.03	4.93(24.0)	1.12(0.3)
Carfentrazone	20	433	38.77	30.30	50.40	5.47(30.7)	1.42(1.1)
2,4-D Na	500	435	37.10	33.11	53.23	5.33(29.3)	1.62(2.1)
2,4-D E	500	471	39.27	29.14	53.80	5.72(36.0)	1.49(1.5)
Metsulfuron+Carfentrazone+S	4+20	413	37.10	33.47	51.17	3.24(12.0)	1.14(0.3)
2,4-D Na+Carfentrazone	400+20	456	40.73	28.33	52.77	2.71(8.0)	1.25(0.6)
2,4-D E+Carfentrazone	400+20	395	39.77	32.93	51.00	3.15(9.3)	1.18(0.5)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	391	40.77	32.68	51.80	2.86(9.3)	1.09(0.2)
Weedy check		368	39.53	28.76	41.50	7.81(64.0)	9.33(88.8)
Weed free		426	40.60	32.08	55.13	1.00(0.0)	1.00(0.0)
CD (0.05)		47.05	NS	NS	5.82	2.91	1.28
Date of Sowing:	15.11.2017		Date of Harvesting: 21.04.2018				

Table 6.3.1. North Eastern Plains Zone **SPL-1** **Coochbehar** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	290	39.57	39.82	45.70	4.65(20.7)	7.50(55.3)
Metsulfuron+S	4	305	40.07	38.05	46.37	3.91(14.3)	5.85(33.2)
Carfentrazone	20	258	39.27	40.45	41.13	4.12(16.0)	6.79(45.1)
2,4-D Na	500	212	38.03	37.76	30.40	8.56(72.3)	15.27(232.6)
2,4-D E	500	232	37.70	39.86	34.60	6.87(46.3)	11.43(129.7)
Metsulfuron+Carfentrazone+S	4+20	335	42.10	35.84	50.63	1.82(2.3)	3.16(9.0)
2,4-D Na+Carfentrazone	400+20	292	38.33	40.16	44.63	4.86(22.7)	7.68(58.0)
2,4-D E+Carfentrazone	400+20	285	39.47	38.97	43.67	3.21(9.3)	5.35(27.6)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	335	39.10	38.76	50.73	3.65(12.3)	5.33(27.4)
Weedy check		90	35.70	41.01	13.17	13.40(178.7)	21.26(451.5)
Weed free		350	42.10	37.19	54.43	1.00(0.0)	1.00(0.0)
CD (0.05)		36.71	1.71	6.02	6.28	0.48	0.75
Date of Sowing:	22.11.2017		Date of Harvesting: 03.04.2018				

Table 6.3.2. North Eastern Plains Zone **SPL-1** **Faizabad** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	411	37.30	32.72	50.17	2.98(8.0)	3.03(8.2)
Metsulfuron+S	4	406	37.40	32.61	49.40	3.85(14.0)	3.82(13.6)
Carfentrazone	20	377	38.80	31.89	46.55	3.59(12.0)	3.71(12.8)
2,4-D Na	500	366	39.00	33.17	47.28	3.25(9.7)	3.44(10.9)
2,4-D E	500	356	39.50	32.21	45.07	3.50(11.3)	3.57(11.8)
Metsulfuron+Carfentrazone+S	4+20	422	37.00	32.60	50.76	3.04(8.3)	3.24(9.5)
2,4-D Na+Carfentrazone	400+20	391	37.40	32.75	47.87	3.41(10.7)	3.62(12.1)
2,4-D E+Carfentrazone	400+20	387	38.10	32.63	48.13	3.78(13.3)	3.87(14.0)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	401	37.90	32.03	48.64	3.69(12.7)	3.59(11.9)
Weedy check		311	36.70	31.82	36.31	7.85(60.7)	9.41(87.5)
Weed free		430	40.60	29.40	51.36	1.00(0.0)	1.00(0.0)
CD (0.05)		21.53	2.83	3.36	4.45	0.59	0.37
Date of Sowing:	25.11.2017		Date of Harvesting: 22.04.2018				

Table 6.3.3. North Eastern Plains Zone **SPL-1** **Kalyani** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	292	38.00	34.23	37.66	7.95(62.3)	8.37(69.5)
Metsulfuron+S	4	287	38.07	31.09	34.02	8.16(66.0)	8.45(70.9)
Carfentrazone	20	271	37.80	28.55	29.11	7.66(58.0)	8.17(65.9)
2,4-D Na	500	258	37.29	29.93	28.41	8.79(76.7)	9.72(93.6)
2,4-D E	500	286	36.11	29.62	30.41	8.27(68.7)	9.51(89.5)
Metsulfuron+Carfentrazone+S	4+20	286	40.86	36.69	41.09	7.51(55.7)	8.04(63.7)
2,4-D Na+Carfentrazone	400+20	277	38.08	33.91	35.70	7.68(58.7)	9.75(94.2)
2,4-D E+Carfentrazone	400+20	321	39.77	30.90	39.48	7.38(53.7)	8.64(74.1)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	301	40.66	32.68	39.98	7.84(60.7)	8.53(72.0)
Weedy check		166	36.82	33.28	19.77	18.11(328.0)	15.52(241.9)
Weed free		288	40.89	38.14	42.71	1.00(0.0)	1.00(0.0)
CD (0.05)		51.98	3.65	11.83	6.16	1.51	1.33
Date of Sowing:	12.11.2017		Date of Harvesting: 11.03.2018				

Table 6.3.4. North Eastern Plains Zone **SPL-1** **Sabour** **2017-18**

Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	265	43.00	44.68	51.00	5.56(30.0)	6.08(36.0)
Metsulfuron+S	4	254	43.00	44.45	48.63	6.24(38.0)	6.78(45.0)
Carfentrazone	20	252	42.00	45.29	47.97	6.45(40.7)	6.93(47.0)
2,4-D Na	500	268	43.00	44.86	51.70	5.09(25.0)	5.38(28.0)
2,4-D E	500	263	43.00	45.36	51.33	5.38(28.0)	5.91(34.0)
Metsulfuron+Carfentrazone+S	4+20	256	43.00	44.71	49.33	6.00(35.0)	6.63(43.0)
2,4-D Na+Carfentrazone	400+20	259	43.00	45.43	50.67	6.00(35.0)	6.16(37.0)
2,4-D E+Carfentrazone	400+20	251	42.00	45.13	47.63	6.63(43.0)	7.37(53.3)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	257	42.00	46.01	49.67	6.16(37.0)	6.32(39.0)
Weedy check		220	37.00	45.17	36.73	9.80(95.0)	8.54(72.0)
Weed free		267	43.00	45.34	52.03	1.00(0.0)	1.00(0.0)
CD (0.05)		15.32	3.01	1.87	7.16	0.36	0.32
Date of Sowing:	22.11.2017		Date of Harvesting: 17.04.2018				

Table 6.3.5. North Eastern Plains Zone		**SPL-1**		**Varanasi**		**2017-18**	
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 60 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	387	36.04	35.80	49.83	4.10(16.0)	3.59(11.9)
Metsulfuron+S	4	433	35.60	31.18	47.77	4.85(22.7)	4.06(15.5)
Carfentrazone	20	415	35.40	30.98	45.42	5.35(27.7)	3.82(13.6)
2,4-D Na	500	435	35.07	31.82	47.81	5.62(30.7)	4.25(17.1)
2,4-D E	500	423	35.45	30.99	46.33	5.47(29.0)	3.97(14.8)
Metsulfuron+Carfentrazone+S	4+20	416	34.58	33.97	48.63	4.02(15.3)	3.13(8.8)
2,4-D Na+Carfentrazone	400+20	389	34.96	36.16	48.99	3.95(14.7)	3.17(9.1)
2,4-D E+Carfentrazone	400+20	393	36.13	36.33	51.43	3.65(12.3)	2.91(7.5)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	415	35.39	37.88	55.07	2.92(7.7)	2.08(3.4)
Weedy check		358	35.43	21.12	26.73	12.08(145.0)	7.23(51.5)
Weed free		446	36.10	34.62	55.50	1.00(0.0)	1.00(0.0)
CD (0.05)		51.12	1.81	4.05	1.14	0.70	0.42
Date of Sowing:	28.11.2017		Date of Harvesting: 14.04.2018				

Table 6.4.1. Central Zone		**SPL-1**		**Bilaspur**		**2017-18**	
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	293	40.11	31.34	36.54	4.87 22.73)	3.21 (9.45)
Metsulfuron+S	4	329	43.87	28.77	41.27	4.69 (21.01)	2.55 (5.67)
Carfentrazone	20	311	43.34	30.00	40.33	3.93 (14.64)	2.48 (5.33)
2,4-D Na	500	299	38.45	33.04	37.75	3.17 (9.16)	3.06 (8.56)
2,4-D E	500	321	42.31	30.17	40.87	5.49 (29.12)	2.39 (4.95)
Metsulfuron+Carfentrazone+S	4+20	409	46.48	24.99	47.32	3.04 (8.24)	1.64 (1.78)
2,4-D Na+Carfentrazone	400+20	333	43.75	29.38	42.52	4.48 (19.11)	2.90 (7.64)
2,4-D E+Carfentrazone	400+20	373	44.31	27.21	44.75	4.48 (19.26)	2.86 (7.42)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	397	45.36	26.29	47.18	4.20 (16.68)	2.22 (4.32)
Weedy check		261	38.24	32.02	31.79	14.46 (208.30)	4.92 (23.48)
Weed free		344	48.15	32.81	50.41	1.00 (0.00)	1.00 (0.00)
CD (0.05)		59.77	3.48	7.00	1.73	0.27	0.71
Date of Sowing:	21.11.2017		Date of Harvesting: 19.03.2018				

Table 6.4.2. Central Zone		**SPL-1**		**Indore**		**2017-18**	
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	370	45.83	36.33	61.53	3.27 (10.17)	1.51 (1.32)
Metsulfuron+S	4	363	45.63	36.23	59.37	4.06 (15.67)	1.80 (2.28)
Carfentrazone	20	363	46.13	31.39	52.60	4.90 (23.33)	3.19 (9.16)
2,4-D Na	500	340	46.73	35.97	57.03	4.10 (16.17)	3.16 (9.01)
2,4-D E	500	363	46.47	35.12	58.77	3.90 (14.33)	1.75 (2.10)
Metsulfuron+Carfentrazone+S	4+20	357	45.77	35.74	58.23	4.00 (15.17)	1.73 (1.99)
2,4-D Na+Carfentrazone	400+20	353	46.17	34.57	56.17	5.45 (29.83)	1.87 (2.50)
2,4-D E+Carfentrazone	400+20	363	45.07	34.50	56.30	3.80 (13.67)	1.84 (2.40)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	370	45.73	33.89	57.03	3.31 (10.17)	1.49 (1.24)
Weedy check		365	46.27	32.48	54.70	13.74 (188.73)	8.07 (64.37)
Weed free		383	46.20	35.49	62.67	1.00 (0.00)	1.00 (0.00)
CD (0.05)		41.29	1.04	4.94	4.03	1.30	0.43
Date of Sowing:	10.11.2017		Date of Harvesting: 19.03.2018				

Table 6.4.3. Central Zone		**SPL-1**		**Udaipur**		**2017-18**	
Herbicide treatments	Dose g a.i./ha	Earheads/ sqm	1000 Grains wt.,g	Grains/ Earhead	Yield, q/ha	Weeds/sqm at 30 DAS	Weed dry wt, g/sqm
Halauxifen+Florasulam+S*	12.76	415	46.73	25.13	48.62	2.51 (5.33)	2.27 (4.13)
Metsulfuron+S	4	382	46.13	21.74	38.22	4.16 (16.33)	3.72 (12.87)
Carfentrazone	20	382	45.14	19.88	34.24	4.08 (15.67)	3.69 (12.62)
2,4-D Na	500	380	45.10	21.82	37.40	4.86 (22.67)	4.22 (16.83)
2,4-D E	500	388	46.28	21.01	37.71	4.40 (18.33)	3.84 (13.77)
Metsulfuron+Carfentrazone+S	4+20	400	46.50	24.19	44.95	3.60 (12.00)	3.26 (9.66)
2,4-D Na+Carfentrazone	400+20	392	45.57	21.54	38.45	3.92 (14.33)	3.50 (11.23)
2,4-D E+Carfentrazone	400+20	410	46.86	24.32	46.68	3.26 (9.67)	2.81 (6.88)
Halauxifen+Florasulam+Carfentrazone+S	10.21+20	410	46.56	25.14	47.97	2.82 (7.00)	2.58 (5.63)
Weedy check		377	43.97	19.20	31.79	6.71 (44.00)	6.26 (38.25)
Weed free		493	46.89	21.41	49.57	1.00 (0.00)	1.00 (0.00)
CD (0.05)		13.72	1.74	3.51	5.82	0.26	0.11
Date of Sowing:	11.11.2017		Date of Harvesting: 01.04.2018				

Table 6.6.1 Northern Hills Zone **SPL-2** **Almora** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	27.20	4	58.29	4	69.39	4	74.11	4	57.25	4
Two sprays of CCC (0.2%)	29.48	3	60.26	3	70.03	3	77.74	3	59.38	3
Two sprays of tebuconazole (0.1 %)	33.33	1	62.64	1	73.54	1	79.15	1	62.16	1
Two sprays of CCC + tebuconazole	31.02	2	61.11	2	71.09	2	78.34	2	60.39	2
Mean	30.26		60.58		71.01		77.34		59.80	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.70		5.89		9.86	
Growth Regulator (B)			*		0.98		2.86		5.68	
B within A			NS		1.96		5.73			
A within B					2.41		7.02			
Earheads/sqm										
Control	272	4	382	4	438	4	447	4	385	4
Two sprays of CCC (0.2%)	273	3	392	3	440	3	458	3	391	3
Two sprays of tebuconazole (0.1 %)	283	1	410	1	453	1	470	1	404	1
Two sprays of CCC + tebuconazole	277	2	400	2	442	2	460	2	395	2
Mean	276		396		443		459		394	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		7.21		24.96		6.35	
Growth Regulator (B)			*		4.58		13.38		4.03	
B within A			NS		9.17		26.76			
A within B					10.73		31.31			
Grains/Earhead										
Control	20.69	4	30.73	1	31.90	2	33.01	4	29.08	4
Two sprays of CCC (0.2%)	22.53	3	30.67	2	31.52	4	33.47	2	29.55	3
Two sprays of tebuconazole (0.1 %)	24.10	1	30.08	4	31.92	1	33.03	3	29.78	1
Two sprays of CCC + tebuconazole	23.17	2	30.16	3	31.86	3	33.61	1	29.70	2
Mean	22.62		30.41		31.80		33.28		29.53	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.55		1.89		6.42	
Growth Regulator (B)			NS		0.49		1.43		5.73	
B within A			NS		0.98		2.85			
A within B					1.01		2.94			
1000 Grains Weight,g										
Control	48.45	2	49.69	4	49.75	4	50.17	4	49.52	4
Two sprays of CCC (0.2%)	48.25	4	50.23	3	50.51	3	50.65	3	49.91	3
Two sprays of tebuconazole (0.1 %)	48.75	1	50.79	1	50.83	1	51.00	1	50.34	1
Two sprays of CCC + tebuconazole	48.44	3	50.61	2	50.57	2	50.66	2	50.07	2
Mean	48.47		50.33		50.42		50.62		49.96	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.28		0.95		1.91	
Growth Regulator (B)			NS		0.47		1.37		3.25	
B within A			NS		0.94		2.74			
A within B					0.86		2.50			
Plant Height, cm										
Control	69.87	1	92.60	1	96.33	1	99.73	1	89.63	1
Two sprays of CCC (0.2%)	64.47	4	83.67	4	88.47	4	95.24	4	82.96	4
Two sprays of tebuconazole (0.1 %)	68.20	2	91.60	2	95.80	2	98.93	2	88.63	2
Two sprays of CCC + tebuconazole	67.47	3	84.00	3	90.27	3	95.27	3	84.25	3
Mean	67.50		87.97		92.72		97.29		86.37	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		2.18		7.55		8.75	
Growth Regulator (B)			**		0.97		2.82		3.87	
B within A			NS		1.93		5.64			
A within B					2.75		8.02			
Biomass, q/ha										
Control	57	4	135	3	155	4	164	4	128	3
Two sprays of CCC (0.2%)	60	3	125	4	157	3	170	3	128	4
Two sprays of tebuconazole (0.1 %)	79	1	136	1	160	1	175	1	138	1
Two sprays of CCC + tebuconazole	69	2	136	1	159	2	172	2	134	2
Mean	66		133		158		171		132	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		4.31		14.91		11.32	
Growth Regulator (B)			**		2.03		5.94		5.35	
B within A			NS		4.07		11.88			
A within B					5.57		16.25			

Date of Sowing: 05.11.2017 Date of Harvesting: 17.05.2018

Table 6.6.2 Northern Hills Zone **SPL-2** **Bajaura** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	24.99	2	48.20	2	54.31	2	56.67	2	46.04	2
Two sprays of CCC (0.2%)	24.74	3	45.93	3	52.73	3	54.37	3	44.44	3
Two sprays of tebuconazole (0.1 %)	26.10	1	49.67	1	55.14	1	57.20	1	47.03	1
Two sprays of CCC + tebuconazole	23.71	4	41.93	4	47.23	4	49.56	4	40.61	4
Mean	24.89		46.43		52.35		54.45		44.53	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.41		4.88		10.96	
Growth Regulator (B)			**		0.79		2.31		6.15	
B within A			NS		1.58		4.62			
A within B					1.96		5.74			
Earheads/sqm										
Control	209	3	310	4	358	2	369	3	312	4
Two sprays of CCC (0.2%)	220	2	333	1	336	4	379	1	317	3
Two sprays of tebuconazole (0.1 %)	205	4	332	3	373	1	364	4	318	2
Two sprays of CCC + tebuconazole	223	1	333	1	346	3	373	2	319	1
Mean	214		327		353		371		316	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		8.36		28.93		9.15	
Growth Regulator (B)			NS		9.69		28.28		10.61	
B within A			NS		19.38		56.57			
A within B					18.75		54.73			
Grains/Earhead										
Control	31.80	2	35.28	1	33.48	2	33.76	2	33.58	2
Two sprays of CCC (0.2%)	31.33	3	32.70	3	36.11	1	31.12	3	32.82	3
Two sprays of tebuconazole (0.1 %)	32.97	1	35.19	2	32.60	3	34.81	1	33.89	1
Two sprays of CCC + tebuconazole	29.61	4	32.49	4	32.27	4	31.10	4	31.37	4
Mean	31.43		33.92		33.62		32.70		32.91	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			NS		1.80		6.22		18.93	
Growth Regulator (B)			NS		1.06		3.09		11.15	
B within A			NS		2.12		6.19			
A within B					2.57		7.50			
1000 Grains Weight,g										
Control	37.99	2	44.29	1	45.61	2	46.09	2	43.50	1
Two sprays of CCC (0.2%)	35.89	4	42.31	3	44.03	3	46.26	1	42.12	3
Two sprays of tebuconazole (0.1 %)	38.56	1	42.59	2	45.75	1	45.40	3	43.07	2
Two sprays of CCC + tebuconazole	37.09	3	39.01	4	42.43	4	43.09	4	40.41	4
Mean	37.39		42.05		44.46		45.21		42.27	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.31		1.07		2.54	
Growth Regulator (B)			**		0.49		1.43		4.01	
B within A			NS		0.98		2.86			
A within B					0.90		2.64			
Plant Height, cm										
Control	74.22	1	85.56	2	86.17	1	85.85	1	82.95	1
Two sprays of CCC (0.2%)	58.85	3	73.30	3	71.72	3	77.53	3	70.35	3
Two sprays of tebuconazole (0.1 %)	73.82	2	85.92	1	86.03	2	81.84	2	81.90	2
Two sprays of CCC + tebuconazole	57.02	4	67.39	4	70.03	4	73.57	4	67.00	4
Mean	65.98		78.04		78.49		79.70		75.55	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.78		2.71		3.59	
Growth Regulator (B)			**		0.95		2.78		4.37	
B within A			NS		1.91		5.57			
A within B					1.83		5.34			
Biomass, q/ha										
Control	62	2	124	1	139	1	133	2	114	2
Two sprays of CCC (0.2%)	59	3	121	2	124	3	132	3	109	3
Two sprays of tebuconazole (0.1 %)	65	1	112	3	137	2	145	1	115	1
Two sprays of CCC + tebuconazole	56	4	102	4	112	4	116	4	96	4
Mean	60		115		128		132		109	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		2.92		10.09		9.30	
Growth Regulator (B)			**		1.99		5.82		6.36	
B within A			*		3.99		11.64			
A within B					4.52		13.19			
Date of Sowing:	10.11.2017				Date of Harvesting:		26.05.2018			

Table 6.6.3 Northern Hills Zone **SPL-2** **Khudwani** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	23.17	3	36.64	3	40.31	3	41.43	3	35.39	3
Two sprays of CCC (0.2%)	24.47	2	36.66	2	40.64	2	42.62	2	36.10	2
Two sprays of tebuconazole (0.1 %)	25.83	1	37.64	1	41.92	1	44.14	1	37.38	1
Two sprays of CCC + tebuconazole	23.05	4	36.42	4	37.64	4	39.62	4	34.18	4
Mean	24.13		36.84		40.13		41.95		35.76	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.06		3.66		10.23	
Growth Regulator (B)			**		0.60		1.75		5.82	
B within A			NS		1.20		3.51			
A within B					1.48		4.33			
Earheads/sqm										
Control	314	4	323	4	327	4	334	4	325	4
Two sprays of CCC (0.2%)	326	3	332	3	341	3	354	3	338	3
Two sprays of tebuconazole (0.1 %)	336	2	349	2	359	2	366	2	353	2
Two sprays of CCC + tebuconazole	348	1	364	1	372	1	381	1	367	1
Mean	331		342		350		359		346	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			*		3.81		13.19		3.82	
Growth Regulator (B)			**		5.35		15.63		5.37	
B within A			NS		10.71		31.26			
A within B					10.03		29.27			
Grains/Earhead										
Control	26.26	3	35.10	1	36.70	1	36.14	1	33.55	1
Two sprays of CCC (0.2%)	26.66	2	33.04	2	33.81	2	34.22	2	31.93	2
Two sprays of tebuconazole (0.1 %)	27.21	1	31.93	3	33.14	3	33.79	3	31.52	3
Two sprays of CCC + tebuconazole	23.37	4	29.03	4	28.42	4	28.65	4	27.37	4
Mean	25.87		32.28		33.02		33.20		31.09	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.10		3.82		12.28	
Growth Regulator (B)			**		0.76		2.21		8.44	
B within A			NS		1.51		4.42			
A within B					1.71		5.00			
1000 Grains Weight,g										
Control	28.12	4	32.70	4	33.94	4	34.44	4	32.30	4
Two sprays of CCC (0.2%)	28.25	2	33.40	3	35.24	3	35.28	3	33.05	3
Two sprays of tebuconazole (0.1 %)	28.25	2	33.94	2	35.54	2	35.81	2	33.39	2
Two sprays of CCC + tebuconazole	28.32	1	34.44	1	35.93	1	36.45	1	33.78	1
Mean	28.23		33.62		35.16		35.50		33.13	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.43		1.48		4.48	
Growth Regulator (B)			NS		0.48		1.40		5.01	
B within A			NS		0.96		2.80			
A within B					0.93		2.73			
Plant Height, cm										
Control	73.10	3	85.05	1	103.64	1	112.81	1	93.65	2
Two sprays of CCC (0.2%)	83.28	1	84.49	2	99.85	2	108.38	2	94.00	1
Two sprays of tebuconazole (0.1 %)	82.39	2	72.99	3	97.32	3	98.43	3	87.78	3
Two sprays of CCC + tebuconazole	61.49	4	55.63	4	88.48	4	84.05	4	72.41	4
Mean	75.07		74.54		97.32		100.92		86.96	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.88		3.04		3.49	
Growth Regulator (B)			**		1.26		3.69		5.03	
B within A			**		2.53		7.38			
A within B					2.36		6.88			
Biomass, q/ha										
Control	61	4	92	4	93	4	105	4	88	4
Two sprays of CCC (0.2%)	62	2	92	3	93	3	108	1	89	3
Two sprays of tebuconazole (0.1 %)	62	1	97	2	98	2	106	2	91	2
Two sprays of CCC + tebuconazole	62	2	99	1	100	1	106	3	92	1
Mean	62		95		96		106		90	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.08		3.75		4.18	
Growth Regulator (B)			NS		1.73		5.04		6.66	
B within A			NS		3.45		10.08			
A within B					3.18		9.28			

Date of Sowing: 07.11.2017 Date of Harvesting: 12.06.2018

Table 6.6.4 Northern Hills Zone **SPL-2** **Malan** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	13.89	4	36.11	3	50.00	3	54.17	2	38.54	3
Two sprays of CCC (0.2%)	16.61	3	35.56	4	46.67	4	53.61	3	38.11	4
Two sprays of tebuconazole (0.1 %)	18.61	1	39.17	1	51.67	1	58.11	1	41.89	1
Two sprays of CCC + tebuconazole	17.78	2	37.50	2	50.56	2	53.33	4	39.79	2
Mean	16.72		37.08		49.72		54.81		39.58	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.04		3.59		9.08	
Growth Regulator (B)			**		0.68		1.99		5.96	
B within A			NS		1.36		3.97			
A within B					1.57		4.59			
Earheads/sqm										
Control	234	4	288	3	309	2	321	2	288	3
Two sprays of CCC (0.2%)	245	3	282	4	297	4	318	3	285	4
Two sprays of tebuconazole (0.1 %)	248	1	298	1	312	1	332	1	297	1
Two sprays of CCC + tebuconazole	246	2	288	2	308	3	317	4	290	2
Mean	243		289		306		322		290	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		3.81		13.19		4.55	
Growth Regulator (B)			NS		3.19		9.31		3.81	
B within A			NS		6.38		18.62			
A within B					6.71		19.59			
Grains/Earhead										
Control	15.18	4	31.05	4	38.94	4	41.04	3	31.55	4
Two sprays of CCC (0.2%)	16.77	3	31.65	3	38.98	3	41.41	1	32.20	3
Two sprays of tebuconazole (0.1 %)	18.70	1	32.73	2	40.77	2	41.11	2	33.33	1
Two sprays of CCC + tebuconazole	18.40	2	32.78	1	41.02	1	40.61	4	33.20	2
Mean	17.26		32.05		39.93		41.04		32.57	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.55		1.91		5.87	
Growth Regulator (B)			*		0.42		1.24		4.50	
B within A			NS		0.85		2.47			
A within B					0.92		2.68			
1000 Grains Weight,g										
Control	39.03	4	40.42	1	41.53	1	41.18	3	40.54	2
Two sprays of CCC (0.2%)	40.43	1	39.90	3	40.38	3	40.80	4	40.38	3
Two sprays of tebuconazole (0.1 %)	40.08	2	40.25	2	40.68	2	42.62	1	40.91	1
Two sprays of CCC + tebuconazole	39.28	3	39.68	4	39.97	4	41.49	2	40.10	4
Mean	39.71		40.06		40.64		41.52		40.48	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		0.23		0.81		2.00	
Growth Regulator (B)			NS		0.37		1.09		3.19	
B within A			NS		0.74		2.17			
A within B					0.69		2.00			
Plant Height, cm										
Control	61.97	1	84.33	1	90.50	1	100.93	1	84.43	1
Two sprays of CCC (0.2%)	59.57	3	71.03	4	78.67	3	89.27	3	74.63	3
Two sprays of tebuconazole (0.1 %)	61.47	2	77.27	2	88.37	2	93.63	2	80.18	2
Two sprays of CCC + tebuconazole	56.07	4	72.27	3	74.57	4	86.57	4	72.37	4
Mean	59.77		76.23		83.03		92.60		77.90	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		1.32		4.57		5.87	
Growth Regulator (B)			**		1.20		3.49		5.32	
B within A			NS		2.39		6.99			
A within B					2.46		7.17			
Biomass, q/ha										
Control	37	4	96	3	134	3	143	3	103	3
Two sprays of CCC (0.2%)	44	3	96	4	123	4	139	4	100	4
Two sprays of tebuconazole (0.1 %)	49	1	103	1	139	1	151	1	110	1
Two sprays of CCC + tebuconazole	48	2	99	2	137	2	144	2	107	2
Mean	45		98		133		144		105	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertilization (A)			**		2.63		9.12		8.69	
Growth Regulator (B)			**		1.54		4.48		5.06	
B within A			NS		3.07		8.97			
A within B					3.74		10.93			
Date of Sowing:	28.11.2017				Date of Harvesting:		15.05.2018			

Table 6.7.1. North Western Plains Zone **SPL-2** **Agra** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	16.66	4	43.52	4	46.24	4	46.93	4	38.34	4
Two sprays of CCC (0.2%)	18.02	3	46.23	3	47.94	3	49.13	3	40.33	3
Two sprays of tebuconazole (0.1 %)	18.96	2	46.92	2	49.64	2	50.32	2	41.46	2
Two sprays of CCC + tebuconazole	19.21	1	49.81	1	51.18	1	54.26	1	43.61	1
Mean	18.21		46.62		48.75		50.16		40.93	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.22		0.75		1.83			
Growth Regulator (B)	**		0.46		1.34		3.90			
B within A	NS		0.92		2.69					
A within B			0.83		2.41					
Earheads/sqm										
Control	240	4	457	3	454	4	464	4	404	4
Two sprays of CCC (0.2%)	241	3	458	2	461	3	465	3	406	2
Two sprays of tebuconazole (0.1 %)	243	2	455	4	462	2	465	2	406	3
Two sprays of CCC + tebuconazole	243	1	461	1	463	1	469	1	409	1
Mean	242		458		460		466		406	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.13		3.89		0.96			
Growth Regulator (B)	**		0.56		1.63		0.48			
B within A	*		1.12		3.27					
A within B			1.49		4.34					
Grains/Earhead										
Control	18.78	4	26.13	4	28.32	3	27.02	4	25.07	4
Two sprays of CCC (0.2%)	19.29	3	26.47	3	29.39	1	28.67	3	25.95	3
Two sprays of tebuconazole (0.1 %)	20.21	2	28.11	1	28.27	4	29.63	2	26.56	2
Two sprays of CCC + tebuconazole	20.51	1	27.83	2	28.89	2	31.11	1	27.09	1
Mean	19.70		27.14		28.72		29.11		26.17	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.47		1.63		6.22			
Growth Regulator (B)	**		0.23		0.68		3.08			
B within A	*		0.47		1.36					
A within B			0.62		1.81					
1000 Grains Weight, g										
Control	36.91	4	36.47	4	36.05	3	37.49	1	36.73	4
Two sprays of CCC (0.2%)	38.73	1	38.15	2	35.46	4	36.86	3	37.30	3
Two sprays of tebuconazole (0.1 %)	38.69	2	36.64	3	38.03	2	36.52	4	37.47	2
Two sprays of CCC + tebuconazole	38.50	3	38.84	1	38.31	1	37.19	2	38.21	1
Mean	38.21		37.52		36.96		37.01		37.43	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	NS		0.66		2.30		6.15			
Growth Regulator (B)	*		0.34		0.98		3.11			
B within A	NS		0.67		1.96					
A within B			0.88		2.58					
Plant Height, cm										
Control	65.50	1	86.25	1	86.00	1	87.67	1	81.35	1
Two sprays of CCC (0.2%)	65.00	2	85.50	2	85.50	2	86.67	2	80.67	2
Two sprays of tebuconazole (0.1 %)	64.92	3	85.33	3	85.33	3	86.50	3	80.52	3
Two sprays of CCC + tebuconazole	63.17	4	84.17	4	83.33	4	83.83	4	78.63	4
Mean	64.65		85.31		85.04		86.17		80.29	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.20		0.69		0.86			
Growth Regulator (B)	**		0.12		0.36		0.53			
B within A	NS		0.24		0.71					
A within B			0.29		0.85					
Biomass, q/ha										
Control	42	3	109	1	116	1	129	1	99	1
Two sprays of CCC (0.2%)	42	2	109	2	113	2	115	2	95	2
Two sprays of tebuconazole (0.1 %)	43	1	106	4	112	3	113	4	93	3
Two sprays of CCC + tebuconazole	41	4	107	3	110	4	114	3	93	4
Mean	42		108		112		118		95	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.64		2.22		2.34			
Growth Regulator (B)	**		1.09		3.19		3.99			
B within A	*		2.18		6.38					
A within B			2.00		5.83					
Date of Sowing:	24.11.2017				02.05.2018		04.04.2018			

Table 6.7.2. North Western Plains Zone **SPL-2** **Hisar** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	28.42	4	59.02	3	58.13	4	59.14	4	51.18	4
Two sprays of CCC (0.2%)	29.35	2	61.04	1	62.08	2	62.29	2	53.69	2
Two sprays of tebuconazole (0.1 %)	30.21	1	58.90	4	60.33	3	60.06	3	52.37	3
Two sprays of CCC + tebuconazole	28.96	3	60.80	2	62.71	1	63.75	1	54.06	1
Mean	29.23		59.94		60.81		61.31		52.82	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.98		3.39		6.43			
Growth Regulator (B)	*		0.72		2.10		4.71			
B within A	NS		1.44		4.19					
A within B			1.58		4.62					
Earheads/sqm										
Control	228	2	388	4	425	3	435	4	369	4
Two sprays of CCC (0.2%)	232	1	395	1	427	2	440	3	373	2
Two sprays of tebuconazole (0.1 %)	222	4	392	3	423	4	442	2	370	3
Two sprays of CCC + tebuconazole	223	3	393	2	435	1	447	1	375	1
Mean	226		392		428		441		372	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		11.17		38.67		10.41			
Growth Regulator (B)	NS		5.25		15.34		4.90			
B within A	NS		10.51		30.67					
A within B			14.41		42.06					
Grains/Earhead										
Control	30.36	4	38.95	3	34.89	4	35.09	4	34.82	4
Two sprays of CCC (0.2%)	31.80	3	40.30	1	37.87	2	37.63	2	36.90	2
Two sprays of tebuconazole (0.1 %)	33.48	1	37.81	4	37.13	3	35.26	3	35.92	3
Two sprays of CCC + tebuconazole	32.98	2	39.88	2	38.38	1	39.20	1	37.61	1
Mean	32.15		39.24		37.07		36.79		36.31	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	NS		1.46		5.07		13.97			
Growth Regulator (B)	NS		0.83		2.42		7.92			
B within A	NS		1.66		4.84					
A within B			2.05		5.99					
1000 Grains Weight, g										
Control	41.36	1	39.31	2	39.32	1	38.90	1	39.72	1
Two sprays of CCC (0.2%)	40.10	3	38.40	4	38.50	2	37.66	3	38.67	3
Two sprays of tebuconazole (0.1 %)	41.15	2	39.93	1	38.46	3	38.86	2	39.60	2
Two sprays of CCC + tebuconazole	39.33	4	38.81	3	37.58	4	36.63	4	38.09	4
Mean	40.49		39.11		38.46		38.02		39.02	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.31		1.08		2.77			
Growth Regulator (B)	**		0.36		1.04		3.16			
B within A	NS		0.71		2.08					
A within B			0.69		2.02					
Plant Height, cm										
Control	91.33	2	104.67	1	106.00	1	105.33	2	101.83	2
Two sprays of CCC (0.2%)	84.33	3	99.67	3	101.33	3	102.00	3	96.83	3
Two sprays of tebuconazole (0.1 %)	93.00	1	103.00	2	105.00	2	107.00	1	102.00	1
Two sprays of CCC + tebuconazole	78.00	4	96.33	4	95.67	4	98.00	4	92.00	4
Mean	86.67		100.92		102.00		103.08		98.17	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.61		5.57		5.68			
Growth Regulator (B)	**		0.96		2.81		3.40			
B within A	NS		1.93		5.63					
A within B			2.32		6.77					
Biomass, q/ha										
Control	77	2	151	3	157	1	157	2	135	2
Two sprays of CCC (0.2%)	76	3	152	2	153	3	154	4	134	3
Two sprays of tebuconazole (0.1 %)	78	1	153	1	156	2	158	1	136	1
Two sprays of CCC + tebuconazole	71	4	148	4	151	4	154	3	131	4
Mean	76		151		154		156		134	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		2.22		7.68		5.73			
Growth Regulator (B)	NS		1.56		4.54		4.02			
B within A	NS		3.11		9.09					
A within B			3.49		10.20					
Date of Sowing:	09.11.2017				Date of harvesting:		18.04.2018			

Table 6.7.3. North Western Plains Zone **SPL-2** **Durgapura** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	24.10	4	45.62	4	53.66	4	53.73	4	44.28	4
Two sprays of CCC (0.2%)	28.39	2	48.39	2	55.14	2	57.08	2	47.25	2
Two sprays of tebuconazole (0.1 %)	28.26	3	47.48	3	53.97	3	56.69	3	46.60	3
Two sprays of CCC + tebuconazole	30.62	1	49.46	1	55.64	1	58.23	1	48.49	1
Mean	27.84		47.74		54.60		56.43		46.65	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.27		4.41		9.46			
Growth Regulator (B)	NS		1.22		3.55		9.04			
B within A	NS		2.44		7.11					
A within B			2.46		7.19					
Earheads/sqm										
Control	322	4	392	4	419	2	420	3	388	3
Two sprays of CCC (0.2%)	328	3	396	2	415	3	429	1	392	2
Two sprays of tebuconazole (0.1 %)	330	2	395	3	408	4	419	4	388	4
Two sprays of CCC + tebuconazole	341	1	406	1	423	1	425	2	399	1
Mean	330		397		416		423		392	
	F. Test		SEm				CD(0.05)		CV(%)	
Fertilization (A)	*		14.52				50.25		12.84	
Growth Regulator (B)	NS		4.84				14.13		4.28	
B within A	NS		9.68				28.27			
A within B			16.77				48.95			
Grains/Earhead										
Control	24.21	4	29.91	4	34.60	1	32.72	3	30.36	4
Two sprays of CCC (0.2%)	26.05	3	30.78	2	32.39	2	32.38	4	30.40	3
Two sprays of tebuconazole (0.1 %)	26.61	1	29.95	3	32.13	3	33.48	2	30.54	2
Two sprays of CCC + tebuconazole	26.51	2	30.81	1	31.67	4	33.73	1	30.68	1
Mean	25.84		30.36		32.70		33.08		30.49	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	NS		1.76		6.10		20.03			
Growth Regulator (B)	NS		0.94		2.75		10.69			
B within A	NS		1.88		5.50					
A within B			2.40		7.01					
1000 Grains Weight, g										
Control	30.98	4	38.90	4	37.58	4	39.86	4	36.83	4
Two sprays of CCC (0.2%)	33.15	2	39.76	2	41.07	3	41.48	2	38.86	2
Two sprays of tebuconazole (0.1 %)	32.06	3	40.17	1	41.27	2	41.62	1	38.78	3
Two sprays of CCC + tebuconazole	33.68	1	39.66	3	41.58	1	41.24	3	39.04	1
Mean	32.47		39.62		40.37		41.05		38.38	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.63		2.17		5.67			
Growth Regulator (B)	*		0.57		1.66		5.13			
B within A	NS		1.14		3.32					
A within B			1.17		3.41					
Plant Height, cm										
Control	97.01	1	110.25	1	109.81	1	112.63	1	107.43	1
Two sprays of CCC (0.2%)	89.04	3	105.27	2	106.77	2	109.64	3	102.68	3
Two sprays of tebuconazole (0.1 %)	94.59	2	104.92	3	106.66	3	110.43	2	104.15	2
Two sprays of CCC + tebuconazole	87.72	4	100.93	4	102.56	4	108.22	4	99.86	4
Mean	92.09		105.34		106.45		110.23		103.53	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.38		4.79		4.63			
Growth Regulator (B)	**		1.05		3.07		3.51			
B within A	NS		2.10		6.13					
A within B			2.29		6.67					
Biomass, q/ha										
Control	57	4	96	4	119	4	122	4	99	4
Two sprays of CCC (0.2%)	63	2	102	2	120	2	127	2	103	2
Two sprays of tebuconazole (0.1 %)	62	3	100	3	119	3	126	3	102	3
Two sprays of CCC + tebuconazole	67	1	105	1	122	1	128	1	106	1
Mean	62		101		120		126		102	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.63		5.63		5.52			
Growth Regulator (B)	NS		2.04		5.96		6.92			
B within A	NS		4.08		11.92					
A within B			3.89		11.36					
Date of Sowing:	14.11.2017				Date of harvesting:		08.04.2018			

Table 6.7.4. North Western Plains Zone **SPL-2** **Jammu** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	24.23	4	43.23	4	46.37	4	50.97	4	41.20	4
Two sprays of CCC (0.2%)	29.92	2	44.20	3	47.33	3	52.40	3	43.46	3
Two sprays of tebuconazole (0.1 %)	28.80	3	46.47	2	48.20	2	54.07	2	44.38	2
Two sprays of CCC + tebuconazole	30.13	1	47.10	1	49.60	1	56.77	1	45.90	1
Mean	28.27		45.25		47.88		53.55		43.74	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.87		3.01		6.88			
Growth Regulator (B)	*		1.01		2.95		8.01			
B within A	NS		2.02		5.90					
A within B			1.95		5.71					
Earheads/sqm										
Control	242	1	382	1	387	1	394	2	351	1
Two sprays of CCC (0.2%)	228	4	377	2	385	3	389	4	345	3
Two sprays of tebuconazole (0.1 %)	229	3	372	4	386	2	389	3	344	4
Two sprays of CCC + tebuconazole	230	2	376	3	384	4	396	1	347	2
Mean	233		377		386		392		347	
	F. Test		SEm				CD(0.05)		CV(%)	
Fertilization (A)	**		4.21				14.57		4.21	
Growth Regulator (B)	NS		6.28				18.33		6.28	
B within A	NS		12.56				36.66			
A within B			11.66				34.04			
Grains/Earhead										
Control	27.64	4	29.42	4	31.17	4	32.98	4	30.30	4
Two sprays of CCC (0.2%)	35.18	2	29.88	3	32.27	3	34.63	3	32.99	3
Two sprays of tebuconazole (0.1 %)	33.72	3	33.51	2	32.98	2	35.22	2	33.86	2
Two sprays of CCC + tebuconazole	35.45	1	33.61	1	33.11	1	35.81	1	34.50	1
Mean	33.00		31.60		32.38		34.66		32.91	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	*		0.53		1.83		5.56			
Growth Regulator (B)	NS		1.11		3.24		11.69			
B within A	NS		2.22		6.48					
A within B			2.00		5.82					
1000 Grains Weight, g										
Control	36.01	4	38.40	2	38.48	2	39.51	3	38.10	4
Two sprays of CCC (0.2%)	37.22	2	39.26	1	38.08	3	38.96	4	38.38	2
Two sprays of tebuconazole (0.1 %)	37.30	1	37.40	4	38.08	3	39.75	2	38.13	3
Two sprays of CCC + tebuconazole	37.01	3	37.66	3	39.15	1	40.05	1	38.47	1
Mean	36.89		38.18		38.45		39.57		38.27	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.30		1.05		2.73			
Growth Regulator (B)	NS		0.47		1.38		4.29			
B within A	NS		0.95		2.76					
A within B			0.87		2.55					
Plant Height, cm										
Control	65.27	1	84.60	1	86.60	1	88.17	1	81.16	1
Two sprays of CCC (0.2%)	63.23	2	76.10	2	85.83	2	83.53	2	77.18	2
Two sprays of tebuconazole (0.1 %)	62.33	3	75.60	3	80.97	4	82.33	4	75.31	4
Two sprays of CCC + tebuconazole	61.50	4	75.47	4	81.33	3	83.30	3	75.40	3
Mean	63.08		77.94		83.68		84.33		77.26	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.80		2.78		3.60			
Growth Regulator (B)	*		1.41		4.10		6.30			
B within A	NS		2.81		8.21					
A within B			2.56		7.48					
Biomass,q/ha										
Control	52	4	92	4	99	4	109	4	88	4
Two sprays of CCC (0.2%)	64	2	94	3	101	3	112	3	93	3
Two sprays of tebuconazole (0.1 %)	61	3	99	2	103	2	115	2	95	2
Two sprays of CCC + tebuconazole	64	1	100	1	106	1	121	1	98	1
Mean	60		96		102		114		93	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.85		6.40		6.88			
Growth Regulator (B)	*		2.15		6.29		8.01			
B within A	NS		4.31		12.57					
A within B			4.16		12.15					
Lodging score										
Control	0.00		10.78		17.94		21.23		12.48	
Two sprays of CCC (0.2%)	0.00		0.00		0.00		0.00		0.00	
Two sprays of tebuconazole (0.1 %)	0.00		0.00		0.00		0.00		0.00	
Two sprays of CCC + tebuconazole	0.00		0.00		0.00		0.00		0.00	
Mean	0.00		2.69		4.49		5.31		3.12	
Date of Sowing:	07.11.2017				Date of harvesting:		29.04.2018			

Table 6.7.5. North Western Plains Zone **SPL-2** **Karnal** **2017-18**

Growth Regulator	Fertilser dose									
	Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	18.17	2	60.88	2	59.94	3	59.41	4	49.60	3
Two sprays of CCC (0.2%)	17.11	4	60.56	3	61.75	1	62.80	1	50.56	1
Two sprays of tebuconazole (0.1 %)	18.20	1	60.28	4	59.07	4	60.56	3	49.53	4
Two sprays of CCC + tebuconazole	18.11	3	61.55	1	59.96	2	62.05	2	50.42	2
Mean	17.90		60.82		60.18		61.21		50.03	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.06		3.68		7.36			
Growth Regulator (B)	NS		0.84		2.45		5.81			
B within A	NS		1.68		4.90					
A within B			1.80		5.25					
Earheads/sqm										
Control	228	1	444	2	497	2	488	2	414	
Two sprays of CCC (0.2%)	226	2	433	3	511	1	485	3	414	
Two sprays of tebuconazole (0.1 %)	226	2	430	4	486	4	484	4	406	
Two sprays of CCC + tebuconazole	223	4	451	1	492	3	502	1	417	
Mean	226		440		496		490		413	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		14.42		49.89		12.10			
Growth Regulator (B)	NS		9.52		27.80		7.99			
B within A	NS		19.05		55.60					
A within B			21.91		63.95					
Grains/Earhead										
Control	20.91	3	34.00	4	32.45	3	32.70	4	30.02	4
Two sprays of CCC (0.2%)	20.25	4	35.77	2	33.22	2	35.45	1	31.17	2
Two sprays of tebuconazole (0.1 %)	21.12	2	35.32	3	32.43	4	33.61	3	30.62	3
Two sprays of CCC + tebuconazole	22.27	1	36.94	1	34.10	1	34.02	2	31.83	1
Mean	21.14		35.51		33.05		33.95		30.91	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.60		5.53		17.92			
Growth Regulator (B)	NS		0.85		2.47		9.50			
B within A	NS		1.69		4.95					
A within B			2.17		6.34					
1000 Grains Weight, g										
Control	37.99	2	40.68	1	37.19	2	37.32	2	38.29	2
Two sprays of CCC (0.2%)	37.36	3	39.07	3	36.45	3	36.56	4	37.36	3
Two sprays of tebuconazole (0.1 %)	38.21	1	40.01	2	37.61	1	37.51	1	38.33	1
Two sprays of CCC + tebuconazole	37.17	4	37.45	4	35.97	4	36.59	3	36.80	4
Mean	37.68		39.30		36.81		36.99		37.70	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	*		0.48		1.66		4.41			
Growth Regulator (B)	**		0.29		0.84		2.65			
B within A	NS		0.58		1.68					
A within B			0.69		2.02					
Plant Height, cm										
Control	75.80	2	114.11	1	117.33	2	116.23	2	105.87	2
Two sprays of CCC (0.2%)	70.89	3	103.05	3	109.07	3	108.33	3	97.84	3
Two sprays of tebuconazole (0.1 %)	77.11	1	111.15	2	117.43	1	118.24	1	105.98	1
Two sprays of CCC + tebuconazole	67.13	4	98.18	4	102.06	4	105.45	4	93.21	4
Mean	72.73		106.63		111.48		112.06		100.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.73		2.53		2.52			
Growth Regulator (B)	**		1.00		2.92		3.44			
B within A	NS		2.00		5.83					
A within B			1.88		5.48					
Biomass, q/ha										
Control	54	2	157	1	156	1	156	3	131	1
Two sprays of CCC (0.2%)	50	4	153	3	155	2	159	2	129	3
Table 2.1.10. North Western Plains Zo	53	3	155	2	151	4	160	1	130	2
Two sprays of CCC + tebuconazole	56	1	151	4	152	3	153	4	128	4
Mean	53		154		153		157		129	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		2.34		8.11		6.27			
Growth Regulator (B)	NS		2.03		5.94		5.44			
B within A	NS		4.07		11.87					
A within B			4.23		12.35					
Lodging score										
Control	0.00		7.50		25.19		30.00		15.67	
Two sprays of CCC (0.2%)	0.00		3.70		17.22		25.19		11.53	
Two sprays of tebuconazole (0.1 %)	0.00		7.22		28.61		35.28		17.78	
Two sprays of CCC + tebuconazole	0.00		1.41		16.11		18.89		9.10	
Mean	0.00		4.96		21.78		27.34		13.52	
Date of Sowing:	18.11.2017				Date of harvesting:		17.04.2018			

Table 6.7.6. North Western Plains Zone **SPL-2** **Ludhiana** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	34.50	3	60.10	4	61.50	4	61.43	4	54.38	4
Two sprays of CCC (0.2%)	34.97	2	60.43	3	64.27	2	64.07	2	55.93	2
Two sprays of tebuconazole (0.1 %)	33.81	4	61.39	2	62.83	3	63.53	3	55.39	3
Two sprays of CCC + tebuconazole	35.78	1	61.97	1	66.87	1	65.60	1	57.55	1
Mean	34.76		60.97		63.87		63.66		55.82	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.58		5.47		9.80			
Growth Regulator (B)	NS		0.93		2.70		5.75			
B within A	NS		1.85		5.41					
A within B			2.25		6.57					
Earheads/sqm										
Control	263	4	400	3	418	4	423	4	376	4
Two sprays of CCC (0.2%)	267	2	400	2	418	2	427	2	378	2
Two sprays of tebuconazole (0.1 %)	263	3	400	3	418	3	426	3	377	3
Two sprays of CCC + tebuconazole	267	1	402	1	420	1	429	1	379	1
Mean	265		400		418		426		378	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		2.71		9.39		2.49			
Growth Regulator (B)	NS		2.24		6.55		2.06			
B within A	NS		4.49		13.09					
A within B			4.74		13.83					
Grains/Earhead										
Control	34.50	2	38.27	4	36.82	4	36.84	4	36.61	4
Two sprays of CCC (0.2%)	34.42	3	38.29	3	37.38	2	37.28	3	36.84	2
Two sprays of tebuconazole (0.1 %)	33.52	4	39.09	1	37.27	3	37.42	1	36.82	3
Two sprays of CCC + tebuconazole	34.57	1	38.53	2	38.29	1	37.30	2	37.17	1
Mean	34.25		38.55		37.44		37.21		36.86	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	NS		1.92		6.64		18.03			
Growth Regulator (B)	NS		0.82		2.40		7.72			
B within A	NS		1.64		4.79					
A within B			2.39		6.97					
1000 Grains Weight, g										
Control	38.31	4	39.30	4	40.00	4	39.50	4	39.28	4
Two sprays of CCC (0.2%)	38.33	2	39.47	2	41.13	2	40.22	2	39.79	2
Two sprays of tebuconazole (0.1 %)	38.33	2	39.33	3	40.33	3	39.83	3	39.46	3
Two sprays of CCC + tebuconazole	38.83	1	40.03	1	41.63	1	41.00	1	40.38	1
Mean	38.45		39.53		40.78		40.14		39.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		0.22		0.78		1.96			
Mean	NS		0.33		0.96		2.86			
B within A	NS		0.66		1.91					
A within B			0.61		1.78					
Plant Height, cm										
Control	72.80	1	94.00	1	100.27	1	104.23	1	92.83	1
Two sprays of CCC (0.2%)	69.30	3	89.90	3	92.57	3	97.00	3	87.19	3
Two sprays of tebuconazole (0.1 %)	71.20	2	92.30	2	96.43	2	102.80	2	90.68	2
Two sprays of CCC + tebuconazole	65.03	4	85.87	4	88.10	4	93.03	4	83.01	4
Mean	69.58		90.52		94.34		99.27		88.43	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.08		3.74		4.23			
Growth Regulator (B)	**		0.36		1.05		1.40			
B within A	*		0.72		2.09					
A within B			1.25		3.64					
Biomass, q/ha										
Control	109	1	165	1	175	1	182	1	158	1
Two sprays of CCC (0.2%)	105	3	163	3	172	3	179	3	155	3
Two sprays of tebuconazole (0.1 %)	108	2	165	2	172	2	181	2	157	2
Two sprays of CCC + tebuconazole	103	4	160	4	169	4	176	4	152	4
Mean	106		163		172		180		155	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.49		5.15		3.32			
Growth Regulator (B)	**		1.05		3.06		2.34			
B within A	NS		2.10		6.12					
A within B			2.35		6.85					
Lodging score										
Control	0.00		0.00		2.50		3.67		1.54	
Two sprays of CCC (0.2%)	0.00		0.00		1.67		2.00		0.92	
Two sprays of tebuconazole (0.1 %)	0.00		0.00		2.00		2.67		1.17	
Two sprays of CCC + tebuconazole	0.00		0.00		0.50		1.83		0.58	
Mean	0.00		0.00		1.67		2.54		1.05	
Date of Sowing:	03.11.2017				Date of harvesting:		20.04.2018			

Table 6.7.7. North Western Plains Zone **SPL-2** **Pantnagar** **2017-18**

Growth Regulator	Fertilser dose: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	30.53	4	49.27	2	38.03	4	37.97	4	38.95	4
Two sprays of CCC (0.2%)	31.33	3	49.00	3	41.90	2	40.40	3	40.66	3
Two sprays of tebuconazole (0.1 %)	31.70	1	49.47	1	41.87	3	43.40	2	41.61	2
Two sprays of CCC + tebuconazole	31.67	2	48.63	4	47.00	1	47.57	1	43.72	1
Mean	31.31		49.09		42.20		42.33		41.23	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		1.28		4.44		10.79			
Growth Regulator (B)	**		0.85		2.48		7.13			
B within A	NS		1.70		4.96					
A within B			1.95		5.70					
Earheads/sqm										
Control	282	4	381	2	421	2	426	4	377	3
Two sprays of CCC (0.2%)	283	3	377	3	405	4	436	2	375	4
Two sprays of tebuconazole (0.1 %)	307	2	376	4	438	1	428	3	388	1
Two sprays of CCC + tebuconazole	309	1	385	1	415	3	439	1	387	2
Mean	295		380		420		432		382	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		8.56		29.63		7.77			
Growth Regulator (B)	NS		5.62		16.40		5.10			
B within A	NS		11.24		32.80					
A within B			12.96		37.84					
Grains/Earhead										
Control	28.13	2	34.00	3	23.76	3	24.23	4	27.53	3
Two sprays of CCC (0.2%)	28.83	1	34.04	2	30.18	2	26.83	2	29.97	2
Two sprays of tebuconazole (0.1 %)	25.00	4	33.81	4	23.74	4	26.29	3	27.21	4
Two sprays of CCC + tebuconazole	27.29	3	34.30	1	31.35	1	29.70	1	30.66	1
Mean	27.31		34.04		27.26		26.76		28.84	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	*		1.46		5.05		17.52			
Growth Regulator (B)	*		0.98		2.86		11.76			
B within A	NS		1.96		5.71					
A within B			2.24		6.53					
1000 Grains Weight, g										
Control	38.50	2	38.10	3	38.37	2	36.97	2	37.98	2
Two sprays of CCC (0.2%)	38.50	2	38.20	2	34.80	4	34.87	4	36.59	4
Two sprays of tebuconazole (0.1 %)	41.47	1	39.10	1	40.43	1	38.90	1	39.98	1
Two sprays of CCC + tebuconazole	38.37	4	37.10	4	36.23	3	36.63	3	37.08	3
Mean	39.21		38.13		37.46		36.84		37.91	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	NS		1.09		3.78		9.99			
Growth Regulator (B)	**		0.42		1.22		3.83			
B within A	NS		0.84		2.44					
A within B			1.31		3.83					
Plant Height, cm										
Control	89.20	2	105.33	1	99.07	2	102.53	1	99.03	1
Two sprays of CCC (0.2%)	83.20	3	91.20	3	90.67	3	94.27	3	89.83	3
Two sprays of tebuconazole (0.1 %)	91.20	1	95.87	2	100.00	1	99.27	2	96.58	2
Two sprays of CCC + tebuconazole	73.13	4	88.13	4	89.13	4	88.60	4	84.75	4
Mean	84.18		95.13		94.72		96.17		92.55	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	*		2.07		7.15		7.73			
Growth Regulator (B)	**		1.17		3.43		4.39			
B within A	NS		2.35		6.85					
A within B			2.90		8.46					
Biomass, q/ha										
Control	91	1	129	2	128	3	123	4	118	2
Two sprays of CCC (0.2%)	64	4	125	3	127	4	124	3	110	4
Two sprays of tebuconazole (0.1 %)	76	3	134	1	135	1	133	2	120	1
Two sprays of CCC + tebuconazole	84	2	123	4	129	2	134	1	117	3
Mean	79		128		130		128		116	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization (A)	**		2.34		8.10		6.98			
Growth Regulator (B)	NS		2.55		7.45		7.61			
B within A	NS		5.10		14.90					
A within B			5.00		14.60					
Lodging score										
Control	0.00		0.57		9.30		0.83		2.68	
Two sprays of CCC (0.2%)	0.00		0.00		7.47		6.07		3.38	
Two sprays of tebuconazole (0.1 %)	0.00		1.83		13.10		10.13		6.27	
Two sprays of CCC + tebuconazole	0.00		0.00		1.70		4.23		1.48	
Mean	0.00		0.60		7.89		5.32		3.45	
Date of Sowing:	22.11.2017				Date of harvesting:		26.04.2018			

Table 6.8.1. North Eastern Plains Zone **SPL-2** **Burdwan** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	10.03	4	44.44	4	46.74	4	48.05	4	37.32	4
Two sprays of CCC (0.2%)	10.51	2	45.16	2	48.75	2	49.58	2	38.50	2
Two sprays of tebuconazole (0.1 %)	10.30	3	44.68	3	47.15	3	48.40	3	37.63	3
Two sprays of CCC + tebuconazole	10.72	1	45.35	1	49.01	1	49.79	1	38.72	1
Mean	10.39		44.91		47.91		48.96		38.04	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.42		1.47		3.87	
Growth Regulators (B)			*		0.35		1.04		3.23	
B within A			NS		0.71		2.07			
A within B					0.75		2.18			
Earheads/sqm										
Control	162	3	282	3	292	4	295	4	258	4
Two sprays of CCC (0.2%)	168	1	298	2	305	2	308	2	270	2
Two sprays of tebuconazole (0.1 %)	160	4	282	3	298	3	303	3	261	3
Two sprays of CCC + tebuconazole	167	2	300	1	308	1	312	1	272	1
Mean	164		290		301		305		265	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		4.00		13.84		5.23	
Growth Regulators (B)			*		3.72		10.87		4.87	
B within A			NS		7.45		21.75			
A within B					7.59		22.16			
Grains/Earhead										
Control	17.14	3	39.86	2	39.88	1	40.28	1	34.29	1
Two sprays of CCC (0.2%)	17.05	4	37.54	3	39.16	3	39.25	3	33.25	3
Two sprays of tebuconazole (0.1 %)	17.66	1	39.96	1	39.23	2	39.33	2	34.04	2
Two sprays of CCC + tebuconazole	17.52	2	37.38	4	38.78	4	39.00	4	33.17	4
Mean	17.34		38.69		39.26		39.47		33.69	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.16		0.55		1.64	
Growth Regulators (B)			NS		0.35		1.02		3.58	
B within A			NS		0.70		2.03			
A within B					0.62		1.82			
1000 Grains Weight, g										
Control	36.24	4	39.62	4	40.19	4	40.44	4	39.12	4
Two sprays of CCC (0.2%)	36.63	2	40.38	2	40.86	2	40.98	2	39.71	2
Two sprays of tebuconazole (0.1 %)	36.51	3	39.75	3	40.30	3	40.59	3	39.29	3
Two sprays of CCC + tebuconazole	36.88	1	40.47	1	41.01	1	40.98	1	39.83	1
Mean	36.57		40.05		40.59		40.75		39.49	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.20		0.68		1.73	
Growth Regulators (B)			*		0.17		0.51		1.53	
B within A			NS		0.35		1.02			
A within B					0.36		1.05			
Plant Height, cm										
Control	71.00	1	97.33	1	100.67	1	102.33	1	92.83	1
Two sprays of CCC (0.2%)	64.67	3	87.00	3	90.33	3	91.67	3	83.42	3
Two sprays of tebuconazole (0.1 %)	69.33	2	94.33	2	96.33	2	99.67	2	89.92	2
Two sprays of CCC + tebuconazole	64.00	4	85.33	4	87.67	4	88.67	4	81.42	4
Mean	67.25		91.00		93.75		95.58		86.90	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.08		3.72		4.29	
Growth Regulators (B)			**		0.84		2.45		3.34	
B within A			NS		1.68		4.90			
A within B					1.81		5.28			
Biomass, q/ha										
Control	23	4	110	4	115	4	117	4	91	4
Two sprays of CCC (0.2%)	24	2	111	2	119	2	121	2	94	2
Two sprays of tebuconazole (0.1 %)	24	3	111	3	117	3	118	3	92	3
Two sprays of CCC + tebuconazole	24	1	114	1	120	1	122	1	95	1
Mean	24		111		117		120		93	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.07		3.69		3.97	
Growth Regulators (B)			**		0.74		2.16		2.76	
B within A			NS		1.48		4.32			
A within B					1.67		4.87			
Date of Sowing:	24.11.2017				Date of Harvesting:				05.04.2018	

Table 6.8.2. North Eastern Plains Zone **SPL-2** **Coochbehar** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	19.33	2	41.87	4	53.63	2	56.50	2	42.83	4
Two sprays of CCC (0.2%)	19.17	3	46.07	3	50.77	3	58.07	1	43.52	2
Two sprays of tebuconazole (0.1 %)	20.70	1	47.57	2	49.43	4	54.83	4	43.13	3
Two sprays of CCC + tebuconazole	18.97	4	48.97	1	55.07	1	56.10	3	44.78	1
Mean	19.54		46.12		52.23		56.38		43.56	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.85		6.40		14.70	
Growth Regulators (B)			NS		1.73		5.04		13.74	
B within A			NS		3.46		10.09			
A within B					3.52		10.27			
Earheads/sqm										
Control	163	3	233	4	301	3	311	2	252	4
Two sprays of CCC (0.2%)	165	2	289	2	288	4	313	1	264	1
Two sprays of tebuconazole (0.1 %)	156	4	276	3	311	1	302	3	261	3
Two sprays of CCC + tebuconazole	166	1	299	1	310	2	275	4	263	2
Mean	163		274		302		300		260	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		6.17		21.35		8.22	
Growth Regulators (B)			NS		6.06		17.70		8.08	
B within A			*		12.13		35.40			
A within B					12.18		35.55			
Grains/Earhead										
Control	35.52	4	44.30	1	41.78	2	43.45	3	41.26	2
Two sprays of CCC (0.2%)	35.62	3	37.69	4	41.76	3	44.80	2	39.97	4
Two sprays of tebuconazole (0.1 %)	40.84	1	41.25	2	37.54	4	43.23	4	40.72	3
Two sprays of CCC + tebuconazole	35.75	2	39.02	3	42.56	1	48.41	1	41.44	1
Mean	36.93		40.56		40.91		44.98		40.85	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			NS		2.48		8.58		21.03	
Growth Regulators (B)			NS		2.56		7.48		21.74	
B within A			NS		5.13		14.97			
A within B					5.09		14.84			
1000 Grains Weight, g										
Control	33.60	2	42.30	1	42.83	1	41.80	3	40.13	1
Two sprays of CCC (0.2%)	32.90	4	42.27	2	42.60	3	41.53	4	39.83	4
Two sprays of tebuconazole (0.1 %)	33.67	1	42.13	3	42.30	4	42.30	2	40.10	2
Two sprays of CCC + tebuconazole	33.00	3	42.03	4	42.80	2	42.33	1	40.04	3
Mean	33.29		42.18		42.63		41.99		40.03	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.26		0.89		2.22	
Growth Regulators (B)			NS		0.40		1.17		3.48	
B within A			NS		0.80		2.35			
A within B					0.74		2.17			
Plant Height, cm										
Control	78.07	1	84.67	1	90.70	1	88.20	1	85.41	1
Two sprays of CCC (0.2%)	68.70	3	83.20	2	87.00	3	82.30	3	80.30	3
Two sprays of tebuconazole (0.1 %)	75.83	2	82.97	3	90.47	2	88.17	2	84.36	2
Two sprays of CCC + tebuconazole	67.23	4	82.70	4	85.10	4	80.97	4	79.00	4
Mean	72.46		83.38		88.32		84.91		82.27	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		2.06		7.12		8.66	
Growth Regulators (B)			**		1.12		3.27		4.71	
B within A			NS		2.24		6.53			
A within B					2.83		8.25			
Biomass, q/ha										
Control	72	3	107	4	140	2	152	2	118	4
Two sprays of CCC (0.2%)	69	4	118	3	131	4	154	1	118	3
Two sprays of tebuconazole (0.1 %)	73	1	122	2	132	3	146	4	118	2
Two sprays of CCC + tebuconazole	73	2	130	1	142	1	150	3	124	1
Mean	72		119		136		151		119	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		2.25		7.77		6.51	
Growth Regulators (B)			NS		3.33		9.71		9.64	
B within A			NS		6.65		19.42			
A within B					6.18		18.05			
Date of Sowing:	21.11.2017				Date of Harvesting:				07.04.2018	

Table 6.8.3. North Eastern Plains Zone **SPL-2** **Faizabad** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	10.63	4	44.56	4	48.30	4	60.62	3	41.03	4
Two sprays of CCC (0.2%)	11.90	2	48.38	2	52.55	2	59.85	4	43.17	2
Two sprays of tebuconazole (0.1 %)	11.05	3	45.66	3	50.34	3	64.47	2	42.88	3
Two sprays of CCC + tebuconazole	12.25	1	50.51	1	54.25	1	64.80	1	45.45	1
Mean	11.46		47.28		51.36		62.44		43.13	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.22		0.78		1.80	
Growth Regulators (B)			**		0.83		2.42		6.66	
B within A			NS		1.66		4.84			
A within B					1.45		4.24			
Earheads/sqm										
Control	198	4	326	4	333	4	425	4	320	4
Two sprays of CCC (0.2%)	214	2	360	2	586	1	439	2	400	1
Two sprays of tebuconazole (0.1 %)	201	3	351	3	377	3	426	3	339	3
Two sprays of CCC + tebuconazole	224	1	375	1	406	2	448	1	363	2
Mean	209		353		426		434		356	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		24.31		84.11		23.68	
Growth Regulators (B)			NS		24.65		71.96		24.02	
B within A			NS		49.30		143.91			
A within B					49.13		143.41			
Grains/Earhead										
Control	14.24	3	34.48	1	37.67	1	35.46	2	30.46	1
Two sprays of CCC (0.2%)	14.82	2	33.39	2	27.51	4	31.17	4	26.72	4
Two sprays of tebuconazole (0.1 %)	15.21	1	32.92	3	35.27	2	36.45	1	29.96	2
Two sprays of CCC + tebuconazole	13.94	4	32.72	4	33.37	3	31.94	3	27.99	3
Mean	14.55		33.38		33.46		33.76		28.79	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.89		3.07		10.66	
Growth Regulators (B)			NS		1.09		3.19		13.14	
B within A			NS		2.18		6.38			
A within B					2.09		6.10			
1000 Grains Weight, g										
Control	37.90	2	39.73	3	38.57	3	40.33	4	39.13	3
Two sprays of CCC (0.2%)	37.87	3	40.27	2	39.67	2	43.73	2	40.38	2
Two sprays of tebuconazole (0.1 %)	36.43	4	39.53	4	37.83	4	41.47	3	38.82	4
Two sprays of CCC + tebuconazole	39.23	1	41.20	1	40.10	1	45.40	1	41.48	1
Mean	37.86		40.18		39.04		42.73		39.95	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.32		1.12		2.82	
Growth Regulators (B)			**		0.51		1.48		4.39	
B within A			NS		1.01		2.95			
A within B					0.93		2.73			
Plant Height, cm										
Control	75.07	1	94.73	1	94.00	1	96.00	1	89.95	1
Two sprays of CCC (0.2%)	70.20	3	87.73	3	86.13	4	90.33	3	83.60	3
Two sprays of tebuconazole (0.1 %)	73.40	2	90.27	2	90.13	2	92.33	2	86.53	2
Two sprays of CCC + tebuconazole	67.93	4	86.20	4	88.20	3	88.50	4	82.71	4
Mean	71.65		89.73		89.62		91.79		85.70	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			*		3.70		12.81		15.29	
Growth Regulators (B)			NS		3.95		11.53		16.31	
B within A			NS		7.90		23.05			
A within B					7.78		22.70			
Biomass, q/ha										
Control	25	4	107	4	121	4	145	4	99	4
Two sprays of CCC (0.2%)	27	2	116	2	131	2	151	2	107	2
Two sprays of tebuconazole (0.1 %)	25	3	110	3	126	3	147	3	102	3
Two sprays of CCC + tebuconazole	28	1	121	1	136	1	156	1	110	1
Mean	26		113		128		150		104	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.50		1.74		1.67	
Growth Regulators (B)			**		1.09		3.19		3.63	
B within A			NS		2.19		6.38			
A within B					1.96		5.72			
Date of Sowing:	24.11.2017				Date of Harvesting:				26.04.2018	

Table 6.8.4. North Eastern Plains Zone **SPL-2** **Kalyani** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	17.74	2	33.10	3	34.80	4	32.97	4	29.65	4
Two sprays of CCC (0.2%)	15.69	4	35.16	2	38.15	2	33.56	3	30.64	3
Two sprays of tebuconazole (0.1 %)	18.30	1	31.79	4	35.91	3	39.39	2	31.35	2
Two sprays of CCC + tebuconazole	16.00	3	40.59	1	44.45	1	41.71	1	35.69	1
Mean	16.93		35.16		38.33		36.91		31.83	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.76		2.64		8.32	
Growth Regulators (B)			**		1.02		2.98		11.12	
B within A			NS		2.04		5.97			
A within B					1.93		5.63			
Earheads/sqm										
Control	224	4	282	4	297	2	274	4	269	4
Two sprays of CCC (0.2%)	261	2	300	3	291	3	294	2	286	3
Two sprays of tebuconazole (0.1 %)	250	3	308	2	317	1	282	3	289	2
Two sprays of CCC + tebuconazole	268	1	312	1	289	4	315	1	296	1
Mean	251		301		299		291		285	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		5.93		20.53		7.20	
Growth Regulators (B)			NS		11.03		32.21		13.40	
B within A			NS		22.07		64.41			
A within B					20.01		58.41			
Grains/Earhead										
Control	22.20	1	29.89	2	30.76	3	32.89	3	28.94	2
Two sprays of CCC (0.2%)	17.39	3	29.87	3	33.79	2	29.25	4	27.57	3
Two sprays of tebuconazole (0.1 %)	19.26	2	26.19	4	28.54	4	35.61	2	27.40	4
Two sprays of CCC + tebuconazole	16.27	4	31.82	1	37.42	1	36.30	1	30.45	1
Mean	18.78		29.45		32.62		33.51		28.59	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.97		3.36		11.75	
Growth Regulators (B)			NS		1.04		3.03		12.58	
B within A			NS		2.08		6.06			
A within B					2.04		5.96			
1000 Grains Weight, g										
Control	35.84	3	39.77	3	37.99	4	36.55	4	37.54	4
Two sprays of CCC (0.2%)	35.33	4	39.46	4	39.03	3	39.28	2	38.28	3
Two sprays of tebuconazole (0.1 %)	38.40	1	40.18	2	39.87	2	39.61	1	39.52	1
Two sprays of CCC + tebuconazole	37.18	2	41.07	1	41.37	1	36.62	3	39.06	2
Mean	36.69		40.12		39.57		38.02		38.60	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			*		0.59		2.04		5.30	
Growth Regulators (B)			NS		0.63		1.85		5.69	
B within A			NS		1.27		3.70			
A within B					1.25		3.64			
Plant Height, cm										
Control	69.30	1	99.83	1	101.70	1	102.23	1	93.27	1
Two sprays of CCC (0.2%)	60.83	2	94.97	3	100.37	2	89.87	2	86.51	2
Two sprays of tebuconazole (0.1 %)	56.93	3	96.17	2	95.03	3	87.03	4	83.79	3
Two sprays of CCC + tebuconazole	53.27	4	93.33	4	91.03	4	87.93	3	81.39	4
Mean	60.08		96.08		97.03		91.77		86.24	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.95		3.30		3.83	
Growth Regulators (B)			**		1.95		5.70		7.84	
B within A			NS		3.90		11.39			
A within B					3.51		10.25			
Biomass, q/ha										
Control	52	2	89	3	110	2	91	4	85	2
Two sprays of CCC (0.2%)	47	3	94	2	100	3	93	3	84	4
Two sprays of tebuconazole (0.1 %)	53	1	86	4	98	4	103	2	85	3
Two sprays of CCC + tebuconazole	45	4	100	1	113	1	109	1	92	1
Mean	49		92		105		99		86	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		4.05		14.00		16.22	
Growth Regulators (B)			NS		2.28		6.66		9.15	
B within A			NS		4.57		13.33			
A within B					5.66		16.51			
Date of Sowing:	19.11.2017				Date of Harvesting:				18.03.2018	

Table 6.8.5. North Eastern Plains Zone **SPL-2** **Kanpur** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	17.63	4	50.18	4	56.30	4	58.10	4	45.55	4
Two sprays of CCC (0.2%)	19.52	1	52.08	2	63.59	2	64.18	2	49.84	2
Two sprays of tebuconazole (0.1 %)	19.10	2	51.10	3	62.25	3	63.80	3	49.06	3
Two sprays of CCC + tebuconazole	19.10	2	54.33	1	64.10	1	65.52	1	50.76	1
Mean	18.84		51.92		61.56		62.90		48.81	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.67		2.33		4.79	
Growth Regulators (B)			**		0.94		2.75		6.69	
B within A			NS		1.89		5.50			
A within B					1.77		5.16			
Earheads/sqm										
Control	234	4	348	4	379	4	404	4	341	4
Two sprays of CCC (0.2%)	245	2	372	2	412	2	416	2	361	2
Two sprays of tebuconazole (0.1 %)	237	3	369	3	405	3	408	3	355	3
Two sprays of CCC + tebuconazole	248	1	389	1	429	1	441	1	377	1
Mean	241		370		406		417		359	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		2.73		9.45		2.64	
Growth Regulators (B)			**		2.50		7.30		2.42	
B within A			NS		5.00		14.61			
A within B					5.12		14.95			
Grains/Earhead										
Control	20.25	2	35.96	1	36.89	3	35.12	3	32.06	2
Two sprays of CCC (0.2%)	20.17	3	34.30	3	37.53	2	35.87	2	31.97	3
Two sprays of tebuconazole (0.1 %)	20.84	1	34.38	2	37.73	1	38.49	1	32.86	1
Two sprays of CCC + tebuconazole	19.48	4	33.76	4	35.56	4	34.50	4	30.83	4
Mean	20.19		34.60		36.93		36.00		31.93	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.43		1.50		4.70	
Growth Regulators (B)			NS		0.83		2.44		9.05	
B within A			NS		1.67		4.87			
A within B					1.51		4.40			
1000 Grains Weight, g										
Control	37.20	4	40.10	4	40.30	4	41.20	3	39.70	4
Two sprays of CCC (0.2%)	39.40	2	40.80	2	41.20	2	43.30	1	41.18	2
Two sprays of tebuconazole (0.1 %)	38.80	3	40.30	3	40.80	3	40.60	4	40.13	3
Two sprays of CCC + tebuconazole	39.60	1	41.40	1	42.10	1	43.20	2	41.58	1
Mean	38.75		40.65		41.10		42.08		40.64	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			*		0.59		2.05		5.06	
Growth Regulators (B)			*		0.41		1.20		3.52	
B within A			NS		0.82		2.41			
A within B					0.93		2.71			
Plant Height, cm										
Control	66.80	1	84.30	1	87.30	1	89.30	1	81.93	1
Two sprays of CCC (0.2%)	64.70	3	82.80	2	83.50	3	84.50	3	78.88	3
Two sprays of tebuconazole (0.1 %)	65.60	2	82.20	4	84.51	2	85.15	2	79.37	2
Two sprays of CCC + tebuconazole	64.20	4	82.53	3	83.10	4	84.10	4	78.48	4
Mean	65.33		82.96		84.60		85.76		79.66	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.52		1.79		2.25	
Growth Regulators (B)			**		0.48		1.39		2.07	
B within A			NS		0.95		2.78			
A within B					0.97		2.85			
Biomass, q/ha										
Control	38	4	108	4	121	4	125	4	98	4
Two sprays of CCC (0.2%)	42	2	112	2	137	2	139	2	108	2
Two sprays of tebuconazole (0.1 %)	41	3	110	3	134	3	138	3	106	3
Two sprays of CCC + tebuconazole	46	1	117	1	138	1	142	1	111	1
Mean	42		112		133		136		106	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.78		2.69		2.54	
Growth Regulators (B)			**		0.99		2.90		3.25	
B within A			NS		1.98		5.79			
A within B					1.89		5.50			
Date of Sowing:	29.11.2017				Date of Harvesting:				16.04.2018	

Table 6.8.6. North Eastern Plains Zone **SPL-2** **Ranchi** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	4.73	4	42.07	4	44.47	4	48.60	4	34.97	4
Two sprays of CCC (0.2%)	7.40	2	43.07	2	47.40	2	50.33	3	37.05	3
Two sprays of tebuconazole (0.1 %)	8.00	1	43.87	1	47.27	3	50.93	2	37.52	2
Two sprays of CCC + tebuconazole	7.33	3	43.07	2	49.33	1	51.73	1	37.87	1
Mean	6.87		43.02		47.12		50.40		36.85	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.82		2.85		7.75	
Growth Regulators (B)			NS		0.95		2.78		8.96	
B within A			NS		1.91		5.56			
A within B					1.84		5.38			
Earheads/sqm										
Control	165	3	340	2	347	4	407	1	315	2
Two sprays of CCC (0.2%)	168	2	333	3	357	3	370	4	307	3
Two sprays of tebuconazole (0.1 %)	169	1	307	4	368	1	380	3	306	4
Two sprays of CCC + tebuconazole	161	4	359	1	367	2	397	2	321	1
Mean	166		335		360		388		312	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		10.76		37.23		11.94	
Growth Regulators (B)			NS		9.48		27.67		10.52	
B within A			NS		18.96		55.35			
A within B					19.63		57.30			
Grains/Earhead										
Control	8.30	4	32.41	3	34.50	1	30.07	4	26.32	4
Two sprays of CCC (0.2%)	12.57	3	33.71	2	34.46	2	34.27	1	28.75	2
Two sprays of tebuconazole (0.1 %)	13.50	1	38.63	1	32.89	4	34.00	2	29.76	1
Two sprays of CCC + tebuconazole	13.40	2	31.49	4	33.61	3	32.72	3	27.80	3
Mean	11.94		34.06		33.87		32.76		28.16	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.00		3.45		12.28	
Growth Regulators (B)			NS		1.34		3.92		16.52	
B within A			NS		2.69		7.84			
A within B					2.53		7.39			
1000 Grains Weight, g										
Control	34.80	2	38.20	2	37.87	4	40.00	3	37.72	4
Two sprays of CCC (0.2%)	35.00	1	38.50	1	38.87	3	40.40	1	38.19	1
Two sprays of tebuconazole (0.1 %)	34.73	3	37.60	4	39.30	2	39.90	4	37.88	3
Two sprays of CCC + tebuconazole	33.60	4	38.20	2	40.40	1	40.23	2	38.11	2
Mean	34.53		38.13		39.11		40.13		37.98	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.44		1.52		4.00	
Growth Regulators (B)			NS		0.43		1.25		3.92	
B within A			NS		0.86		2.51			
A within B					0.86		2.52			
Plant Height, cm										
Control	73.67	1	101.00	1	106.00	1	109.33	1	97.50	1
Two sprays of CCC (0.2%)	63.33	2	85.00	3	91.33	2	84.67	3	81.08	2
Two sprays of tebuconazole (0.1 %)	63.33	2	84.33	4	84.67	3	85.67	2	79.50	3
Two sprays of CCC + tebuconazole	60.00	4	85.33	2	81.00	4	84.33	4	77.67	4
Mean	65.08		88.92		90.75		91.00		83.94	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.76		2.62		3.12	
Growth Regulators (B)			**		2.28		6.65		9.40	
B within A			NS		4.56		13.30			
A within B					4.02		11.73			
Biomass, q/ha										
Control	12	4	91	4	96	3	103	4	75	4
Two sprays of CCC (0.2%)	15	2	92	3	94	4	106	2	77	3
Two sprays of tebuconazole (0.1 %)	16	1	95	2	102	2	110	1	81	2
Two sprays of CCC + tebuconazole	14	3	103	1	103	1	104	3	81	1
Mean	14		95		99		106		78	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		3.68		12.74		16.26	
Growth Regulators (B)			NS		3.38		9.87		14.94	
B within A			NS		6.76		19.74			
A within B					6.92		20.19			
Date of Sowing:	14.11.2017				Date of Harvesting:				15.04.2018	

Table 6.8.7. North Eastern Plains Zone **SPL-2** **Sabour** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	24.90	4	29.97	4	49.67	4	49.10	4	38.41	4
Two sprays of CCC (0.2%)	25.50	2	51.03	1	51.00	2	51.33	2	44.72	2
Two sprays of tebuconazole (0.1 %)	25.23	3	48.67	3	50.00	3	51.00	3	43.73	3
Two sprays of CCC + tebuconazole	25.63	1	50.00	2	51.70	1	52.37	1	44.93	1
Mean	25.32		44.92		50.59		50.95		42.94	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.28		4.44		10.34	
Growth Regulators (B)			**		1.16		3.39		9.37	
B within A			**		2.32		6.78			
A within B					2.39		6.96			
Earheads/sqm										
Control	220	4	226	4	263	4	262	4	243	4
Two sprays of CCC (0.2%)	225	2	263	2	269	2	270	2	257	2
Two sprays of tebuconazole (0.1 %)	222	3	262	3	264	3	268	3	254	3
Two sprays of CCC + tebuconazole	228	1	265	1	270	1	273	1	259	1
Mean	224		254		267		268		253	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.59		5.49		2.17	
Growth Regulators (B)			**		2.37		6.91		3.24	
B within A			*		4.73		13.81			
A within B					4.39		12.83			
Grains/Earhead										
Control	32.37	2	35.78	4	43.86	4	43.79	2	38.95	4
Two sprays of CCC (0.2%)	32.36	3	45.44	1	44.00	2	43.12	4	41.23	1
Two sprays of tebuconazole (0.1 %)	32.46	1	44.14	3	43.98	3	44.10	1	41.17	2
Two sprays of CCC + tebuconazole	31.23	4	44.86	2	44.47	1	43.53	3	41.02	3
Mean	32.11		42.56		44.08		43.64		40.59	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.78		2.70		6.65	
Growth Regulators (B)			*		0.63		1.83		5.36	
B within A			**		1.26		3.67			
A within B					1.34		3.91			
1000 Grains Weight, g										
Control	35.00	2	37.00	4	43.00	1	43.00	3	39.50	4
Two sprays of CCC (0.2%)	35.00	2	42.67	1	43.00	1	44.00	1	41.17	2
Two sprays of tebuconazole (0.1 %)	35.00	2	42.00	2	43.00	1	43.00	3	40.75	3
Two sprays of CCC + tebuconazole	36.00	1	42.00	2	43.00	1	44.00	1	41.25	1
Mean	35.25		40.92		43.00		43.50		40.67	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.25		0.87		2.13	
Growth Regulators (B)			*		0.46		1.34		3.92	
B within A			NS		0.92		2.69			
A within B					0.84		2.44			
Plant Height, cm										
Control	88.33	3	91.33	3	90.33	3	95.33	2	91.33	3
Two sprays of CCC (0.2%)	80.00	4	83.33	4	88.00	4	92.67	3	86.00	4
Two sprays of tebuconazole (0.1 %)	94.67	1	92.67	2	94.67	1	97.33	1	94.83	1
Two sprays of CCC + tebuconazole	90.00	2	93.67	1	92.67	2	92.33	4	92.17	2
Mean	88.25		90.25		91.42		94.42		91.08	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.60		2.07		2.28	
Growth Regulators (B)			**		0.42		1.23		1.60	
B within A			**		0.84		2.45			
A within B					0.94		2.75			
Biomass, q/ha										
Control	59	4	71	4	118	4	117	4	91	4
Two sprays of CCC (0.2%)	61	2	122	1	121	2	123	2	107	2
Two sprays of tebuconazole (0.1 %)	60	3	116	3	119	3	121	3	104	3
Two sprays of CCC + tebuconazole	61	1	119	2	123	1	125	1	107	1
Mean	60		107		120		121		102	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		2.93		10.15		9.93	
Growth Regulators (B)			**		2.78		8.10		9.40	
B within A			**		5.55		16.20			
A within B					5.63		16.44			
Date of Sowing:	22.11.2017				Date of Harvesting:				16.04.2018	

Table 6.8.8. North Eastern Plains Zone **SPL-2** **Shillongani** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	21.13	4	36.32	4	42.85	4	43.84	4	36.04	4
Two sprays of CCC (0.2%)	22.67	2	36.65	3	42.99	3	45.82	2	37.03	3
Two sprays of tebuconazole (0.1 %)	22.09	3	46.38	2	43.47	2	44.90	3	39.21	2
Two sprays of CCC + tebuconazole	29.47	1	47.81	1	46.03	1	51.65	1	43.74	1
Mean	23.84		41.79		43.84		46.55		39.01	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.48		1.67		4.30	
Growth Regulators (B)			**		0.49		1.44		4.38	
B within A			**		0.99		2.88			
A within B					0.98		2.87			
Earheads/sqm										
Control	193	4	178	4	206	2	204	2	195	3
Two sprays of CCC (0.2%)	199	3	201	3	182	4	193	3	194	4
Two sprays of tebuconazole (0.1 %)	202	1	210	1	212	1	184	4	202	2
Two sprays of CCC + tebuconazole	202	2	209	2	200	3	207	1	204	1
Mean	199		200		200		197		199	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			NS		1.75		6.04		3.04	
Growth Regulators (B)			NS		3.63		10.60		6.32	
B within A			*		7.26		21.20			
A within B					6.53		19.05			
Grains/Earhead										
Control	19.13	4	36.94	3	37.82	4	39.87	4	33.44	4
Two sprays of CCC (0.2%)	20.81	2	33.92	4	43.19	2	43.90	2	35.45	2
Two sprays of tebuconazole (0.1 %)	20.43	3	39.41	2	37.86	3	43.77	3	35.37	3
Two sprays of CCC + tebuconazole	25.96	1	43.49	1	43.37	1	45.52	1	39.59	1
Mean	21.58		38.44		40.56		43.27		35.96	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.92		3.19		8.89	
Growth Regulators (B)			**		0.96		2.79		9.21	
B within A			NS		1.91		5.58			
A within B					1.90		5.53			
1000 Grains Weight, g										
Control	57.30	1	55.37	2	55.03	2	54.10	4	55.45	1
Two sprays of CCC (0.2%)	55.13	3	53.83	3	55.47	1	54.40	3	54.71	3
Two sprays of tebuconazole (0.1 %)	53.53	4	56.43	1	54.20	3	55.70	1	54.97	2
Two sprays of CCC + tebuconazole	56.33	2	53.07	4	53.23	4	54.90	2	54.38	4
Mean	55.58		54.68		54.48		54.78		54.88	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			NS		1.18		4.07		7.43	
Growth Regulators (B)			NS		0.59		1.72		3.72	
B within A			NS		1.18		3.44			
A within B					1.56		4.55			
Plant Height, cm										
Control	82.67	1	89.07	3	91.70	3	91.27	2	88.68	2
Two sprays of CCC (0.2%)	82.07	3	89.33	2	92.77	1	89.73	4	88.48	3
Two sprays of tebuconazole (0.1 %)	82.63	2	91.27	1	91.50	4	91.97	1	89.34	1
Two sprays of CCC + tebuconazole	78.30	4	88.93	4	91.73	2	90.40	3	87.34	4
Mean	81.42		89.65		91.93		90.84		88.46	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			*		1.84		6.38		7.22	
Growth Regulators (B)			NS		0.59		1.72		2.31	
B within A			NS		1.18		3.45			
A within B					2.11		6.15			
Biomass, q/ha										
Control	53	4	89	4	107	4	108	4	89	4
Two sprays of CCC (0.2%)	57	2	92	3	110	2	119	2	94	3
Two sprays of tebuconazole (0.1 %)	56	3	119	2	110	3	110	3	99	2
Two sprays of CCC + tebuconazole	72	1	120	1	117	1	125	1	108	1
Mean	59		105		111		115		98	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		1.59		5.49		5.63	
Growth Regulators (B)			**		1.21		3.52		4.28	
B within A			**		2.41		7.04			
A within B					2.62		7.66			
Date of Sowing:	04.12.2017				Date of Harvesting:				10.04.2018	

Table 6.8.9. North Eastern Plains Zone **SPL-2** **Varanasi** **2017-18**

Growth Regulator	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	19.69	1	49.60	4	52.47	2	54.05	3	43.95	3
Two sprays of CCC (0.2%)	18.95	2	51.95	2	54.47	1	54.27	2	44.91	1
Two sprays of tebuconazole (0.1 %)	18.09	4	50.36	3	52.04	4	53.68	4	43.54	4
Two sprays of CCC + tebuconazole	18.72	3	53.37	1	52.45	3	54.70	1	44.81	2
Mean	18.86		51.32		52.86		54.18		44.30	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.14		0.47		1.06	
Growth Regulators (B)			**		0.17		0.51		1.36	
B within A			**		0.35		1.01			
A within B					0.33		0.96			
Earheads/sqm										
Control	156	4	358	4	420	3	420	3	339	4
Two sprays of CCC (0.2%)	175	1	360	3	427	1	424	1	347	3
Two sprays of tebuconazole (0.1 %)	174	2	404	1	421	2	405	4	351	1
Two sprays of CCC + tebuconazole	174	3	386	2	407	4	421	2	347	2
Mean	170		377		419		418		346	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		9.02		31.20		9.03	
Growth Regulators (B)			NS		5.27		15.39		5.28	
B within A			NS		10.54		30.77			
A within B					12.83		37.45			
Grains/Earhead										
Control	32.15	1	36.89	3	33.84	3	34.83	4	34.43	2
Two sprays of CCC (0.2%)	27.87	2	39.06	1	34.56	2	35.28	3	34.19	3
Two sprays of tebuconazole (0.1 %)	26.04	4	33.03	4	31.67	4	37.20	1	31.98	4
Two sprays of CCC + tebuconazole	27.69	3	38.72	2	35.93	1	35.59	2	34.48	1
Mean	28.44		36.92		34.00		35.73		33.77	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.84		2.91		8.63	
Growth Regulators (B)			*		0.66		1.92		6.74	
B within A			*		1.31		3.84			
A within B					1.42		4.13			
1000 Grains Weight, g										
Control	40.26	1	37.73	2	36.98	2	37.16	1	38.03	2
Two sprays of CCC (0.2%)	38.93	3	37.05	3	36.93	3	36.52	3	37.36	3
Two sprays of tebuconazole (0.1 %)	39.94	2	37.73	1	39.13	1	35.89	4	38.17	1
Two sprays of CCC + tebuconazole	38.93	3	35.86	4	35.99	4	36.63	2	36.86	4
Mean	39.52		37.09		37.26		36.55		37.60	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		0.17		0.58		1.54	
Growth Regulators (B)			**		0.17		0.49		1.53	
B within A			**		0.33		0.97			
A within B					0.33		0.97			
Plant Height, cm										
Control	92.23	1	101.77	1	102.83	1	103.17	1	100.00	1
Two sprays of CCC (0.2%)	83.03	4	96.57	4	95.97	3	96.60	3	93.04	4
Two sprays of tebuconazole (0.1 %)	91.40	2	101.15	2	101.37	2	102.53	2	99.11	2
Two sprays of CCC + tebuconazole	83.30	3	98.50	3	95.07	4	95.57	4	93.11	3
Mean	87.49		99.50		98.81		99.47		96.32	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			NS		4.00		13.84		14.70	
Growth Regulators (B)			NS		4.29		12.53		15.78	
B within A			NS		8.58		25.06			
A within B					8.44		24.64			
Biomass, q/ha										
Control	49	1	130	2	137	4	142	3	114	2
Two sprays of CCC (0.2%)	46	3	127	3	140	1	145	2	114	3
Two sprays of tebuconazole (0.1 %)	45	4	135	1	139	2	145	1	116	1
Two sprays of CCC + tebuconazole	46	2	127	4	138	3	141	4	113	4
Mean	47		130		138		143		114	
			F. Test		SEm		CD (0.05)		CV(%)	
Fertlization (A)			**		2.79		9.66		8.45	
Growth Regulators (B)			NS		1.88		5.48		5.68	
B within A			NS		3.76		10.97			
A within B					4.29		12.52			
Date of Sowing:	25.11.2017				Date of Harvesting:				04.05.2018	

Table 6.9.1. Central Zone **SPL-2** **Bilaspur** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	19.68	4	37.44	4	40.37	4	43.50	4	35.25	4
Two sprays of CCC (0.2%)	21.46	3	42.83	2	45.43	3	50.27	2	40.00	3
Two sprays of tebuconazole (0.1 %)	22.57	2	42.26	3	46.65	2	49.68	3	40.29	2
Two sprays of CCC + tebuconazole	22.96	1	43.19	1	50.77	1	52.22	1	42.29	1
Mean	21.67		41.43		45.81		48.92		39.46	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.26		0.92		2.33			
Growth Regulators (B)	**		0.63		1.84		5.54			
B within A	NS		1.26		3.68					
A within B			1.12		3.28					
Earheads/sqm										
Control	229	4	268	4	298	4	316	4	278	4
Two sprays of CCC (0.2%)	236	3	284	3	318	3	342	3	295	3
Two sprays of tebuconazole (0.1 %)	245	2	291	2	323	2	353	2	303	2
Two sprays of CCC + tebuconazole	264	1	298	1	333	1	363	1	315	1
Mean	244		286		318		343		298	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		3.88		13.44		4.52			
Growth Regulators (B)	**		4.53		13.22		5.27			
B within A	NS		9.06		26.43					
A within B			8.75		25.54					
Grains/Earhead										
Control	24.16	1	36.42	2	33.79	1	32.57	1	31.74	1
Two sprays of CCC (0.2%)	23.66	2	37.22	1	31.47	4	32.27	2	31.15	2
Two sprays of tebuconazole (0.1 %)	23.49	3	35.27	3	32.61	3	30.24	4	30.40	3
Two sprays of CCC + tebuconazole	22.19	4	34.45	4	33.13	2	30.25	3	30.00	4
Mean	23.37		35.84		32.75		31.33		30.82	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.83		2.86		9.28			
Growth Regulators (B)	NS		0.62		1.82		7.00			
B within A	NS		1.25		3.64					
A within B			1.36		3.97					
1000 Grains Weight, g										
Control	35.50	4	38.34	4	40.35	4	42.27	4	39.12	4
Two sprays of CCC (0.2%)	38.45	3	40.56	3	45.50	2	45.81	3	42.58	3
Two sprays of tebuconazole (0.1 %)	39.27	2	41.26	2	44.41	3	46.65	2	42.90	2
Two sprays of CCC + tebuconazole	39.41	1	42.34	1	46.31	1	47.56	1	43.90	1
Mean	38.16		40.63		44.14		45.57		42.12	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.25		0.86		2.04			
Growth Regulators (B)	**		0.50		1.45		4.10			
B within A	NS		1.00		2.91					
A within B			0.90		2.62					
Plant Height, cm										
Control	82.75	1	86.31	2	86.56	1	90.68	1	86.57	1
Two sprays of CCC (0.2%)	81.20	2	85.44	3	86.11	3	89.23	3	85.50	2
Two sprays of tebuconazole (0.1 %)	78.56	3	86.57	1	86.26	2	90.05	2	85.36	3
Two sprays of CCC + tebuconazole	78.41	4	83.43	4	85.35	4	85.25	4	83.11	4
Mean	80.23		85.44		86.07		88.80		85.14	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.37		1.27		1.50			
Growth Regulators (B)	**		0.55		1.62		2.26			
B within A	NS		1.11		3.24					
A within B			1.03		3.00					
Biomass, q/ha										
Control	36	4	73	4	84	4	84	4	69	4
Two sprays of CCC (0.2%)	42	3	82	3	90	3	98	2	78	3
Two sprays of tebuconazole (0.1 %)	43	2	84	2	92	2	97	3	79	2
Two sprays of CCC + tebuconazole	46	1	88	1	95	1	103	1	83	1
Mean	42		82		90		96		77	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.95		3.30		4.27			
Growth Regulators (B)	**		1.02		2.99		4.58			
B within A	NS		2.05		5.97					
A within B			2.01		5.87					
Date of Sowing:	16.11.2017				Date of Harvesting:				17.03.2018	

Table 6.9.2. Central Zone **SPL-2** **Gwalior** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	31.18	4	56.02	4	56.64	4	56.65	4	50.12	4
Two sprays of CCC (0.2%)	36.51	2	57.64	2	56.98	3	58.92	2	52.51	2
Two sprays of tebuconazole (0.1 %)	36.38	3	57.06	3	57.89	2	57.29	3	52.16	3
Two sprays of CCC + tebuconazole	39.41	1	59.15	1	58.71	1	59.52	1	54.20	1
Mean	35.87		57.47		57.55		58.10		52.25	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.30		1.05		2.01			
Growth Regulators (B)	**		0.43		1.26		2.86			
B within A	NS		0.86		2.52					
A within B			0.81		2.36					
Earheads/sqm										
Control	244	4	426	4	426	4	425	3	380	4
Two sprays of CCC (0.2%)	268	2	439	2	428	3	438	2	393	2
Two sprays of tebuconazole (0.1 %)	252	3	427	3	436	2	425	4	385	3
Two sprays of CCC + tebuconazole	273	1	450	1	441	1	453	1	404	1
Mean	259		435		433		435		391	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.91		6.62		1.70			
Growth Regulators (B)	**		3.04		8.88		2.70			
B within A	NS		6.08		17.76					
A within B			5.61		16.36					
Grains/Earhead										
Control	33.05	4	39.41	2	37.02	3	40.11	1	37.40	3
Two sprays of CCC (0.2%)	35.74	1	39.12	3	39.44	2	38.61	3	38.23	1
Two sprays of tebuconazole (0.1 %)	35.18	2	38.73	4	36.43	4	38.67	2	37.25	4
Two sprays of CCC + tebuconazole	35.08	3	39.47	1	39.97	1	36.46	4	37.74	2
Mean	34.76		39.18		38.21		38.46		37.66	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		0.92		3.19		8.47			
Growth Regulators (B)	NS		0.67		1.97		6.20			
B within A	NS		1.35		3.93					
A within B			1.49		4.34					
1000 Grains Weight, g										
Control	38.73	3	33.40	3	36.01	2	33.33	4	35.37	3
Two sprays of CCC (0.2%)	38.15	4	33.65	2	34.05	3	34.93	2	35.20	4
Two sprays of tebuconazole (0.1 %)	41.05	2	34.59	1	36.55	1	34.93	3	36.78	1
Two sprays of CCC + tebuconazole	41.28	1	33.39	4	33.54	4	36.07	1	36.07	2
Mean	39.80		33.76		35.04		34.82		35.85	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	*		0.88		3.05		8.51			
Growth Regulators (B)	NS		0.59		1.73		5.73			
B within A	NS		1.19		3.46					
A within B			1.35		3.95					
Plant Height, cm										
Control	83.60	1	80.33	1	85.87	1	84.73	1	83.63	1
Two sprays of CCC (0.2%)	81.67	2	79.27	2	80.47	3	83.13	2	81.13	3
Two sprays of tebuconazole (0.1 %)	81.20	3	79.27	2	83.73	2	81.80	3	81.50	2
Two sprays of CCC + tebuconazole	80.60	4	77.33	4	79.87	4	81.73	4	79.88	4
Mean	81.77		79.05		82.48		82.85		81.54	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		1.78		6.15		7.55			
Growth Regulators (B)	NS		0.90		2.64		3.84			
B within A	NS		1.81		5.28					
A within B			2.37		6.92					
Biomass, q/ha										
Control	47	4	89	3	86	4	86	4	77	4
Two sprays of CCC (0.2%)	55	2	85	4	87	2	93	2	80	2
Two sprays of tebuconazole (0.1 %)	54	3	89	2	87	3	87	3	79	3
Two sprays of CCC + tebuconazole	60	1	94	1	95	1	95	1	86	1
Mean	54		89		89		90		81	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.57		1.97		2.45			
Growth Regulators (B)	**		0.86		2.52		3.70			
B within A	NS		1.72		5.03					
A within B			1.60		4.66					
Date of Sowing:	18.11.2017				Date of Harvesting:				04.04.2018	

Table 6.9.3. Central Zone **SPL-2** **Indore** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	23.20	1	64.10	1	65.43	1	67.00	1	54.93	1
Two sprays of CCC (0.2%)	21.63	3	60.77	3	61.57	3	62.37	4	51.58	3
Two sprays of tebuconazole (0.1 %)	22.50	2	62.27	2	63.47	2	64.43	2	53.17	2
Two sprays of CCC + tebuconazole	20.40	4	59.10	4	61.53	4	62.67	3	50.93	4
Mean	21.93		61.56		63.00		64.12		52.65	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.53		1.83		3.47			
Growth Regulators (B)	**		0.67		1.97		4.43			
B within A	NS		1.35		3.94					
A within B			1.28		3.74					
Earheads/sqm										
Control	243	2	418	4	433	3	443	3	384	3
Two sprays of CCC (0.2%)	230	4	423	3	441	2	434	4	382	4
Two sprays of tebuconazole (0.1 %)	251	1	429	1	453	1	456	1	397	1
Two sprays of CCC + tebuconazole	240	3	424	2	432	4	455	2	388	2
Mean	241		423		440		447		388	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		5.91		20.45		5.28			
Growth Regulators (B)	NS		6.85		19.99		6.12			
B within A	NS		13.70		39.98					
A within B			13.25		38.68					
Grains/Earhead										
Control	19.86	2	33.31	2	35.21	1	35.97	1	31.09	1
Two sprays of CCC (0.2%)	20.25	1	33.88	1	33.35	3	33.00	2	30.12	2
Two sprays of tebuconazole (0.1 %)	19.25	4	33.13	3	32.60	4	32.78	3	29.44	4
Two sprays of CCC + tebuconazole	19.63	3	32.71	4	34.12	2	32.72	4	29.79	3
Mean	19.75		33.26		33.82		33.62		30.11	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.51		1.76		5.87			
Growth Regulators (B)	NS		0.63		1.83		7.20			
B within A	NS		1.25		3.65					
A within B			1.20		3.50					
1000 Grains Weight, g										
Control	48.43	1	46.27	1	43.17	1	42.20	3	45.02	1
Two sprays of CCC (0.2%)	46.47	3	42.47	4	41.87	4	43.57	1	43.59	3
Two sprays of tebuconazole (0.1 %)	46.80	2	43.83	2	42.97	2	43.13	2	44.18	2
Two sprays of CCC + tebuconazole	43.37	4	42.80	3	41.93	3	42.07	4	42.54	4
Mean	46.27		43.84		42.48		42.74		43.83	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.19		0.65		1.48			
Growth Regulators (B)	**		0.18		0.53		1.45			
B within A	**		0.37		1.07					
A within B			0.37		1.07					
Plant Height, cm										
Control	67.47	1	96.67	1	98.93	1	100.00	1	90.77	1
Two sprays of CCC (0.2%)	57.73	3	84.40	3	88.07	3	87.47	3	79.42	3
Two sprays of tebuconazole (0.1 %)	64.87	2	92.60	2	97.67	2	99.33	2	88.62	2
Two sprays of CCC + tebuconazole	55.40	4	80.73	4	85.73	4	84.80	4	76.67	4
Mean	61.37		88.60		92.60		92.90		83.87	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.86		2.99		3.57			
Growth Regulators (B)	**		0.94		2.76		3.90			
B within A	NS		1.89		5.51					
A within B			1.85		5.40					
Biomass, q/ha										
Control	51	1	139	1	143	1	146	1	120	1
Two sprays of CCC (0.2%)	44	3	135	2	135	3	141	3	114	3
Two sprays of tebuconazole (0.1 %)	48	2	134	3	137	2	143	2	116	2
Two sprays of CCC + tebuconazole	41	4	128	4	132	4	138	4	110	4
Mean	46		134		137		142		115	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.55		5.38		4.69			
Growth Regulators (B)	**		1.58		4.62		4.78			
B within A	NS		3.17		9.24					
A within B			3.15		9.20					
Date of Sowing:	10.11.2017				Date of Harvesting:				28.03.2018	

Table 6.9.4. Central Zone **SPL-2** **Jabalpur** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	26.97	4	34.93	4	40.17	4	46.28	4	37.09	4
Two sprays of CCC (0.2%)	29.23	3	35.73	3	42.40	2	48.47	3	38.96	3
Two sprays of tebuconazole (0.1 %)	32.60	2	36.63	2	41.87	3	50.46	2	40.39	2
Two sprays of CCC + tebuconazole	32.90	1	38.18	1	44.50	1	52.17	1	41.94	1
Mean	30.43		36.37		42.24		49.34		39.59	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.42		1.45		3.68			
Growth Regulators (B)	**		0.34		1.00		3.01			
B within A	NS		0.69		2.01					
A within B			0.73		2.13					
Earheads/sqm										
Control	278	2	276	1	259	4	269	1	271	1
Two sprays of CCC (0.2%)	271	4	266	4	272	1	269	3	270	4
Two sprays of tebuconazole (0.1 %)	284	1	272	2	264	3	260	4	270	3
Two sprays of CCC + tebuconazole	273	3	270	3	269	2	269	1	270	2
Mean	277		271		266		267		270	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.01		3.51		1.30			
Growth Regulators (B)	NS		2.68		7.82		3.43			
B within A	NS		5.36		15.63					
A within B			4.75		13.86					
Grains/Earhead										
Control	31.85	4	36.76	3	42.37	4	45.55	4	39.13	4
Two sprays of CCC (0.2%)	33.82	3	38.92	2	42.40	3	47.58	3	40.68	3
Two sprays of tebuconazole (0.1 %)	34.40	2	36.50	4	42.58	2	49.42	1	40.73	2
Two sprays of CCC + tebuconazole	34.84	1	39.45	1	44.54	1	48.19	2	41.76	1
Mean	33.73		37.91		42.97		47.69		40.57	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.66		2.30		5.67			
Growth Regulators (B)	NS		0.64		1.87		5.48			
B within A	NS		1.28		3.75					
A within B			1.30		3.78					
1000 Grains Weight, g										
Control	30.43	4	34.47	4	36.57	4	37.73	4	34.80	4
Two sprays of CCC (0.2%)	31.95	3	34.67	3	36.73	3	37.93	3	35.32	3
Two sprays of tebuconazole (0.1 %)	33.53	2	36.97	1	37.23	1	39.33	2	36.77	2
Two sprays of CCC + tebuconazole	34.60	1	36.03	2	37.13	2	40.20	1	36.99	1
Mean	32.63		35.54		36.92		38.80		35.97	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.33		1.14		3.18			
Growth Regulators (B)	**		0.29		0.85		2.81			
B within A	NS		0.58		1.70					
A within B			0.60		1.76					
Plant Height, cm										
Control	60.43	4	80.51	4	86.99	4	91.44	4	79.84	4
Two sprays of CCC (0.2%)	65.89	3	82.26	3	88.32	2	91.59	3	82.02	3
Two sprays of tebuconazole (0.1 %)	67.80	2	82.44	2	88.19	3	93.61	2	83.01	2
Two sprays of CCC + tebuconazole	70.61	1	85.76	1	89.08	1	94.39	1	84.96	1
Mean	66.18		82.74		88.15		92.76		82.46	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.54		1.86		2.26			
Growth Regulators (B)	**		0.27		0.79		1.14			
B within A	**		0.54		1.59					
A within B			0.71		2.09					
Biomass, q/ha										
Control	54	4	62	4	68	4	72	4	64	4
Two sprays of CCC (0.2%)	57	3	64	3	68	3	72	3	65	3
Two sprays of tebuconazole (0.1 %)	59	2	65	2	70	2	74	2	67	2
Two sprays of CCC + tebuconazole	60	1	65	1	71	1	75	1	68	1
Mean	57		64		69		73		66	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.24		0.82		1.24			
Growth Regulators (B)	**		0.32		0.93		1.68			
B within A	NS		0.64		1.87					
A within B			0.60		1.76					
Date of Sowing:	20.11.2017				Date of Harvesting:				05.04.2018	

Table 6.9.5. Central Zone **SPL-2** **Junagadh** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	35.46	1	42.15	1	40.99	2	50.58	1	42.29	1
Two sprays of CCC (0.2%)	34.79	2	42.01	2	42.41	1	47.92	3	41.78	2
Two sprays of tebuconazole (0.1 %)	32.26	4	40.34	4	38.86	4	48.50	2	39.99	4
Two sprays of CCC + tebuconazole	34.01	3	40.55	3	40.31	3	46.02	4	40.22	3
Mean	34.13		41.26		40.64		48.26		41.07	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.17		4.05		9.86			
Growth Regulators (B)	NS		0.96		2.79		8.06			
B within A	NS		1.91		5.58					
A within B			2.03		5.92					
Earheads/sqm										
Control	337	4	368	2	364	3	375	2	361	4
Two sprays of CCC (0.2%)	359	1	368	3	383	1	377	1	372	1
Two sprays of tebuconazole (0.1 %)	346	3	375	1	364	4	373	4	365	3
Two sprays of CCC + tebuconazole	357	2	359	4	370	2	375	2	365	2
Mean	350		367		370		375		366	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.59		5.51		1.51			
Growth Regulators (B)	**		1.60		4.66		1.51			
B within A	**		3.19		9.32					
A within B			3.19		9.32					
Grains/Earhead										
Control	24.60	1	23.64	2	23.36	1	27.64	1	24.81	1
Two sprays of CCC (0.2%)	23.12	2	23.82	1	23.13	2	26.39	3	24.12	2
Two sprays of tebuconazole (0.1 %)	22.25	4	22.45	4	22.31	4	27.06	2	23.52	4
Two sprays of CCC + tebuconazole	22.42	3	23.51	3	22.99	3	25.56	4	23.62	3
Mean	23.10		23.36		22.95		26.66		24.02	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	*		0.74		2.56		10.68			
Growth Regulators (B)	NS		0.51		1.49		7.39			
B within A	NS		1.02		2.99					
A within B			1.16		3.37					
1000 Grains Weight, g										
Control	42.73	1	48.40	1	48.13	1	48.80	1	47.02	1
Two sprays of CCC (0.2%)	42.00	3	48.00	3	47.80	3	48.20	2	46.50	2
Two sprays of tebuconazole (0.1 %)	41.93	4	47.97	4	47.87	2	48.00	3	46.44	4
Two sprays of CCC + tebuconazole	42.53	2	48.07	2	47.27	4	48.00	3	46.47	3
Mean	42.30		48.11		47.77		48.25		46.61	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.16		0.56		1.20			
Growth Regulators (B)	*		0.14		0.40		1.01			
B within A	NS		0.27		0.80					
A within B			0.29		0.84					
Plant Height, cm										
Control	75.80	1	80.53	1	80.80	1	85.00	1	80.53	1
Two sprays of CCC (0.2%)	67.73	3	69.47	4	71.13	3	76.13	3	71.12	3
Two sprays of tebuconazole (0.1 %)	73.13	2	76.33	2	73.33	2	82.33	2	76.28	2
Two sprays of CCC + tebuconazole	64.20	4	74.47	3	68.53	4	72.67	4	69.97	4
Mean	70.22		75.20		73.45		79.03		74.48	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.72		2.50		3.36			
Growth Regulators (B)	**		0.69		2.01		3.20			
B within A	NS		1.38		4.01					
A within B			1.39		4.07					
Biomass, q/ha										
Control	74	1	85	3	84	3	107	1	88	1
Two sprays of CCC (0.2%)	72	2	85	2	87	2	101	3	86	2
Two sprays of tebuconazole (0.1 %)	67	4	85	4	83	4	103	2	84	3
Two sprays of CCC + tebuconazole	67	3	87	1	88	1	95	4	84	4
Mean	70		85		85		102		86	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		2.51		8.70		10.17			
Growth Regulators (B)	NS		2.19		6.39		8.85			
B within A	NS		4.38		12.77					
A within B			4.55		13.28					
Date of Sowing:	18.11.2017				Date of Harvesting:				22.02.2018	

Table 6.9.6. Central Zone **SPL-2** **Udaipur** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	28.51	4	37.37	4	43.84	4	45.55	4	38.82	4
Two sprays of CCC (0.2%)	30.46	3	39.27	3	44.51	3	47.60	3	40.46	3
Two sprays of tebuconazole (0.1 %)	34.75	2	39.75	2	45.60	2	49.49	2	42.40	2
Two sprays of CCC + tebuconazole	36.89	1	40.60	1	46.65	1	50.27	1	43.60	1
Mean	32.65		39.25		45.15		48.23		41.32	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.14		3.95		9.56			
Growth Regulators (B)	**		0.68		1.98		5.69			
B within A	NS		1.36		3.96					
A within B			1.64		4.78					
Earheads/sqm										
Control	393	4	423	4	437	2	443	1	424	4
Two sprays of CCC (0.2%)	408	3	428	3	433	4	442	3	428	3
Two sprays of tebuconazole (0.1 %)	415	2	432	1	437	2	438	4	430	2
Two sprays of CCC + tebuconazole	427	1	430	2	440	1	443	1	435	1
Mean	411		428		437		442		429	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	*		5.43		18.78		4.38			
Growth Regulators (B)	NS		4.22		12.31		3.40			
B within A	NS		8.44		24.63					
A within B			9.10		26.57					
Grains/Earhead										
Control	20.60	3	23.45	2	25.67	1	24.71	4	23.61	3
Two sprays of CCC (0.2%)	19.37	4	22.97	4	25.04	4	25.55	3	23.23	4
Two sprays of tebuconazole (0.1 %)	21.41	2	23.09	3	25.17	3	26.57	2	24.06	2
Two sprays of CCC + tebuconazole	21.83	1	23.62	1	25.59	2	26.75	1	24.45	1
Mean	20.80		23.28		25.37		25.89		23.84	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.67		2.33		9.78			
Growth Regulators (B)	NS		0.62		1.82		9.05			
B within A	NS		1.25		3.64					
A within B			1.27		3.71					
1000 Grains Weight, g										
Control	35.23	4	37.67	4	39.14	4	41.50	4	38.39	4
Two sprays of CCC (0.2%)	38.63	3	39.93	2	41.03	3	42.41	3	40.50	3
Two sprays of tebuconazole (0.1 %)	39.13	2	39.90	3	41.67	1	42.62	2	40.83	2
Two sprays of CCC + tebuconazole	39.67	1	40.10	1	41.58	2	42.65	1	41.00	1
Mean	38.17		39.40		40.86		42.29		40.18	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.37		1.28		3.19			
Growth Regulators (B)	**		0.38		1.10		3.25			
B within A	NS		0.75		2.20					
A within B			0.75		2.19					
Plant Height, cm										
Control	72.33	3	81.00	3	81.67	4	85.67	1	80.17	3
Two sprays of CCC (0.2%)	71.67	4	80.00	4	82.67	3	82.33	4	79.17	4
Two sprays of tebuconazole (0.1 %)	76.33	1	84.00	2	85.00	1	85.67	1	82.75	1
Two sprays of CCC + tebuconazole	76.33	1	84.33	1	83.67	2	84.67	3	82.25	2
Mean	74.17		82.33		83.25		84.58		81.08	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		0.90		3.11		3.84			
Growth Regulators (B)	**		0.67		1.96		2.87			
B within A	NS		1.34		3.92					
A within B			1.47		4.29					
Biomass, q/ha										
Control	44	4	88	4	96	4	102	4	82	4
Two sprays of CCC (0.2%)	66	3	97	3	114	3	117	3	98	3
Two sprays of tebuconazole (0.1 %)	96	1	99	2	118	2	120	2	108	2
Two sprays of CCC + tebuconazole	96	1	118	1	119	1	128	1	115	1
Mean	76		101		112		117		101	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	**		1.10		3.79		3.75			
Growth Regulators (B)	**		1.97		5.75		6.74			
B within A	**		3.94		11.49					
A within B			3.58		10.46					
Date of Sowing:	12.11.2017				Date of Harvesting:				01.04.2018	

Table 6.9.7. Central Zone **SPL-2** **Vijapur** **2017-18**

Growth Regulator	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150% RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	23.61	4	26.31	1	23.77	4	27.94	1	25.41	2
Two sprays of CCC (0.2%)	25.40	3	25.36	2	25.87	3	24.13	4	25.19	4
Two sprays of tebuconazole (0.1 %)	25.44	2	25.16	3	26.31	1	24.56	3	25.37	3
Two sprays of CCC + tebuconazole	27.66	1	25.08	4	25.91	2	27.42	2	26.52	1
Mean	25.53		25.48		25.47		26.01		25.62	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		0.97		3.37		13.15			
Growth Regulators (B)	NS		0.83		2.43		11.24			
B within A	NS		1.66		4.85					
A within B			1.74		5.07					
Earheads/sqm										
Control	279	1	259	1	269	3	276	2	271	1
Two sprays of CCC (0.2%)	267	2	249	2	269	2	275	3	265	2
Two sprays of tebuconazole (0.1 %)	242	3	245	3	273	1	263	4	256	3
Two sprays of CCC + tebuconazole	226	4	236	4	255	4	278	1	249	4
Mean	254		247		267		273		260	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		9.80		33.91		13.05			
Growth Regulators (B)	NS		7.08		20.67		9.43			
B within A	NS		14.16		41.34					
A within B			15.70		45.82					
Grains/Earhead										
Control	19.78	4	23.90	4	19.60	4	23.21	1	21.62	3
Two sprays of CCC (0.2%)	20.67	3	24.33	2	21.31	2	18.83	4	21.28	4
Two sprays of tebuconazole (0.1 %)	24.46	2	25.14	1	20.78	3	21.23	3	22.90	2
Two sprays of CCC + tebuconazole	29.09	1	24.33	3	22.48	1	22.83	2	24.68	1
Mean	23.50		24.42		21.04		21.52		22.62	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	*		0.64		2.20		9.73			
Growth Regulators (B)	*		0.86		2.51		13.16			
B within A	NS		1.72		5.02					
A within B			1.62		4.72					
1000 Grains Weight, g										
Control	44.07	2	42.87	2	44.93	4	43.90	3	43.94	2
Two sprays of CCC (0.2%)	46.23	1	41.90	3	45.60	3	47.53	1	45.32	1
Two sprays of tebuconazole (0.1 %)	43.17	3	41.00	4	46.40	1	44.57	2	43.78	4
Two sprays of CCC + tebuconazole	42.33	4	43.90	1	46.00	2	43.33	4	43.89	3
Mean	43.95		42.42		45.73		44.83		44.23	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		1.32		4.55		10.31			
Growth Regulators (B)	NS		1.13		3.29		8.82			
B within A	NS		2.25		6.57					
A within B			2.35		6.87					
Plant Height, cm										
Control	75.33	2	80.07	1	83.60	1	83.60	1	80.65	1
Two sprays of CCC (0.2%)	77.53	1	79.40	2	77.53	2	83.47	2	79.48	2
Two sprays of tebuconazole (0.1 %)	69.53	3	76.53	3	74.47	3	76.93	3	74.37	3
Two sprays of CCC + tebuconazole	68.80	4	72.93	4	69.93	4	74.20	4	71.47	4
Mean	72.80		77.23		76.38		79.55		76.49	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		1.75		6.06		7.94			
Growth Regulators (B)	**		1.22		3.57		5.54			
B within A	NS		2.44		7.14					
A within B			2.75		8.02					
Biomass, q/ha										
Control	69	4	77	1	83	1	83	2	78	1
Two sprays of CCC (0.2%)	71	3	69	4	78	3	80	3	75	4
Two sprays of tebuconazole (0.1 %)	73	1	73	2	79	2	86	1	78	2
Two sprays of CCC + tebuconazole	73	1	73	2	75	4	79	4	75	3
Mean	72		73		79		82		77	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertlization (A)	NS		2.71		9.39		12.26			
Growth Regulators (B)	NS		2.18		6.36		9.85			
B within A	NS		4.36		12.73					
A within B			4.65		13.57					
Date of Sowing:	21.11.2017				Date of Harvesting:				21.03.2018	

Table 6.10.1. Peninsular Zone **SPL-2** **Dharwad** **2017-18**

Growth Regulator (GR)	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	33.31	4	37.61	4	39.55	4	40.94	4	37.85	4
Two sprays of CCC (0.2%)	34.08	2	40.55	3	41.49	3	42.45	3	39.64	3
Two sprays of tebuconazole (0.1 %)	33.67	3	41.65	2	42.23	2	43.19	2	40.19	2
Two sprays of CCC + tebuconazole	36.68	1	43.67	1	44.28	1	44.38	1	42.25	1
Mean	34.44		40.87		41.89		42.74		39.98	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.72		2.48		6.20			
Growth Regulator (B)	*		0.92		2.69		7.98			
B within A	NS		1.84		5.38					
A within B			1.75		5.11					
Earheads/sqm										
Control	233	4	239	4	241	4	241	4	239	4
Two sprays of CCC (0.2%)	235	3	243	3	250	2	255	3	246	3
Two sprays of tebuconazole (0.1 %)	236	2	245	2	250	2	262	2	248	2
Two sprays of CCC + tebuconazole	237	1	263	1	266	1	272	1	260	1
Mean	235		248		252		258		248	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.14		3.94		1.59			
Growth Regulator (B)	**		2.11		6.17		2.95			
B within A	NS		4.23		12.34					
A within B			3.83		11.19					
Grains/Earhead										
Control	41.18	2	44.57	1	43.06	1	40.71	1	42.38	1
Two sprays of CCC (0.2%)	38.90	4	41.19	2	38.50	4	39.36	2	39.49	4
Two sprays of tebuconazole (0.1 %)	40.09	3	40.55	3	39.60	3	38.78	3	39.75	2
Two sprays of CCC + tebuconazole	42.49	1	38.34	4	40.56	2	37.54	4	39.73	3
Mean	40.67		41.17		40.43		39.10		40.34	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		0.83		2.86		7.11			
Growth Regulator (B)	NS		1.05		3.07		9.05			
B within A	NS		2.11		6.15					
A within B			2.00		5.85					
1000 Grains Weight, g										
Control	34.49	4	35.36	4	38.32	4	41.85	4	37.50	4
Two sprays of CCC (0.2%)	37.51	1	40.50	3	43.20	1	42.30	3	40.88	2
Two sprays of tebuconazole (0.1 %)	35.58	3	41.86	2	42.66	2	42.57	2	40.67	3
Two sprays of CCC + tebuconazole	36.46	2	43.43	1	41.12	3	43.46	1	41.12	1
Mean	36.01		40.29		41.33		42.55		40.04	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.29		1.01		2.51			
Growth Regulator (B)	**		0.64		1.86		5.52			
B within A	NS		1.28		3.73					
A within B			1.14		3.34					
Biomass, q/ha										
Control	84	4	107	4	109	4	116	2	104	4
Two sprays of CCC (0.2%)	89	2	109	3	109	3	111	4	104	3
Two sprays of tebuconazole (0.1 %)	88	3	110	2	111	2	116	3	107	2
Two sprays of CCC + tebuconazole	106	1	116	1	122	1	122	1	117	1
Mean	92		110		113		116		108	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		2.31		7.98		7.40			
Growth Regulator (B)	**		1.74		5.07		5.58			
B within A	NS		3.48		10.15					
A within B			3.79		11.07					
Plant Height, cm										
Control	69.40	1	73.07	1	75.27	1	78.70	1	74.11	1
Two sprays of CCC (0.2%)	65.90	3	68.30	3	70.10	3	72.27	3	69.14	3
Two sprays of tebuconazole (0.1 %)	67.60	2	70.43	2	72.93	2	76.13	2	71.78	2
Two sprays of CCC + tebuconazole	63.73	4	66.33	4	68.90	4	70.67	4	67.41	4
Mean	66.66		69.53		71.80		74.44		70.61	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.82		2.84		4.03			
Growth Regulator (B)	**		0.81		2.37		3.99			
B within A	NS		1.63		4.75					
A within B			1.63		4.76					

Date of Sowing: 10.11.2017 Date of Harvesting: 08.03.2018

Table 6.10.2. Peninsular Zone **SPL-2** **Niphad** **2017-18**

Growth Regulator (GR)	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
					Yield, q/ha					
Control	27.27	3	38.04	4	46.67	1	47.16	4	39.78	4
Two sprays of CCC (0.2%)	33.67	1	44.80	2	44.81	3	50.34	1	43.41	1
Two sprays of tebuconazole (0.1 %)	31.87	2	44.83	1	46.56	2	48.39	3	42.92	2
Two sprays of CCC + tebuconazole	27.21	4	42.60	3	43.54	4	49.60	2	40.74	3
Mean	30.01		42.57		45.40		48.87		41.71	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		2.01		6.95		16.67			
Growth Regulator (B)	NS		1.33		3.90		11.08			
B within A	NS		2.67		7.79					
A within B			3.06		8.94					
					Earheads/sqm					
Control	314	4	412	2	384	4	406	2	379	4
Two sprays of CCC (0.2%)	393	1	407	4	393	3	415	1	402	2
Two sprays of tebuconazole (0.1 %)	373	2	434	1	421	1	385	4	403	1
Two sprays of CCC + tebuconazole	362	3	412	2	408	2	402	3	396	3
Mean	361		416		402		402		395	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.93		6.67		1.69			
Growth Regulator (B)	**		4.27		12.46		3.74			
B within A	**		8.54		24.92					
A within B			7.64		22.31					
					Grains/Earhead					
Control	23.40	1	21.32	4	28.07	1	26.69	4	24.87	3
Two sprays of CCC (0.2%)	22.56	2	25.40	1	26.40	2	27.27	3	25.40	1
Two sprays of tebuconazole (0.1 %)	22.43	3	24.13	2	25.33	3	28.55	1	25.11	2
Two sprays of CCC + tebuconazole	20.22	4	23.60	3	24.11	4	28.21	2	24.04	4
Mean	22.15		23.61		25.97		27.68		24.86	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		1.17		4.03		16.24			
Growth Regulator (B)	NS		0.85		2.47		11.82			
B within A	NS		1.70		4.95					
A within B			1.87		5.47					
					1000 Grains Weight, g					
Control	37.02	3	43.29	3	43.34	3	43.53	4	41.79	4
Two sprays of CCC (0.2%)	38.01	2	43.35	2	43.24	4	44.46	1	42.26	2
Two sprays of tebuconazole (0.1 %)	38.07	1	42.79	4	43.64	2	44.26	2	42.19	3
Two sprays of CCC + tebuconazole	36.98	4	43.89	1	44.21	1	43.98	3	42.27	1
Mean	37.52		43.33		43.61		44.06		42.13	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.22		0.75		1.77			
Growth Regulator (B)	NS		0.25		0.72		2.01			
B within A	NS		0.49		1.43					
A within B			0.48		1.39					
					Biomass, q/ha					
Control	40	3	53	4	62	3	63	4	54	4
Two sprays of CCC (0.2%)	46	1	60	3	61	4	64	3	58	2
Two sprays of tebuconazole (0.1 %)	42	2	62	1	67	1	66	2	59	1
Two sprays of CCC + tebuconazole	39	4	62	2	64	2	66	1	58	3
Mean	42		59		63		65		57	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.32		4.57		7.99			
Growth Regulator (B)	*		0.94		2.76		5.72			
B within A	NS		1.89		5.52					
A within B			2.10		6.14					
					Plant Height, cm					
Control	86.00	1	87.67	1	84.67	1	85.00	1	85.83	1
Two sprays of CCC (0.2%)	81.33	2	80.00	4	78.00	2	81.00	3	80.08	2
Two sprays of tebuconazole (0.1 %)	74.00	3	81.00	3	77.00	4	82.67	2	78.67	3
Two sprays of CCC + tebuconazole	71.00	4	86.33	2	78.00	2	78.67	4	78.50	4
Mean	78.08		83.75		79.42		81.83		80.77	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.75		2.59		3.21			
Growth Regulator (B)	**		0.85		2.50		3.67			
B within A	**		1.71		4.99					
A within B			1.66		4.84					
Date of Sowing:	08.11.2017				Date of Harvesting:		22.03.2018			

Table 6.10.3. Peninsular Zone **SPL-2** **Pune** **2017-18**

Growth Regulator (GR)	Fertilization									
	Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	51.65	4	65.62	1	65.27	3	63.62	3	61.54	4
Two sprays of CCC (0.2%)	54.91	2	65.14	3	63.50	4	63.50	4	61.76	3
Two sprays of tebuconazole (0.1 %)	55.08	1	64.63	4	65.57	2	66.16	1	62.86	1
Two sprays of CCC + tebuconazole	53.49	3	65.23	2	65.98	1	64.29	2	62.25	2
Mean	53.79		65.16		65.08		64.39		62.10	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.81		2.82		4.54			
Growth Regulator (B)	NS		0.66		1.92		3.68			
B within A	NS		1.32		3.85					
A within B			1.40		4.10					
Earheads/sqm										
Control	367	3	395	3	407	4	398	3	392	4
Two sprays of CCC (0.2%)	355	4	390	4	410	3	457	1	403	3
Two sprays of tebuconazole (0.1 %)	375	2	450	1	425	2	395	4	411	2
Two sprays of CCC + tebuconazole	405	1	412	2	478	1	423	2	430	1
Mean	375		412		430		418		409	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		7.16		24.78		6.07			
Growth Regulator (B)	**		6.72		19.60		5.69			
B within A	**		13.43		39.21					
A within B			13.66		39.88					
Grains/Earhead										
Control	32.58	2	38.13	2	37.99	1	36.43	2	36.28	1
Two sprays of CCC (0.2%)	35.73	1	38.68	1	36.95	2	31.46	4	35.71	2
Two sprays of tebuconazole (0.1 %)	31.67	3	33.49	4	35.97	3	39.61	1	35.18	3
Two sprays of CCC + tebuconazole	30.92	4	34.77	3	32.15	4	35.22	3	33.26	4
Mean	32.72		36.27		35.76		35.68		35.11	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		0.79		2.72		7.76			
Growth Regulator (B)	*		0.75		2.19		7.40			
B within A	*		1.50		4.38					
A within B			1.52		4.43					
1000 Grains Weight, g										
Control	43.33	2	43.67	2	42.33	3	44.00	2	43.33	3
Two sprays of CCC (0.2%)	43.33	2	43.33	3	42.00	4	44.33	1	43.25	4
Two sprays of tebuconazole (0.1 %)	46.67	1	43.00	4	43.00	1	42.67	4	43.83	1
Two sprays of CCC + tebuconazole	42.67	4	45.67	1	43.00	1	43.33	3	43.67	2
Mean	44.00		43.92		42.58		43.58		43.52	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		0.30		1.04		2.38			
Growth Regulator (B)	NS		0.51		1.48		4.03			
B within A	NS		1.01		2.96					
A within B			0.93		2.71					
Biomass, q/ha										
Control	110	4	147	2	149	4	146	3	138	4
Two sprays of CCC (0.2%)	115	2	147	1	149	3	144	4	139	3
Two sprays of tebuconazole (0.1 %)	117	1	147	3	155	1	153	1	143	1
Two sprays of CCC + tebuconazole	114	3	146	4	149	2	152	2	140	2
Mean	114		147		150		149		140	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		2.24		7.74		5.54			
Growth Regulator (B)	NS		1.68		4.91		4.17			
B within A	NS		3.37		9.83					
A within B			3.67		10.72					
Plant Height, cm										
Control	86.00	2	89.67	2	87.33	3	86.67	2	87.42	2
Two sprays of CCC (0.2%)	81.00	3	86.33	3	88.67	2	85.67	3	85.42	3
Two sprays of tebuconazole (0.1 %)	86.33	1	91.00	1	89.33	1	88.67	1	88.83	1
Two sprays of CCC + tebuconazole	80.67	4	86.00	4	86.67	4	83.67	4	84.25	4
Mean	83.50		88.25		88.00		86.17		86.48	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	*		0.93		3.23		3.74			
Growth Regulator (B)	**		0.59		1.72		2.36			
B within A	NS		1.18		3.45					
A within B			1.38		4.04					
Date of Sowing:	12.11.2017				Date of Harvesting:		14.03.2018			

Table 6.10.4. Peninsular Zone **SPL-2** **Ugar** **2017-18**

Growth Regulator (GR)	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
					Yield, q/ha					
Control	31.62	4	38.66	4	40.49	4	41.62	4	38.10	4
Two sprays of CCC (0.2%)	33.36	3	41.66	3	42.53	3	42.12	3	39.92	3
Two sprays of tebuconazole (0.1 %)	34.42	2	42.54	2	43.50	2	43.68	2	41.04	2
Two sprays of CCC + tebuconazole	37.48	1	44.83	1	46.13	1	46.79	1	43.81	1
Mean	34.22		41.92		43.16		43.55		40.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.10		0.34		0.84			
Growth Regulator (B)	**		0.67		1.97		5.74			
B within A	NS		1.35		3.94					
A within B			1.17		3.42					
					Earheads/sqm					
Control	238	4	251	3	255	4	241	4	246	4
Two sprays of CCC (0.2%)	240	3	248	4	257	3	249	3	249	3
Two sprays of tebuconazole (0.1 %)	242	2	254	2	260	2	262	2	255	2
Two sprays of CCC + tebuconazole	245	1	262	1	272	1	273	1	263	1
Mean	241		254		261		256		253	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.15		3.98		1.57			
Growth Regulator (B)	**		2.09		6.10		2.86			
B within A	NS		4.18		12.21					
A within B			3.80		11.09					
					Grains/Earhead					
Control	35.62	4	37.43	4	38.37	2	39.79	1	37.80	3
Two sprays of CCC (0.2%)	36.17	3	39.46	1	38.20	3	38.15	2	38.00	2
Two sprays of tebuconazole (0.1 %)	36.89	2	38.50	3	38.53	1	36.86	4	37.69	4
Two sprays of CCC + tebuconazole	38.95	1	39.40	2	38.18	4	37.88	3	38.60	1
Mean	36.91		38.70		38.32		38.17		38.02	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	*		0.26		0.89		2.35			
Growth Regulator (B)	NS		0.97		2.83		8.83			
B within A	NS		1.94		5.66					
A within B			1.70		4.96					
					1000 Grains Weight, g					
Control	37.39	4	41.42	4	41.36	4	43.50	4	40.92	4
Two sprays of CCC (0.2%)	38.58	3	42.64	3	43.31	3	44.29	3	42.21	3
Two sprays of tebuconazole (0.1 %)	38.70	2	43.55	2	43.44	2	45.31	1	42.75	2
Two sprays of CCC + tebuconazole	39.38	1	43.58	1	44.41	1	45.30	2	43.17	1
Mean	38.51		42.80		43.13		44.60		42.26	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.10		0.36		0.85			
Growth Regulator (B)	*		0.53		1.54		4.32			
B within A	NS		1.05		3.08					
A within B			0.92		2.68					
					Biomass, q/ha					
Control	88	3	107	4	117	4	110	4	106	4
Two sprays of CCC (0.2%)	88	4	109	3	118	3	119	3	109	3
Two sprays of tebuconazole (0.1 %)	98	2	117	2	121	2	122	2	114	2
Two sprays of CCC + tebuconazole	101	1	124	1	126	1	129	1	120	1
Mean	94		114		121		120		112	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.57		5.44		4.85			
Growth Regulator (B)	**		1.85		5.40		5.71			
B within A	NS		3.70		10.81					
A within B			3.57		10.42					
					Plant Height, cm					
Control	73.53	1	83.67	1	86.30	1	88.37	1	82.97	1
Two sprays of CCC (0.2%)	69.37	3	78.60	3	82.50	3	84.63	3	78.78	3
Two sprays of tebuconazole (0.1 %)	71.57	2	81.50	2	85.60	2	86.57	2	81.31	2
Two sprays of CCC + tebuconazole	67.93	4	75.60	4	80.37	4	83.47	4	76.84	4
Mean	70.60		79.84		83.69		85.76		79.97	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		0.08		0.29		0.37			
Growth Regulator (B)	**		0.69		2.02		2.99			
B within A	NS		1.38		4.03					
A within B			1.20		3.50					
Date of Sowing:	09.11.2017				Date of Harvesting:		21.03.2018			

Table 6.10.5. Peninsular Zone **SPL-2** **Akola** **2017-18**

Growth Regulator (GR)	Fertilization: Control	Rk	RDF	Rk	150% RDF	Rk	150%RDF+FYM	Rk	Mean	Rk
Yield, q/ha										
Control	36.00	2	43.40	2	42.50	3	41.98	3	40.97	2
Two sprays of CCC (0.2%)	34.75	3	41.58	4	44.95	1	42.27	2	40.89	3
Two sprays of tebuconazole (0.1 %)	38.78	1	44.12	1	43.13	2	46.08	1	43.03	1
Two sprays of CCC + tebuconazole	27.10	4	43.28	3	41.20	4	40.17	4	37.94	4
Mean	34.16		43.10		42.95		42.63		40.71	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		1.60		5.52		16.26			
Growth Regulator (B)	**		0.68		1.98		6.90			
B within A	**		1.35		3.95					
A within B			1.98		5.78					
Earheads/sqm										
Control	287	3	288	4	288	3	241	4	276	4
Two sprays of CCC (0.2%)	259	4	291	3	320	1	336	1	301	2
Two sprays of tebuconazole (0.1 %)	325	1	303	2	288	3	280	3	299	3
Two sprays of CCC + tebuconazole	320	2	331	1	315	2	331	2	324	1
Mean	298		303		303		297		300	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		1.77		6.11		2.04			
Growth Regulator (B)	**		1.67		4.87		1.93			
B within A	**		3.34		9.75					
A within B			3.39		9.89					
Grains/Earhead										
Control	32.77	2	37.68	1	33.98	3	42.60	1	36.76	1
Two sprays of CCC (0.2%)	34.79	1	36.04	3	34.27	2	31.77	3	34.22	3
Two sprays of tebuconazole (0.1 %)	31.14	3	36.38	2	34.67	1	40.30	2	35.62	2
Two sprays of CCC + tebuconazole	21.92	4	33.04	4	32.03	4	30.87	4	29.47	4
Mean	30.16		35.79		33.74		36.38		34.02	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	NS		1.60		5.52		16.26			
Growth Regulator (B)	**		0.68		1.98		6.90			
B within A	**		1.35		3.95					
A within B			1.98		5.78					
1000 Grains Weight, g										
Control	38.35	3	40.10	1	43.55	1	40.85	1	40.71	1
Two sprays of CCC (0.2%)	38.65	1	39.80	3	41.20	3	39.65	3	39.83	3
Two sprays of tebuconazole (0.1 %)	38.35	3	40.10	1	43.55	1	40.85	1	40.71	1
Two sprays of CCC + tebuconazole	38.65	1	39.80	3	41.20	3	39.65	3	39.83	3
Mean	38.50		39.95		42.38		40.25		40.27	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	#DIV/0!		0.00		0.00		0.00			
Growth Regulator (B)	**		0.00		0.00		0.00			
B within A	**		0.00		0.00					
A within B			0.00		0.00					
Biomass, q/ha										
Control										
Two sprays of CCC (0.2%)										
Two sprays of tebuconazole (0.1 %)										
Two sprays of CCC + tebuconazole										
Mean										
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)										
Growth Regulator (B)										
B within A										
A within B										
Plant Height, cm										
Control	75.33	1	90.33	2	89.67	3	90.13	3	86.37	1
Two sprays of CCC (0.2%)	72.00	2	91.00	1	89.33	4	92.33	1	86.17	2
Two sprays of tebuconazole (0.1 %)	71.00	4	87.33	3	90.33	1	89.67	4	84.58	4
Two sprays of CCC + tebuconazole	71.67	3	86.33	4	90.33	1	91.00	2	84.83	3
Mean	72.50		88.75		89.92		90.78		85.49	
	F. Test		SEm		CD(0.05)		CV(%)			
Fertilization(A)	**		1.22		4.21		4.93			
Growth Regulator (B)	NS		0.98		2.86		3.97			
B within A	NS		1.96		5.72					
A within B			2.09		6.09					
Date of Sowing:	21.11.2017				Date of Harvesting:		22.03.2018			

Table 6.11.1. Northern Hills Zone SPL-3 Bajaura 2017-18

Zinc treatments	Earheads/s	Rk	1000 Grains	Rk	Grains/	Rk	Yield,	Rk
No zinc	354	4	43.14	8	27.63	8	42.30	8
12.5 kg Zinc sulphate/ha	349	7	46.06	6	28.67	7	45.96	6
25.0 kg Zinc sulphate/ha	353	5	47.55	5	28.79	5	48.01	5
37.5 kg Zinc sulphate/ha	351	6	47.62	4	29.50	3	48.87	4
Foliar zinc	348	8	43.58	7	28.78	6	43.69	7
12.5 kg Zinc sulphate/ha+T5	358	2	47.92	3	29.09	4	49.78	3
25.0 kg Zinc sulphate/ha+T5	356	3	48.30	1	30.04	1	50.91	1
37.5 kg Zinc sulphate/ha+T5	358	1	48.13	2	29.70	2	50.84	2
CD(0.05)	57.89		3.45		4.93		4.45	
CV(%)	9.36		4.23		9.70		5.34	
Date of Sowing: 17.11.2017			Date of Harvesting: 25.05.2018					

Table 6.11.2. Northern Hills Zone SPL-3 Khudwani 2017-18

Zinc treatments	Earheads/s	Rk	1000 Grains	Rk	Grains/	Rk	Yield,	Rk
No zinc	320	8	33.11	8	30.38	1	32.17	8
12.5 kg Zinc sulphate/ha	347	6	34.12	6	27.66	3	32.72	6
25.0 kg Zinc sulphate/ha	357	4	35.04	5	26.87	6	33.63	3
37.5 kg Zinc sulphate/ha	361	2	36.16	1	25.84	8	33.69	2
Foliar zinc	326	7	34.12	6	29.50	2	32.65	7
12.5 kg Zinc sulphate/ha+T5	353	5	35.14	4	27.15	5	33.59	4
25.0 kg Zinc sulphate/ha+T5	359	3	35.35	2	27.18	4	34.41	1
37.5 kg Zinc sulphate/ha+T5	364	1	35.25	3	25.85	7	33.13	5
CD(0.05)	33.23		0.66		2.72		1.97	
CV(%)	5.45		1.08		5.64		3.38	
Date of Sowing: 09.11.2017			Date of Harvesting: 14.06.2018					

Table 6.11.3. Northern Hills Zone SPL-3 Malan 2017-18

Zinc treatments	Earheads/s	Rk	1000 Grains	Rk	Grains/	Rk	Yield,	Rk
No zinc	292	7	43.67	4	31.26	8	39.60	8
12.5 kg Zinc sulphate/ha	300	6	45.00	1	31.42	7	42.27	6
25.0 kg Zinc sulphate/ha	324	1	42.00	8	33.70	4	45.69	5
37.5 kg Zinc sulphate/ha	309	4	43.33	7	35.45	2	47.25	2
Foliar zinc	279	8	44.33	2	33.23	5	41.02	7
12.5 kg Zinc sulphate/ha+T5	311	3	43.67	4	34.66	3	47.00	3
25.0 kg Zinc sulphate/ha+T5	322	2	43.67	4	33.12	6	46.54	4
37.5 kg Zinc sulphate/ha+T5	308	5	44.00	3	35.60	1	48.13	1
CD(0.05)	24.78		4.23		5.54		5.29	
CV(%)	4.63		5.53		9.43		6.76	
Date of Sowing: 11.11.2017			Date of Harvesting: 02.05.2018					

Table 6.15.1. North Western Plains Zone SPL-6 Hisar 2017-18

Treatments	Irrigation level									
	No Irrigation	Rk	CRI, LT, GF	Rk	Six Irrigations	Rk	40,80,120DAS	Rk	Mean	Rk
			Yield, q/ha							
Control	38.69	3	55.64	3	63.40	1	57.43	2	53.79	3
Pusa hydrogel	39.90	2	58.38	1	62.81	3	58.19	1	54.82	1
Herbal hydrogel	40.00	1	56.31	2	63.00	2	57.07	3	54.10	2
Mean	39.53		56.78		63.07		57.56		54.24	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		1.08		3.75		5.99			
Hydrogel (B)	NS		0.87		2.55		5.57			
B within A	NS		1.75		5.10					
A within B			1.79		5.23					
			Earheads/sqm							
Control	287	2	387	3	408	1	382	3	366	3
Pusa hydrogel	292	1	395	1	407	2	390	1	371	1
Herbal hydrogel	285	3	393	2	403	3	385	2	367	2
Mean	288		392		406		386		368	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		7.61		26.32		6.20			
Hydrogel (B)	NS		8.71		25.42		8.20			
B within A	NS		17.42		50.85					
A within B			16.13		47.08					
			Grains/Earhead							
Control	37.07	3	37.98	2	39.83	2	39.53	1	38.60	3
Pusa hydrogel	37.88	2	38.51	1	39.77	3	38.80	2	38.74	2
Herbal hydrogel	38.74	1	37.71	3	40.04	1	38.76	3	38.81	1
Mean	37.89		38.07		39.88		39.03		38.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	NS		1.03		3.57		7.98			
Hydrogel (B)	NS		1.28		3.74		11.46			
B within A	NS		2.56		7.48					
A within B			2.33		6.81					
			1000 Grains Weight, g							
Control	36.66	1	37.97	3	38.98	2	38.27	3	37.97	3
Pusa hydrogel	36.23	3	38.57	1	38.84	3	38.87	1	38.13	1
Herbal hydrogel	36.26	2	38.35	2	39.35	1	38.34	2	38.08	2
Mean	36.39		38.30		39.06		38.49		38.06	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	*		0.38		1.32		3.01			
Hydrogel (B)	NS		0.32		0.93		2.89			
B within A	NS		0.63		1.85					
A within B			0.64		1.88					

Date of Sowing: 12.11.2017 Date of harvesting: 09.04.2018

Table 6.15.2. North Western Plains Zone SPL-6 Durgapura 2017-18

Treatments	Irrigation level									
	No Irrigation	Rk	CRI, LT, GF	Rk	Six Irrigations	Rk	40,80,120DAS	Rk	Mean	Rk
			Yield, q/ha							
Control	13.62	3	30.07	3	46.22	3	29.28	3	29.80	3
Pusa hydrogel	19.30	1	35.13	1	49.11	1	34.36	1	34.48	1
Herbal hydrogel	16.89	2	32.17	2	47.46	2	32.71	2	32.31	2
Mean	16.60		32.46		47.60		32.12		32.19	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		1.57		5.44		14.66			
Hydrogel (B)	*		1.10		3.20		11.81			
B within A	NS		2.20		6.41					
A within B			2.38		6.96					
			Earheads/sqm							
Control	232	3	298	3	364	3	293	3	297	3
Pusa hydrogel	275	1	326	1	392	1	293	2	322	1
Herbal hydrogel	249	2	307	2	371	2	301	1	307	2
Mean	252		310		376		296		308	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		13.80		47.75		13.42			
Hydrogel (B)	NS		7.18		20.97		8.07			
B within A	NS		14.37		41.94					
A within B			18.11		52.87					
			Grains/Earhead							
Control	20.72	3	28.51	3	31.61	1	28.78	3	27.41	3
Pusa hydrogel	21.59	2	29.18	1	29.86	3	32.66	1	28.32	1
Herbal hydrogel	22.20	1	28.69	2	30.76	2	30.77	2	28.11	2
Mean	21.50		28.79		30.74		30.74		27.94	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		0.92		3.17		9.84			
Hydrogel (B)	NS		0.90		2.62		11.15			
B within A	NS		1.80		5.25					
A within B			1.73		5.05					
			1000 Grains Weight, g							
Control	28.39	3	35.37	3	40.32	3	34.58	3	34.66	3
Pusa hydrogel	32.54	1	36.93	1	41.92	1	36.53	1	36.98	1
Herbal hydrogel	30.70	2	36.55	2	41.66	2	35.37	2	36.07	2
Mean	30.54		36.28		41.30		35.49		35.90	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		0.86		2.97		7.18			
Hydrogel (B)	NS		0.67		1.96		6.48			
B within A	NS		1.34		3.92					
A within B			1.39		4.07					

Date of Sowing: 14.11.2017 Date of harvesting: 09.04.2018

Table 6.15.3. North Western Plains Zone SPL-6 Karnal 2017-18

	Irrigation level									
Treatments	No Irrigation	Rk	CRI, LT, GF	Rk	Six Irrigations	Rk	40,80,120DAS	Rk	Mean	Rk
			Yield, q/ha							
Control	30.70	3	46.40	3	53.40	2	44.00	2	43.63	2
Pusa hydrogel	32.10	2	47.17	2	52.00	3	43.03	3	43.58	3
Herbal hydrogel	32.93	1	47.50	1	53.57	1	44.87	1	44.72	1
Mean	31.91		47.02		52.99		43.97		43.97	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		0.43		1.50		2.96			
Hydrogel (B)	*		0.27		0.80		2.15			
B within A	NS		0.55		1.59					
A within B			0.62		1.82					
			Earheads/sqm							
Control	185	3	431	1	400	2	319	2	334	3
Pusa hydrogel	219	2	388	3	379	3	351	1	334	2
Herbal hydrogel	221	1	414	2	439	1	291	3	341	1
Mean	208		411		406		320		336	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		3.95		13.68		3.53			
Hydrogel (B)	NS		2.83		8.26		2.91			
B within A	**		5.66		16.52					
A within B			6.08		17.75					
			Grains/Earhead							
Control	56.75	1	30.60	3	37.36	2	37.22	2	40.48	1
Pusa hydrogel	42.45	3	33.98	1	38.73	1	34.24	3	37.35	3
Herbal hydrogel	43.65	2	32.93	2	34.53	3	42.74	1	38.46	2
Mean	47.62		32.50		36.87		38.07		38.77	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		0.84		2.91		6.51			
Hydrogel (B)	**		0.56		1.64		5.03			
B within A	**		1.13		3.29					
A within B			1.25		3.64					
			1000 Grains Weight, g							
Control	29.35	3	35.22	2	36.08	1	37.09	1	34.43	3
Pusa hydrogel	34.54	1	35.80	1	35.41	2	35.86	3	35.40	1
Herbal hydrogel	34.22	2	34.86	3	35.36	3	36.18	2	35.16	2
Mean	32.70		35.29		35.62		36.38		35.00	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	*		0.58		2.02		5.01			
Hydrogel (B)	NS		0.28		0.81		2.73			
B within A	**		0.55		1.61					
A within B			0.74		2.15					

Date of Sowing: 23.11.2017 Date of harvesting: 22.04.2017

Table 6.15.4. North Western Plains Zone SPL-6 Ludhiana 2017-18

	Irrigation level									
Treatments	No Irrigation	Rk	CRI, LT, GF	Rk	Six Irrigations	Rk	40,80,120DAS	Rk	Mean	Rk
			Yield, q/ha							
Control	50.90	2	57.12	1	64.01	1	61.66	2	58.42	2
Pusa hydrogel	54.75	1	56.43	3	63.50	2	62.50	1	59.29	1
Herbal hydrogel	50.57	3	56.62	2	61.82	3	59.81	3	57.21	3
Mean	52.07		56.72		63.11		61.32		58.31	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		0.87		3.00		4.46			
Hydrogel (B)	NS		1.09		3.17		6.45			
B within A	NS		2.17		6.34					
A within B			1.97		5.76					
			Earheads/sqm							
Control	346	3	390	2	393	3	397	3	382	3
Pusa hydrogel	360	1	398	1	402	1	400	1	390	1
Herbal hydrogel	347	2	388	3	397	2	398	2	383	2
Mean	351		392		397		398		385	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		5.37		18.60		4.19			
Hydrogel (B)	NS		3.94		11.49		3.55			
B within A	NS		7.88		22.99					
A within B			8.38		24.46					
			Grains/Earhead							
Control	45.74	2	39.67	2	42.98	2	41.10	2	42.37	3
Pusa hydrogel	47.47	1	39.53	3	42.74	3	41.58	1	42.83	1
Herbal hydrogel	43.09	3	43.17	1	43.77	1	40.89	3	42.73	2
Mean	45.43		40.79		43.16		41.19		42.64	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	NS		1.33		4.59		9.33			
Hydrogel (B)	NS		1.14		3.31		9.22			
B within A	NS		2.27		6.63					
A within B			2.28		6.65					
			1000 Grains Weight, g							
Control	32.14	3	37.81	1	38.15	1	37.83	1	36.48	1
Pusa hydrogel	32.47	2	35.90	2	37.11	2	37.81	2	35.82	2
Herbal hydrogel	33.76	1	33.84	3	35.53	3	36.81	3	34.98	3
Mean	32.79		35.85		36.93		37.48		35.76	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	NS		1.01		3.48		8.45			
Hydrogel (B)	NS		0.80		2.32		7.71			
B within A	NS		1.59		4.65					
A within B			1.64		4.80					

Date of Sowing: 14.11.2017 Date of harvesting: 23.04.2018

Table 6.15.5. North Western Plains Zone SPL-6 Pantnagar 2017-18

	Irrigation level									
Treatments	No Irrigation	Rk	CRI, LT, GF	Rk	Six Irrigations	Rk	40,80,120DAS	Rk	Mean	Rk
			Yield, q/ha							
Control	38.43	3	49.00	3	54.70	3	53.53	3	48.92	3
Pusa hydrogel	41.60	2	54.73	2	58.20	2	55.93	1	52.62	2
Herbal hydrogel	41.80	1	55.73	1	59.00	1	55.10	2	52.91	1
Mean	40.61		53.16		57.30		54.86		51.48	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		1.48		5.11		8.60			
Hydrogel (B)	**		0.83		2.41		5.55			
B within A	NS		1.65		4.82					
A within B			2.00		5.83					
			Earheads/sqm							
Control	321	3	361	3	375	3	367	3	356	
Pusa hydrogel	336	2	372	2	415	2	369	2	373	
Herbal hydrogel	337	1	391	1	419	1	376	1	381	
Mean	331		375		403		371		370	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	**		8.43		29.19		6.84			
Hydrogel (B)	NS		7.93		23.14		7.42			
B within A	NS		15.85		46.27					
A within B			15.45		45.09					
			Grains/Earhead							
Control	33.16	3	34.66	3	39.07	1	37.28	2	36.04	2
Pusa hydrogel	33.53	2	38.59	1	36.30	2	37.47	1	36.47	1
Herbal hydrogel	33.60	1	35.78	2	36.23	3	36.82	3	35.60	3
Mean	33.43		36.34		37.20		37.19		36.04	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	NS		1.33		4.60		11.07			
Hydrogel (B)	NS		1.34		3.91		12.87			
B within A	NS		2.68		7.82					
A within B			2.56		7.47					
			1000 Grains Weight, g							
Control	36.90	3	39.47	2	37.47	3	39.20	3	38.26	3
Pusa hydrogel	36.97	2	38.17	3	38.87	2	40.80	1	38.70	2
Herbal hydrogel	37.43	1	39.90	1	39.30	1	39.93	2	39.14	1
Mean	37.10		39.18		38.54		39.98		38.70	
	F. Test		SEm		CD(0.05)		CV(%)			
Irrigation (A)	NS		0.69		2.40		5.39			
Hydrogel (B)	NS		0.72		2.11		6.46			
B within A	NS		1.44		4.21					
A within B			1.37		3.99					

Date of Sowing: 18.11.2017 Date of harvesting: 21.04.2018

Table 6.18.1. Peninsular Zone SPL-7 Dharwad 2017-18

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
				Yield, q/ha				
75 kg/ha	35.52	3	36.56	3	33.45	3	35.18	3
100 kg/ha	37.87	2	39.55	2	34.67	2	37.36	2
126 kg/ha	38.48	1	41.72	1	36.39	1	38.86	1
Mean	37.29		39.28		34.83		37.13	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	*		0.61		2.41		4.96	
Seed Rate (B)	NS		1.04		3.22		8.44	
B within A	NS		1.81		5.57			
A within B			1.60		4.93			
				Earheads/sqm				
75 kg/ha	235.3	3	242.0	3	236.0	2	237.8	3
100 kg/ha	238.0	2	249.0	2	236.0	2	241.0	2
126 kg/ha	246.0	1	252.0	1	242.0	1	246.7	1
Mean	239.8		247.7		238.0		241.8	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		1.20		4.71		1.49	
Seed Rate (B)	**		1.63		5.02		2.02	
B within A	NS		2.82		8.69			
A within B			2.60		8.00			
				Grains/Earhead				
75 kg/ha	40.09	3	35.46	3	38.74	1	38.10	3
100 kg/ha	41.31	1	37.44	2	38.12	2	38.96	1
126 kg/ha	40.50	2	38.96	1	35.25	3	38.23	2
Mean	40.63		37.29		37.37		38.43	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		0.77		3.03		6.03	
Seed Rate (B)	NS		1.23		3.80		9.62	
B within A	NS		2.14		6.58			
A within B			1.91		5.88			
				1000 Grains Weight, g				
75 kg/ha	37.78	3	42.72	1	36.59	3	39.03	3
100 kg/ha	38.67	2	42.42	3	38.54	2	39.88	2
126 kg/ha	38.79	1	42.48	2	42.62	1	41.30	1
Mean	38.41		42.54		39.25		40.07	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	*		0.60		2.35		4.48	
Seed Rate (B)	NS		0.81		2.49		6.04	
B within A	NS		1.40		4.31			
A within B			1.29		3.97			
Date of Sowing:	12.11.2017				Date of Harvesting:		30.03.2018	

Table 6.18.2. Peninsular Zone SPL-7 Niphad 2017-18

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
				Yield, q/ha				
75 kg/ha	38.64	3	45.00	3	45.87	2	43.17	3
100 kg/ha	40.20	2	53.80	1	49.97	1	47.99	1
126 kg/ha	41.78	1	49.00	2	44.85	3	45.21	2
Mean	40.21		49.27		46.90		45.46	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		0.73		2.88		4.84	
Seed Rate (B)	*		1.13		3.48		7.45	
B within A	NS		1.95		6.02			
A within B			1.76		5.41			
				Earheads/sqm				
75 kg/ha	435.3	1	433.7	2	444.7	1	437.9	1
100 kg/ha	410.0	3	432.0	3	416.3	2	419.4	3
126 kg/ha	421.7	2	443.0	1	398.3	3	421.0	2
Mean	422.3		436.2		419.8		426.1	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		4.39		17.24		3.09	
Seed Rate (B)	NS		6.89		21.24		4.85	
B within A	NS		11.94		36.79			
A within B			10.69		32.95			
				Grains/Earhead				
75 kg/ha	20.45	3	23.59	3	23.55	3	22.53	3
100 kg/ha	22.77	2	28.32	1	27.27	1	26.12	1
126 kg/ha	23.14	1	25.61	2	25.22	2	24.65	2
Mean	22.12		25.84		25.34		24.44	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		0.42		1.64		5.14	
Seed Rate (B)	*		0.84		2.59		10.30	
B within A	NS		1.45		4.48			
A within B			1.26		3.88			
				1000 Grains Weight, g				
75 kg/ha	43.54	1	44.09	2	44.06	3	43.90	1
100 kg/ha	43.16	2	44.14	1	44.21	2	43.84	2
126 kg/ha	42.92	3	43.24	3	44.63	1	43.60	3
Mean	43.21		43.82		44.30		43.78	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	*		0.16		0.63		1.11	
Seed Rate (B)	NS		0.40		1.23		2.73	
B within A	NS		0.69		2.13			
A within B			0.59		1.81			
Date of Sowing:	08.11.2017				Date of Harvesting:		16.03.2018	

Table 6.18.3. Peninsular Zone SPL-7 Pune 2017-18

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
				Yield, q/ha				
75 kg/ha	49.70	1	50.05	1	53.14	1	50.96	1
100 kg/ha	44.81	3	47.72	2	49.96	2	47.50	2
126 kg/ha	47.21	2	44.20	3	46.44	3	45.95	3
Mean	47.24		47.32		49.85		48.14	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		0.73		2.85		4.53	
Seed Rate (B)	*		1.18		3.65		7.38	
B within A	NS		2.05		6.32			
A within B			1.83		5.63			
				Earheads/sqm				
75 kg/ha	608.0	3	501.7	1	404.0	2	504.6	1
100 kg/ha	638.3	1	471.7	2	388.0	3	499.3	2
126 kg/ha	612.7	2	445.0	3	410.0	1	489.2	3
Mean	619.7		472.8		400.7		497.7	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		6.50		25.54		3.92	
Seed Rate (B)	NS		8.53		26.28		5.14	
B within A	NS		14.77		45.53			
A within B			13.70		42.23			
				Grains/Earhead				
75 kg/ha	21.70	2	27.69	3	37.27	2	28.88	2
100 kg/ha	20.07	3	29.26	2	37.97	1	29.10	1
126 kg/ha	22.07	1	30.03	1	31.79	3	27.96	3
Mean	21.28		28.99		35.68		28.65	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		0.68		2.69		7.17	
Seed Rate (B)	NS		0.57		1.76		6.00	
B within A	**		0.99		3.06			
A within B			1.06		3.27			
				1000 Grains Weight, g				
75 kg/ha	37.67	1	36.00	1	35.33	2	36.33	1
100 kg/ha	35.00	2	34.67	2	34.00	3	34.56	2
126 kg/ha	35.00	2	33.00	3	35.67	1	34.56	2
Mean	35.89		34.56		35.00		35.15	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		0.32		1.26		2.74	
Seed Rate (B)	**		0.28		0.85		2.36	
B within A	*		0.48		1.47			
A within B			0.51		1.56			
Date of Sowing:	11.11.2017				Date of Harvesting:		11.03.2018	

Table 6.18.4. Peninsular Zone SPL-7 Akola 2017-18

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
				Yield, q/ha				
75 kg/ha	39.28	1	29.43	3	32.77	2	33.83	2
100 kg/ha	33.20	2	35.45	2	30.30	3	32.98	3
126 kg/ha	32.43	3	36.02	1	34.00	1	34.15	1
Mean	34.97		33.63		32.36		33.65	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		2.75		10.81		24.54	
Seed Rate (B)	NS		2.64		8.14		23.53	
B within A	NS		4.57		14.09			
A within B			4.64		14.30			
				Earheads/sqm				
75 kg/ha	339.3	3	309.2	1	324.3	2	324.3	2
100 kg/ha	388.3	1	286.6	3	331.8	1	335.6	1
126 kg/ha	343.1	2	301.7	2	316.7	3	320.5	3
Mean	356.9		299.2		324.3		326.8	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		1.12		4.39		1.03	
Seed Rate (B)	**		0.39		1.21		0.36	
B within A	**		0.68		2.09			
A within B			1.25		3.84			
				Grains/Earhead				
75 kg/ha	12.59	1	9.66	3	11.26	2	11.17	2
100 kg/ha	9.51	3	14.13	1	9.49	3	11.04	3
126 kg/ha	10.30	2	12.22	2	11.67	1	11.39	1
Mean	10.80		12.00		10.80		11.20	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	NS		0.83		3.27		22.29	
Seed Rate (B)	NS		0.91		2.80		24.34	
B within A	NS		1.57		4.85			
A within B			1.53		4.72			
				1000 Grains Weight, g				
75 kg/ha	91.94	1	97.46	2	91.73	3	93.71	2
100 kg/ha	90.61	3	88.66	3	97.52	1	92.26	3
126 kg/ha	91.79	2	98.15	1	92.16	2	94.03	1
Mean	91.44		94.76		93.80		93.33	
	F. Test		SEm		CD(0.05)		CV(%)	
Spacing (A)	**		0.30		1.16		0.95	
Seed Rate (B)	**		0.12		0.36		0.37	
B within A	**		0.20		0.62			
A within B			0.34		1.04			

Date of Sowing: 21.11.2017 Date of Harvesting: 30.03.2018

Table 6.19.1. North Eastern Plains Zone **SPL-8** **Coochbehar** **2017-18**

Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	164	8	34.43	8	31.18	8	17.57	8
75 kg basal+37.5 kg N/ha at CRI and Tillering	270	1	42.15	3	44.11	7	50.08	3
60 kg basal+30 kg N/ha at CRI and Tillering	238	6	40.32	5	46.79	1	44.96	5
30 basal+30 CRI +GS 30 & 30	234	7	39.35	6	45.07	5	41.48	7
30 basal+60 CRI +GS 30 & 30	262	2	42.59	1	45.21	3	50.23	2
½ N basal and ½ at CRI	242	4	41.47	4	45.19	4	45.27	4
1/3rd N basal+1/3rd CRI +1/3rd First Node	241	5	39.33	7	44.71	6	42.27	6
Rich Plot-90 kg N/ha basal+90 at CRI	261	3	42.53	2	46.12	2	51.13	1
CD(0.05) (5%)	16.96		1.63		5.02		2.56	
	Date of Sowing: 23.11.2017				Date of Harvesting: 02.04.2018			

Table 6.19.2. North Eastern Plains Zone **SPL-8** **Ranchi** **2017-18**

Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	217	8	30.00	8	32.29	5	20.17	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	353	5	37.67	7	34.23	3	45.01	4
60 kg basal +30 kg N/ha at CRI and Tillering	347	6	39.00	6	28.36	8	38.15	7
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	369	2	42.26	2	34.54	2	53.16	2
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	375	1	42.80	1	34.90	1	54.72	1
½ N basal and ½ at CRI	337	7	39.60	5	31.01	7	41.09	6
1/3rd N basal+1/3rd CRI +1/3rd First Node	357	3	40.34	4	31.36	6	44.78	5
Rich Plot-90 kg N/ha basal+90 at CRI	357	3	41.06	3	33.97	4	49.54	3
CD(0.05) (5%)	80.76		2.71		10.20		6.47	
	Date of Sowing: 20.11.2017				Date of Harvesting: 15.04.2018			

Table 6.20.1. Peninsular Zone **SPL-8** **Dharwad** **2017-18**

Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	234	7	37.52	8	33.58		29.49	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	249	2	41.23	3	40.59		41.68	2
60 kg basal +30 kg N/ha at CRI and Tillering	237	6	38.27	7	41.56		37.66	6
30 basal+30 CRI +GS 54 40-45 & 60-65 DAS	247	3	41.33	2	39.75		40.58	3
30 basal+60 CRI +GS 28 40-45 & 60-65 DAS	244	4	40.30	4	40.38		39.69	4
½ N basal and ½ at CRI	234	7	38.55	6	40.39		36.48	7
1/3rd N basal+1/3rd CRI +1/3rd First Node	238	5	39.51	5	41.03		38.55	5
Rich Plot-90 kg N/ha basal+90 at CRI	252	1	42.76	1	40.24		43.37	1
CD(0.05)	7.44		4.07		2.27		4.81	
	Date of Sowing: 12.11.2017				Date of Harvesting: 10.03.2018			

Table 6.20.2. Peninsular Zone **SPL-8** **Pune** **2017-18**

Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	305	8	45.67	1	29.05		40.36	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	417	4	43.67	7	33.19		60.23	4
60 kg basal +30 kg N/ha at CRI and Tillering	392	7	44.33	5	32.84		56.93	6
30 basal+30 CRI +GS 35 & 19 kg N/ha	428	3	45.00	2	32.29		61.95	3
30 basal+60 CRI +GS 42 & 16 kg N/ha	417	4	45.00	2	33.87		63.09	2
½ N basal and ½ at CRI	417	4	43.33	8	32.21		58.06	5
1/3rd N basal+1/3rd CRI +1/3rd First Node	447	2	44.33	5	28.48		55.82	7
Rich Plot-90 kg N/ha basal+90 at CRI	473	1	44.67	4	30.06		63.37	1
CD(0.05)	24.59		4.30		3.80		4.84	
	Date of Sowing: 09.11.2017				Date of Harvesting: 12.03.2018			

Table 6.20.3. Peninsular Zone **SPL-8** **Niphad** **2017-18**

Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	325	8	40.88	8	25.08		33.31	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	346	7	43.50	4	29.84		44.80	5
60 kg basal +30 kg N/ha at CRI and Tillering	361	5	44.19	2	27.82		44.22	6
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	358	6	40.89	7	27.84		40.67	7
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	364	4	43.04	5	31.09		48.70	3
½ N basal and ½ at CRI	395	1	44.60	1	28.34		49.88	2
1/3rd N basal+1/3rd CRI +1/3rd First Node	393	2	41.91	6	28.46		46.67	4
Rich Plot-90 kg N/ha basal+90 at CRI	391	3	44.15	3	29.28		50.57	1
CD(0.05)	21.36		2.18		6.02		8.15	
	Date of Sowing: 09.11.2017				Date of Harvesting: 25.03.2018			

Table 6.21.1. Northern Hills Zone **SPL-9** **Bajaura** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	56.45	1	46.20	2	37.39	1	30.15	1	42.55	1
HD 2967	47.16	4	40.25	4	31.53	4	29.06	2	37.00	4
HD 3086	52.21	2	42.44	3	33.54	3	25.72	5	38.48	3
HI1544	42.06	5	31.58	6	27.15	6	22.86	6	30.91	6
MACS 6222	51.83	3	46.92	1	35.01	2	26.10	4	39.96	2
WR 544	37.11	6	35.53	5	28.29	5	26.63	3	31.89	5
Mean	47.80		40.49		32.15		26.75		36.80	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.50		1.83		4.73			
Variety (B)	**		0.32		0.92		3.72			
B within A	**		0.79		2.26					
A within B			0.85		2.43					
Earheads/sqm										
HS 562	387	2	399	1	365	2	324	3	369	1
HD 2967	363	3	395	2	345	4	343	1	361	3
HD 3086	353	6	321	6	359	3	308	6	335	6
HI1544	389	1	373	3	369	1	315	4	361	2
MACS 6222	353	5	339	5	340	5	311	5	336	5
WR 544	357	4	353	4	308	6	338	2	339	4
Mean	367		363		348		323		350	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		6.10		22.19		6.04			
Variety (B)	NS		6.12		17.50		7.42			
B within A	NS		15.00		42.87					
A within B			14.35		41.02					
Grains/Earhead										
HS 562	30.33	3	26.30	3	24.03	2	23.79	1	26.11	2
HD 2967	30.13	4	26.04	4	20.60	5	21.60	2	24.59	3
HD 3086	31.16	2	27.50	2	20.42	6	19.08	6	24.54	4
HI1544	23.80	6	19.23	6	22.11	4	19.41	5	21.14	6
MACS 6222	33.48	1	30.88	1	24.20	1	20.45	4	27.25	1
WR 544	24.15	5	23.35	5	22.15	3	21.30	3	22.74	5
Mean	28.84		25.55		22.25		20.94		24.39	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.43		1.58		6.16			
Variety (B)	**		0.52		1.50		9.11			
B within A	**		1.28		3.67					
A within B			1.19		3.41					
1000 Grains Weight, g										
HS 562	48.15	2	43.94	4	42.76	4	39.20	4	43.51	2
HD 2967	43.48	5	39.32	6	44.15	2	39.38	3	41.58	4
HD 3086	48.25	1	48.14	1	45.95	1	43.64	1	46.49	1
HI1544	45.42	3	44.57	3	33.29	6	37.52	5	40.20	6
MACS 6222	43.97	4	45.06	2	42.87	3	40.94	2	43.21	3
WR 544	43.15	6	43.17	5	41.48	5	37.20	6	41.25	5
Mean	45.40		44.03		41.75		39.65		42.71	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.78		2.83		6.32			
Variety (B)	**		0.60		1.70		5.92			
B within A	*		1.46		4.17					
A within B			1.48		4.24					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			20.5.2018		25.05.2018		30.05.2018		30.05.2018	

Table 6.21.2. Northern Hills Zone **SPL-9** **Malan** **2017-18**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
				Yield, q/ha						
HS 562	43.99	1	38.11	1	29.20	1	18.22	1	32.38	1
HD 2967	35.86	3	30.32	3	26.46	3	12.72	2	26.34	2
HD 3086	37.23	2	31.32	2	22.94	5	12.57	3	26.02	3
HI1544	31.07	5	27.22	5	25.69	4	11.68	5	23.92	5
MACS 6222	32.36	4	28.19	4	27.41	2	9.65	6	24.40	4
WR 544	29.28	6	24.90	6	22.03	6	12.20	4	22.10	6
Mean	34.96		30.01		25.62		12.84		25.86	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.82		2.99		11.03			
Variety (B)	**		0.64		1.84		10.58			
B within A	**		1.58		4.51					
A within B			1.60		4.56					
				Earheads/sqm						
HS 562	284	2	248	2	272	1	203	1	252	1
HD 2967	265	3	237	3	229	5	120	3	213	3
HD 3086	287	1	253	1	226	6	124	2	222	2
HI1544	264	4	237	3	232	2	108	6	210	4
MACS 6222	235	6	234	5	230	4	117	4	204	6
WR 544	252	5	232	6	231	3	116	5	208	5
Mean	264		240		237		131		218	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		7.39		26.88		11.74			
Variety (B)	**		3.72		10.65		7.25			
B within A	**		9.12		26.08					
A within B			10.82		30.92					
				Grains/Earhead						
HS 562	31.96	1	33.59	1	23.69	4	20.12	6	27.34	1
HD 2967	27.46	3	26.37	3	25.08	3	25.80	1	26.18	2
HD 3086	26.39	4	27.33	2	21.32	6	22.54	4	24.39	5
HI1544	24.92	6	24.23	5	25.21	2	25.20	2	24.89	4
MACS 6222	29.19	2	24.76	4	26.01	1	20.28	5	25.06	3
WR 544	25.90	5	22.76	6	23.23	5	24.64	3	24.13	6
Mean	27.64		26.51		24.09		23.10		25.33	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		1.70		6.17		23.21			
Variety (B)	NS		0.97		2.77		16.25			
B within A	NS		2.38		6.79					
A within B			2.67		7.63					
				1000 Grains Weight, g						
HS 562	48.67	3	47.33	4	45.33	4	44.67	1	46.50	3
HD 2967	49.33	1	49.33	1	46.00	2	41.33	5	46.50	2
HD 3086	49.33	1	46.00	6	48.00	1	44.67	1	47.00	1
HI1544	47.33	4	48.00	3	44.67	5	44.00	3	46.00	4
MACS 6222	47.33	4	48.67	2	46.00	2	41.33	5	45.83	5
WR 544	45.33	6	47.33	4	41.33	6	44.00	3	44.50	6
Mean	47.89		47.78		45.22		43.33		46.06	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.54		1.95		4.04			
Variety (B)	NS		0.56		1.59		5.13			
B within A	NS		1.37		3.90					
A within B			1.30		3.71					
Date of Sowing:			05.11.2017		25.11.2017		17.12.2017		05.01.2018	
Date of harvesting:			05.05.2018		11.05.2018		17.05.2018		25.05.2018	

Table 6.22.1. North Western Plains Zone SPL-9 Agra 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	54.70	1	46.52	1	35.71	1	19.87	6	39.20	1
HD 2967	53.05	2	44.55	2	33.40	2	19.89	5	37.72	2
HD 3086	52.36	3	44.39	3	32.12	3	20.80	4	37.42	3
HI1544	50.54	5	41.50	5	31.27	4	22.11	2	36.36	5
MACS 6222	52.14	4	42.38	4	30.39	5	21.21	3	36.53	4
WR 544	48.84	6	40.47	6	29.54	6	24.16	1	35.75	6
Mean	51.94		43.30		32.07		21.34		37.16	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.41		1.50		3.86			
Variety (B)	**		0.29		0.84		3.35			
B within A	**		0.72		2.05					
A within B			0.75		2.14					
Earheads/sqm										
HS 562	466	1	445	1	416	1	325	6	413	1
HD 2967	453	2	431	2	404	2	333	5	405	2
HD 3086	438	3	426	3	393	3	336	4	398	3
HI1544	426	5	417	5	382	4	342	2	392	5
MACS 6222	432	4	423	4	381	5	340	3	394	4
WR 544	424	6	406	6	365	6	353	1	387	6
Mean	440		425		390		338		398	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		3.36		12.22		2.93			
Variety (B)	**		1.66		4.73		1.76			
B within A	**		4.06		11.59					
A within B			4.86		13.90					
Grains/Earhead										
HS 562	30.22	6	27.84	6	24.18	4	24.44	1	26.67	6
HD 2967	31.21	5	28.03	5	24.08	6	23.45	3	26.69	5
HD 3086	32.06	4	28.78	4	24.44	3	24.25	2	27.38	3
HI1544	33.11	2	30.57	2	25.15	2	22.98	5	27.95	1
MACS 6222	33.06	3	28.93	3	24.14	5	23.21	4	27.33	4
WR 544	33.36	1	30.63	1	25.31	1	22.40	6	27.92	2
Mean	32.17		29.13		24.55		23.45		27.33	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.18		0.65		2.26			
Variety (B)	**		0.19		0.55		3.00			
B within A	**		0.47		1.35					
A within B			0.45		1.28					
1000 Grains Weight, g										
HS 562	38.82	1	37.56	1	35.57	1	25.02	6	34.24	1
HD 2967	37.56	2	36.95	2	34.30	2	25.47	5	33.57	2
HD 3086	37.34	3	36.20	3	33.41	3	25.58	4	33.13	3
HI1544	35.84	5	32.58	5	32.59	5	28.07	2	32.27	6
MACS 6222	36.48	4	34.60	4	33.08	4	26.88	3	32.76	4
WR 544	34.52	6	32.56	6	31.95	6	30.57	1	32.40	5
Mean	36.76		35.08		33.48		26.93		33.06	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.14		0.49		1.43			
Variety (B)	**		0.13		0.36		1.63			
B within A	**		0.31		0.89					
A within B			0.30		0.86					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			20.03.2018		02.04.2018		11.04.2018		19.04.2018	

Table 6.22.2. North Western Plains Zone SPL-9 Gurdaspur 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	57.30	1	47.08	1	30.70	5	23.78	5	39.71	1
HD 2967	51.29	4	46.77	2	34.49	2	24.48	4	39.26	3
HD 3086	48.94	5	32.38	6	19.90	6	6.86	6	27.02	6
HI1544	52.66	3	38.90	5	35.80	1	25.64	2	38.25	4
MACS 6222	55.49	2	45.69	4	32.11	4	25.04	3	39.58	2
WR 544	31.49	6	45.94	3	33.37	3	25.69	1	34.12	5
Mean	49.53		42.79		31.06		21.92		36.32	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.10		3.99		10.46			
Variety (B)	**		0.55		1.56		6.38			
B within A	**		1.34		3.83					
A within B			1.60		4.56					
Earheads/sqm										
HS 562	422	1	410	1	350	1	288	2	367	1
HD 2967	370	4	362	3	327	2	297	1	339	2
HD 3086	357	5	345	5	236	6	173	6	278	6
HI1544	386	2	345	4	278	4	267	4	319	3
MACS 6222	383	3	332	6	271	5	250	5	309	5
WR 544	303	6	380	2	318	3	272	3	318	4
Mean	370		362		297		258		322	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		8.32		30.24		8.96			
Variety (B)	NS		6.98		19.95		9.21			
B within A	**		17.10		48.87					
A within B			16.98		48.54					
Grains/Earhead										
HS 562	37.42	1	30.96	4	30.20	4	27.01	4	31.40	3
HD 2967	34.85	3	35.00	2	30.82	3	25.41	5	31.52	2
HD 3086	33.53	4	25.03	6	23.07	6	11.76	6	23.35	6
HI1544	32.54	5	30.16	5	34.00	2	27.66	3	31.09	4
MACS 6222	37.32	2	36.35	1	34.88	1	30.30	1	34.71	1
WR 544	25.99	6	31.27	3	27.37	5	28.81	2	28.36	5
Mean	33.61		31.46		30.06		25.16		30.07	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		1.16		4.23		13.39			
Variety (B)	NS		0.86		2.45		12.10			
B within A	**		2.10		6.00					
A within B			2.16		6.17					
1000 Grains Weight, g										
HS 562	36.32	6	37.26	6	29.25	6	30.99	6	33.46	6
HD 2967	39.82	4	37.47	4	34.37	4	33.20	5	36.21	5
HD 3086	41.01	2	37.94	3	36.68	3	34.21	2	37.46	3
HI1544	41.96	1	37.41	5	38.16	2	35.02	1	38.14	1
MACS 6222	38.96	5	38.24	2	33.99	5	33.81	3	36.25	4
WR 544	40.13	3	38.71	1	38.97	1	33.35	4	37.79	2
Mean	39.70		37.84		35.24		33.43		36.55	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.55		2.02		5.26			
Variety (B)	**		0.45		1.28		5.20			
B within A	**		1.10		3.13					
A within B			1.10		3.14					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			22.04.2018		24.04.2018		25.04.2018		25.04.2018	

Table 6.22.3. North Western Plains Zone SPL-9 Hisar 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	53.20	5	50.65	4	42.04	5	31.46	5	44.34	5
HD 2967	55.10	3	53.95	3	45.78	3	33.06	3	46.97	3
HD 3086	56.16	2	54.63	1	47.45	2	35.20	1	48.36	2
HI1544	60.07	1	54.01	2	48.30	1	34.66	2	49.26	1
MACS 6222	54.12	4	50.27	5	44.83	4	31.29	6	45.13	4
WR 544	43.30	6	40.68	6	36.60	6	32.96	4	38.38	6
Mean	53.66		50.70		44.17		33.11		45.41	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.02		3.72		7.80			
Variety (B)	*		0.64		1.83		5.99			
B within A	**		1.57		4.48					
A within B			1.70		4.86					
Earheads/sqm										
HS 562	443	4	430	4	403	5	303	4	395	4
HD 2967	438	5	428	5	413	4	298	5	395	5
HD 3086	445	2	435	2	422	2	313	2	404	2
HI1544	453	1	445	1	428	1	325	1	413	1
MACS 6222	427	6	413	6	395	6	265	6	375	6
WR 544	445	2	432	3	420	3	312	3	402	3
Mean	442		431		414		303		397	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		9.61		34.94		8.38			
Variety (B)	**		5.25		15.01		5.61			
B within A	**		12.86		36.76					
A within B			14.71		42.04					
Grains/Earhead										
HS 562	30.03	5	31.47	3	28.84	5	29.73	5	30.02	4
HD 2967	31.49	1	33.23	2	30.11	2	31.79	3	31.65	2
HD 3086	31.32	2	33.40	1	31.15	1	31.85	2	31.93	1
HI1544	31.27	3	30.29	5	29.55	4	28.61	6	29.93	5
MACS 6222	31.26	4	31.08	4	29.92	3	32.89	1	31.29	3
WR 544	24.17	6	24.42	6	23.78	6	29.74	4	25.53	6
Mean	29.92		30.65		28.89		30.77		30.06	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		0.67		2.45		7.76			
Variety (B)	**		0.60		1.71		8.45			
B within A	**		1.47		4.19					
A within B			1.44		4.11					
1000 Grains Weight, g										
HS 562	40.02	6	37.41	6	36.21	5	35.25	5	37.22	6
HD 2967	40.28	5	38.00	4	36.77	4	34.97	6	37.50	4
HD 3086	40.42	4	37.64	5	36.15	6	35.51	4	37.43	5
HI1544	42.41	1	40.12	1	38.16	1	37.38	1	39.52	1
MACS 6222	40.82	2	39.15	2	37.95	2	35.93	2	38.46	2
WR 544	40.43	3	38.77	3	36.91	3	35.63	3	37.93	3
Mean	40.73		38.51		37.02		35.78		38.01	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.38		1.38		3.47			
Variety (B)	*		0.30		0.85		3.34			
B within A	**		0.73		2.09					
A within B			0.74		2.11					
Date of Sowing:			5.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			11.4.2018		16.4.2018		21.4.2018		27.04.2018	

Table 6.22.4. North Western Plains Zone **SPL-9** **Durgapura** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	47.07	3	53.14	3	46.36	1	25.57	2	43.03	1
HD 2967	52.01	1	50.56	5	40.06	3	28.99	1	42.91	2
HD 3086	45.39	4	38.48	6	38.60	4	22.75	3	36.30	6
HI1544	51.94	2	50.79	4	40.80	2	21.54	4	41.27	3
MACS 6222	39.57	6	54.59	2	36.17	5	21.44	5	37.94	4
WR 544	40.53	5	55.80	1	29.81	6	19.96	6	36.52	5
Mean	46.09		50.56		38.63		23.37		39.66	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.34		4.88		11.73			
Variety (B)	NS		0.85		2.43		9.10			
B within A	**		2.08		5.96					
A within B			2.25		6.43					
Earheads/sqm										
HS 562	380	3	419	3	411	1	268	2	370	1
HD 2967	419	2	395	5	352	3	301	1	367	2
HD 3086	363	4	280	6	337	4	241	3	305	6
HI1544	426	1	396	4	359	2	230	4	352	3
MACS 6222	308	6	433	2	325	5	230	4	324	4
WR 544	318	5	444	1	260	6	215	6	309	5
Mean	369		394		340		248		338	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		9.37		34.06		9.61			
Variety (B)	**		4.95		14.16		6.22			
B within A	**		12.13		34.68					
A within B			14.08		40.24					
Grains/Earhead										
HS 562	32.19	4	29.65	4	25.85	6	26.17	5	28.46	5
HD 2967	29.22	5	30.54	3	28.65	5	24.26	6	28.17	6
HD 3086	33.78	3	41.35	1	30.74	4	28.08	4	33.49	1
HI1544	28.50	6	31.06	2	32.79	2	28.82	2	30.29	4
MACS 6222	35.41	1	27.88	6	32.36	3	28.70	3	31.09	3
WR 544	35.33	2	28.81	5	34.78	1	30.03	1	32.24	2
Mean	32.40		31.55		30.86		27.68		30.62	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		1.14		4.16		12.94			
Variety (B)	*		0.80		2.27		11.01			
B within A	**		1.95		5.57					
A within B			2.04		5.82					
1000 Grains Weight, g										
HS 562	38.52	3	42.83	3	43.71	1	36.45	2	40.38	2
HD 2967	42.67	2	41.99	4	39.82	2	39.82	1	41.07	1
HD 3086	37.00	4	33.49	6	37.74	3	33.65	3	35.47	6
HI1544	43.00	1	41.55	5	35.10	4	32.51	4	38.04	3
MACS 6222	36.33	5	45.45	1	34.43	5	32.49	5	37.18	4
WR 544	36.12	6	43.66	2	32.54	6	30.94	6	35.82	5
Mean	38.94		41.50		37.22		34.31		37.99	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.95		3.47		8.70			
Variety (B)	*		0.59		1.70		6.63			
B within A	**		1.46		4.16					
A within B			1.58		4.52					
Date of Sowing:			05.11.2017		25.11.2017		14.12.2017		04.01.2018	
Date of harvesting:			06.04.2018		10.04.2018		15.04.2018		20.04.2018	

Table 6.22.5. North Western Plains Zone SPL-9 Jammu 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha		02.05.2018					
HS 562	44.56	5	42.34	4	38.86	1	33.12	1	39.72	2
HD 2967	46.88	4	46.64	1	35.67	3	23.96	5	38.29	3
HD 3086	50.96	2	45.48	3	38.26	2	28.31	2	40.75	1
HI1544	47.81	3	46.11	2	31.23	4	24.98	4	37.53	4
MACS 6222	51.62	1	41.48	5	30.07	5	25.90	3	37.27	5
WR 544	41.65	6	40.55	6	30.07	5	22.66	6	33.73	6
Mean	47.25		43.77		34.03		26.49		37.88	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.42		5.16		12.98			
Variety (B)	**		0.79		2.26		8.87			
B within A	*		1.94		5.54					
A within B			2.20		6.29					
			Earheads/sqm							
HS 562	393	2	376	1	342	5	297	4	352	4
HD 2967	384	3	365	5	360	3	323	1	358	2
HD 3086	395	1	368	2	375	1	306	3	361	1
HI1544	378	4	367	4	368	2	308	2	355	3
MACS 6222	364	6	368	2	360	3	296	5	347	5
WR 544	367	5	363	6	315	6	290	6	334	6
Mean	380		368		353		303		351	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		12.93		46.99		12.75			
Variety (B)	NS		8.48		24.25		10.25			
B within A	NS		20.78		59.39					
A within B			22.16		63.32					
			Grains/Earhead							
HS 562	29.48	6	28.77	6	32.46	1	30.67	1	30.34	2
HD 2967	33.55	4	34.13	2	27.34	2	23.11	5	29.53	3
HD 3086	34.77	2	33.44	3	27.15	3	26.17	2	30.38	1
HI1544	34.41	3	34.65	1	24.21	5	23.42	4	29.17	4
MACS 6222	36.83	1	31.93	4	23.02	6	24.49	3	29.07	5
WR 544	30.07	5	30.69	5	26.98	4	22.17	6	27.47	6
Mean	33.19		32.27		26.86		25.01		29.33	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		1.91		6.96		22.59			
Variety (B)	NS		1.02		2.93		14.81			
B within A	NS		2.51		7.17					
A within B			2.89		8.27					
			1000 Grains Weight, g							
HS 562	38.50	2	39.12	1	35.85	4	36.69	1	37.54	1
HD 2967	36.60	6	37.40	3	36.33	2	33.45	6	35.94	6
HD 3086	37.27	4	37.35	4	37.76	1	35.72	4	37.03	2
HI1544	36.77	5	36.88	5	35.65	6	36.49	3	36.45	5
MACS 6222	38.89	1	35.73	6	36.32	3	36.62	2	36.89	3
WR 544	38.04	3	37.44	2	35.65	5	35.70	5	36.71	4
Mean	37.68		37.32		36.26		35.78		36.76	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		0.72		2.62		6.80			
Variety (B)	NS		0.37		1.05		4.23			
B within A	NS		0.90		2.57					
A within B			1.06		3.03					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			30.04.2018		05.05.2018		09.05.2018		12.05.2018	

Table 6.22.6. North Western Plains Zone SPL-9 Karnal 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	58.58	4	49.05	6	43.58	6	38.87	5	47.52	6
HD 2967	60.06	1	54.28	2	44.89	5	41.46	3	50.17	2
HD 3086	59.57	2	52.70	4	46.60	2	42.23	1	50.27	1
HI1544	56.19	5	51.57	5	47.50	1	37.52	6	48.19	5
MACS 6222	59.10	3	54.48	1	44.96	4	40.65	4	49.80	3
WR 544	53.17	6	53.70	3	45.75	3	41.85	2	48.62	4
Mean	57.78		52.63		45.55		40.43		49.10	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.94		3.41		6.62			
Variety (B)	NS		0.67		1.91		5.76			
B within A	**		1.63		4.67					
A within B			1.70		4.85					
Earheads/sqm										
HS 562	387	4	393	6	420	3	393	5	398	5
HD 2967	378	5	403	4	412	4	395	4	397	6
HD 3086	413	1	413	3	411	5	416	2	413	2
HI1544	412	2	437	1	444	1	388	6	420	1
MACS 6222	402	3	423	2	394	6	407	3	406	3
WR 544	378	5	397	5	428	2	423	1	406	4
Mean	395		411		418		403		407	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		13.73		49.91		11.69			
Variety (B)	NS		8.56		24.47		8.93			
B within A	NS		20.97		59.94					
A within B			22.77		65.07					
Grains/Earhead										
HS 562	37.69	2	32.36	5	30.20	5	32.20	3	33.11	4
HD 2967	39.78	1	36.63	1	30.58	4	33.10	2	35.02	1
HD 3086	36.99	3	33.58	3	31.12	3	31.02	5	33.18	3
HI1544	36.28	5	31.44	6	32.39	1	31.36	4	32.87	5
MACS 6222	36.54	4	33.53	4	31.82	2	35.07	1	34.24	2
WR 544	35.86	6	35.13	2	29.47	6	30.42	6	32.72	6
Mean	37.19		33.78		30.93		32.20		33.52	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.96		3.50		9.94			
Variety (B)	NS		0.70		1.99		8.80			
B within A	NS		1.70		4.87					
A within B			1.76		5.03					
1000 Grains Weight, g										
HS 562	40.45	2	38.53	2	34.47	5	30.87	5	36.08	4
HD 2967	40.15	3	37.10	6	35.99	3	31.95	3	36.30	3
HD 3086	39.29	5	38.12	4	36.69	1	32.87	1	36.74	2
HI1544	37.63	6	37.54	5	33.05	6	31.01	4	34.81	6
MACS 6222	40.58	1	38.45	3	35.84	4	28.74	6	35.90	5
WR 544	39.71	4	38.83	1	36.27	2	32.81	2	36.90	1
Mean	39.63		38.09		35.38		31.38		36.12	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.55		2.01		5.31			
Variety (B)	**		0.31		0.90		3.68			
B within A	**		0.77		2.20					
A within B			0.87		2.47					
Date of Sowing:			12.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			14.04.2018		14.04.2019		23.04.2018		23.04.2018	

Table 6.22.7. North Western Plains Zone SPL-9 Ludhiana 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	50.19	3	43.07	3	34.39	2	30.43	1	39.52	2
HD 2967	54.18	1	37.16	5	28.83	6	27.61	4	36.95	4
HD 3086	53.49	2	48.63	1	43.76	1	27.61	4	43.37	1
HI1544	44.63	5	46.54	2	30.22	5	27.52	6	37.23	3
MACS 6222	49.32	4	34.91	6	31.26	4	29.35	3	36.21	5
WR 544	39.87	6	38.21	4	32.65	3	29.52	2	35.06	6
Mean	48.62		41.42		33.52		28.67		38.06	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.89		3.24		8.12			
Variety (B)	**		0.77		2.19		8.56			
B within A	**		1.88		5.37					
A within B			1.86		5.31					
Earheads/sqm										
HS 562	370	1	409	1	304	4	279	2	341	1
HD 2967	338	3	289	6	294	5	269	5	297	5
HD 3086	302	6	364	2	352	1	287	1	326	2
HI1544	347	2	309	4	343	2	275	4	319	3
MACS 6222	332	4	320	3	247	6	268	6	291	6
WR 544	328	5	293	5	335	3	279	2	309	4
Mean	336		331		313		276		314	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		8.40		30.53		9.27			
Variety (B)	NS		6.82		19.50		9.22			
B within A	**		16.71		47.76					
A within B			16.73		47.82					
Grains/Earhead										
HS 562	38.24	4	29.92	5	34.17	3	42.06	1	36.10	2
HD 2967	39.79	3	37.82	3	31.33	4	35.06	3	36.00	3
HD 3086	44.93	1	40.75	2	37.32	2	30.38	5	38.34	1
HI1544	31.14	5	43.52	1	27.84	5	36.56	2	34.76	5
MACS 6222	40.56	2	25.93	6	38.24	1	34.79	4	34.88	4
WR 544	28.79	6	31.52	4	26.35	6	29.85	6	29.13	6
Mean	37.24		34.91		32.54		34.79		34.87	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		1.56		5.68		15.51			
Variety (B)	NS		1.46		4.16		17.71			
B within A	**		3.57		10.19					
A within B			3.46		9.89					
1000 Grains Weight, g										
HS 562	35.73	6	35.31	3	33.62	4	26.57	6	32.81	6
HD 2967	40.45	3	34.43	5	31.57	6	29.62	4	34.02	5
HD 3086	40.33	4	32.86	6	33.80	3	31.87	3	34.71	3
HI1544	41.23	2	34.88	4	31.67	5	28.51	5	34.07	4
MACS 6222	36.67	5	42.44	1	34.25	2	31.91	2	36.32	2
WR 544	42.78	1	41.60	2	37.07	1	36.00	1	39.36	1
Mean	39.53		36.92		33.67		30.75		35.22	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.97		3.54		9.58			
Variety (B)	NS		0.60		1.70		7.17			
B within A	**		1.46		4.17					
A within B			1.59		4.56					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2017	
Date of harvesting:			23.04.2018		23.04.2018		24.04.2018		24.04.2018	

Table 6.22.8. North Western Plains Zone SPL-9 Pantnagar 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	47.87	2	44.43	2	39.90	3	31.40	4	40.90	2
HD 2967	48.37	1	43.60	3	42.50	1	31.33	5	41.45	1
HD 3086	44.67	4	46.83	1	36.70	4	32.73	1	40.23	3
HI1544	44.33	5	43.13	4	36.30	5	30.10	6	38.47	5
MACS 6222	44.93	3	38.30	5	41.80	2	31.73	3	39.19	4
WR 544	41.10	6	33.93	6	27.47	6	32.53	2	33.76	6
Mean	45.21		41.71		37.44		31.64		39.00	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.00		3.62		8.85			
Variety (B)	**		0.63		1.81		6.90			
B within A	**		1.55		4.44					
A within B			1.67		4.79					
Earheads/sqm										
HS 562	423	4	476	2	449	5	428	5	444	3
HD 2967	425	3	394	6	447	6	444	3	428	5
HD 3086	423	5	434	4	453	4	464	1	444	4
HI1544	484	2	493	1	473	1	438	4	472	1
MACS 6222	372	6	396	5	456	3	446	2	418	6
WR 544	500	1	464	3	459	2	391	6	453	2
Mean	438		443		456		435		443	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		11.92		43.33		9.32			
Variety (B)	*		6.98		19.96		6.69			
B within A	**		17.11		48.90					
A within B			19.01		54.35					
Grains/Earhead										
HS 562	25.33	4	26.78	4	25.60	2	22.80	4	25.13	3
HD 2967	29.98	2	32.00	1	26.38	1	20.75	6	27.28	1
HD 3086	26.69	3	28.02	2	22.69	4	22.88	3	25.07	4
HI1544	22.39	5	23.83	5	20.97	5	22.89	2	22.52	5
MACS 6222	33.53	1	26.93	3	23.77	3	21.85	5	26.52	2
WR 544	19.52	6	18.98	6	16.52	6	23.12	1	19.54	6
Mean	26.24		26.09		22.66		22.38		24.34	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		1.15		4.18		16.36			
Variety (B)	**		0.64		1.84		11.22			
B within A	**		1.58		4.51					
A within B			1.78		5.10					
1000 Grains Weight, g										
HS 562	44.80	1	34.87	6	34.73	6	32.20	4	36.65	2
HD 2967	38.50	5	34.93	5	36.07	4	34.57	2	36.02	5
HD 3086	39.83	4	38.87	1	35.77	5	31.33	5	36.45	3
HI1544	41.13	3	36.77	3	36.80	2	30.60	6	36.33	4
MACS 6222	36.13	6	35.97	4	38.60	1	33.03	3	35.93	6
WR 544	42.63	2	38.77	2	36.47	3	36.03	1	38.48	1
Mean	40.51		36.69		36.41		32.96		36.64	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.87		3.15		8.18			
Variety (B)	*		0.55		1.57		6.35			
B within A	**		1.34		3.84					
A within B			1.45		4.14					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			18.04.2018		18.04.2018		26.04.2018		28.04.2018	

Table 6.23.1. North Eastern Plains Zone **SPL-9** **Burdwan** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	38.54	4	44.26	6	37.77	5	22.87	6	35.86	6
HD 2967	46.23	1	49.26	5	26.74	6	23.40	5	36.41	5
HD 3086	42.71	2	57.15	3	39.10	4	23.45	4	40.60	3
HI1544	42.46	3	62.38	1	43.91	1	26.41	3	43.79	1
MACS 6222	35.77	5	62.15	2	42.64	3	31.76	2	43.08	2
WR 544	31.92	6	54.26	4	42.75	2	32.22	1	40.29	4
Mean	39.60		54.91		38.82		26.69		40.01	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.63		2.28		5.42			
Variety (B)	NS		0.54		1.54		5.73			
B within A	**		1.32		3.78					
A within B			1.31		3.73					
Earheads/sqm										
HS 562	250	4	280	6	308	2	237	6	269	6
HD 2967	283	2	305	5	255	6	265	4	277	5
HD 3086	282	3	342	3	288	5	278	2	298	2
HI1544	300	1	357	1	320	1	268	3	311	1
MACS 6222	235	5	353	2	292	4	245	5	281	4
WR 544	235	5	320	4	305	3	293	1	288	3
Mean	264		326		295		264		287	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		3.78		13.75		4.56			
Variety (B)	**		3.83		10.96		5.66			
B within A	**		9.39		26.84					
A within B			8.97		25.63					
Grains/Earhead										
HS 562	39.19	2	41.28	6	35.17	5	33.93	2	37.40	2
HD 2967	41.35	1	41.60	3	28.99	6	27.28	5	34.80	6
HD 3086	37.35	3	42.50	2	35.99	4	24.12	6	34.99	5
HI1544	34.65	5	41.50	5	36.38	3	30.07	4	35.65	4
MACS 6222	37.20	4	44.11	1	38.01	1	36.55	1	38.97	1
WR 544	34.11	6	41.55	4	37.10	2	31.19	3	35.99	3
Mean	37.31		42.09		35.27		30.52		36.30	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.46		1.67		4.38			
Variety (B)	**		0.31		0.88		3.62			
B within A	**		0.76		2.17					
A within B			0.80		2.29					
1000 Grains Weight, g										
HS 562	39.41	6	38.36	6	34.86	6	28.50	6	35.28	6
HD 2967	39.50	5	38.85	5	36.18	5	32.41	5	36.74	5
HD 3086	40.68	3	39.37	4	37.66	4	34.91	3	38.16	4
HI1544	40.87	2	42.16	1	37.74	3	32.68	4	38.36	3
MACS 6222	40.98	1	39.87	3	38.43	1	35.53	1	38.70	1
WR 544	39.79	4	40.84	2	37.82	2	35.26	2	38.43	2
Mean	40.21		39.91		37.12		33.22		37.61	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.19		0.68		1.72			
Variety (B)	**		0.27		0.76		2.99			
B within A	**		0.65		1.86					
Table 2.1.10. North Western P			0.59		1.69					
Date of Sowing:			06.11.2017		24.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			15.3.2018		23.3.2018		29.3.2018		11.4.2018	

Table 6.23.2. North Eastern Plains Zone SPL-9 Coochbehar 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	28.03	3	39.43	2	21.33	3	11.83	3	25.16	3
HD 2967	29.83	1	51.70	1	28.40	1	15.87	2	31.45	1
HD 3086	19.47	5	24.70	5	19.30	5	9.80	6	18.32	5
HI1544	22.13	4	27.23	4	21.30	4	10.30	5	20.24	4
MACS 6222	28.77	2	34.20	3	25.23	2	17.30	1	26.38	2
WR 544	12.83	6	17.63	6	13.20	6	11.53	4	13.80	6
Mean	23.51		32.48		21.46		12.77		22.56	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.45		1.63		6.88			
Variety (B)	**		0.51		1.45		9.57			
B within A	**		1.25		3.56					
A within B			1.17		3.34					
Earheads/sqm										
HS 562	205	1	278	2	205	2	164	3	213	2
HD 2967	198	2	279	1	207	1	184	2	217	1
HD 3086	131	5	163	5	156	5	163	4	153	4
HI1544	151	4	175	4	159	4	124	5	153	5
MACS 6222	190	3	211	3	183	3	190	1	193	3
WR 544	120	6	155	6	133	6	116	6	131	6
Mean	166		210		174		157		177	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		3.24		11.77		6.35			
Variety (B)	**		2.69		7.67		6.45			
B within A	**		6.58		18.80					
A within B			6.55		18.73					
Grains/Earhead										
HS 562	44.59	1	44.91	1	35.02	4	25.88	5	37.60	1
HD 2967	36.09	2	44.86	2	39.01	1	28.32	2	37.07	2
HD 3086	35.42	4	36.92	5	35.69	3	19.45	6	31.87	6
HI1544	34.99	5	37.89	4	34.77	5	28.18	3	33.96	4
MACS 6222	35.53	3	38.10	3	38.89	2	28.00	4	35.13	3
WR 544	31.49	6	33.60	6	29.90	6	34.81	1	32.45	5
Mean	36.35		39.38		35.55		27.44		34.68	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		1.04		3.77		10.36			
Variety (B)	NS		0.91		2.61		11.17			
B within A	**		2.24		6.39					
A within B			2.20		6.28					
1000 Grains Weight, g										
HS 562	30.71	6	31.60	6	29.71	6	28.23	6	30.06	6
HD 2967	42.23	2	41.27	3	35.22	3	30.77	3	37.37	4
HD 3086	41.89	4	41.80	2	34.93	4	30.87	2	37.37	3
HI1544	42.07	3	41.15	4	38.65	1	29.47	4	37.83	2
MACS 6222	42.63	1	42.60	1	35.50	2	32.67	1	38.35	1
WR 544	33.90	5	34.02	5	33.31	5	28.66	5	32.47	5
Mean	38.91		38.74		34.55		30.11		35.58	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.21		0.77		2.07			
Variety (B)	*		0.19		0.55		2.30			
B within A	**		0.47		1.35					
A within B			0.46		1.32					
Date of Sowing: Mean			1.11.2017		29.11.2017		15.12.2017		05.01.2018	

Table 6.23.3. North Eastern Plains Zone SPL-9 Faizabad 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	52.17	2	52.08	2	38.92	6	22.67	5	41.46	5
HD 2967	52.83	1	52.33	1	40.42	5	21.58	6	41.79	4
HD 3086	50.67	3	49.83	5	44.75	2	23.67	4	42.23	2
HI1544	50.50	4	51.67	3	45.33	1	25.42	1	43.23	1
MACS 6222	49.67	5	50.75	4	43.25	3	25.00	2	42.17	3
WR 544	40.00	6	40.33	6	42.50	4	24.83	3	36.92	6
Mean	49.31		49.50		42.53		23.86		41.30	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.42		1.51		3.49			
Variety (B)	**		0.46		1.32		4.76			
B within A	**		1.14		3.25					
A within B			1.07		3.05					
Earheads/sqm										
HS 562	391	2	427	2	337	6	265	4	355	4
HD 2967	410	1	437	1	353	5	250	6	363	3
HD 3086	376	4	400	5	361	4	261	5	349	5
HI1544	370	5	416	3	589	1	290	1	416	1
MACS 6222	389	3	411	4	382	2	276	2	364	2
WR 544	355	6	386	6	377	3	270	3	347	6
Mean	382		413		400		269		366	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		20.21		73.49		19.14			
Variety (B)	NS		16.59		47.43		19.25			
B within A	*		40.65		116.17					
A within B			40.59		116.01					
Grains/Earhead										
HS 562	32.40	3	31.52	2	35.73	1	28.09	1	31.94	1
HD 2967	28.84	5	28.17	4	34.35	2	26.44	5	29.45	4
HD 3086	34.17	2	33.63	1	32.12	3	27.06	4	31.74	2
HI1544	35.60	1	27.77	5	22.91	6	27.16	3	28.36	5
MACS 6222	31.35	4	31.30	3	29.76	4	27.28	2	29.92	3
WR 544	28.16	6	26.02	6	28.26	5	23.79	6	26.56	6
Mean	31.76		29.73		30.52		26.64		29.66	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.77		2.81		9.01			
Variety (B)	**		0.72		2.05		10.25			
B within A	*		1.76		5.02					
A within B			1.71		4.87					
1000 Grains Weight, g										
HS 562	41.27	2	38.87	5	32.40	6	30.50	6	35.76	6
HD 2967	44.73	1	42.60	2	33.40	5	32.80	4	38.38	3
HD 3086	39.60	5	37.13	6	38.63	3	33.63	2	37.25	5
HI1544	38.37	6	44.70	1	40.33	1	32.47	5	38.97	2
MACS 6222	40.80	3	39.53	4	38.13	4	33.40	3	37.97	4
WR 544	40.20	4	40.30	3	40.03	2	38.60	1	39.78	1
Mean	40.83		40.52		37.16		33.57		38.02	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.53		1.92		4.80			
Variety (B)	**		0.58		1.65		6.43			
B within A	**		1.41		4.03					
A within B			1.33		3.80					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			15.04.2018		22.04.2018		30.04.2018		05.05.2018	

Table 6.23.4. North Eastern Plains Zone SPL-9 Kalyani 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	32.66	6	33.79	5	35.83	2	24.47	5	31.69	6
HD 2967	40.83	1	38.66	3	35.18	3	27.50	2	35.54	1
HD 3086	38.86	2	42.66	1	32.55	5	22.81	6	34.22	3
HI1544	37.60	3	35.64	4	32.33	6	25.75	4	32.83	4
MACS 6222	36.45	4	39.92	2	38.43	1	26.27	3	35.27	2
WR 544	33.71	5	29.78	6	33.07	4	32.19	1	32.19	5
Mean	36.69		36.74		34.56		26.50		33.62	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.75		2.73		7.74			
Variety (B)	NS		0.87		2.48		10.93			
B within A	**		2.12		6.06					
A within B			1.99		5.67					
Earheads/sqm										
HS 562	204	6	285	3	249	3	189	4	232	5
HD 2967	276	1	283	4	243	4	225	2	257	2
HD 3086	266	2	297	1	232	5	175	6	243	4
HI1544	258	4	252	6	222	6	186	5	229	6
MACS 6222	261	3	271	5	252	2	224	3	252	3
WR 544	251	5	296	2	277	1	234	1	265	1
Mean	253		281		246		206		246	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		8.32		30.26		11.71			
Variety (B)	NS		6.12		17.49		10.55			
B within A	**		14.99		42.83					
A within B			15.42		44.06					
Grains/Earhead										
HS 562	43.40	1	30.21	5	45.11	1	38.44	4	39.29	2
HD 2967	38.16	4	34.60	3	42.33	2	33.76	6	37.21	5
HD 3086	39.65	2	38.79	1	39.88	3	39.26	3	39.40	1
HI1544	38.16	5	34.56	4	36.88	5	44.58	1	38.54	4
MACS 6222	39.58	3	37.46	2	38.02	4	40.08	2	38.78	3
WR 544	35.10	6	27.35	6	31.85	6	38.30	5	33.15	6
Mean	39.01		33.83		39.01		39.07		37.73	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		1.87		6.79		17.15			
Variety (B)	NS		1.79		5.12		20.15			
B within A	NS		4.39		12.55					
A within B			4.24		12.11					
1000 Grains Weight, g										
HS 562	36.87	6	39.50	4	32.48	6	33.78	3	35.66	6
HD 2967	39.11	2	40.39	2	34.73	5	37.12	1	37.84	1
HD 3086	37.54	4	37.40	5	35.47	4	33.52	4	35.98	5
HI1544	38.52	3	41.06	1	39.74	2	31.29	5	37.65	3
MACS 6222	37.50	5	39.94	3	41.12	1	30.06	6	37.16	4
WR 544	40.14	1	37.14	6	37.67	3	36.20	2	37.79	2
Mean	38.28		39.24		36.87		33.66		37.01	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.87		3.16		8.13			
Variety (B)	NS		0.89		2.55		10.24			
B within A	NS		2.19		6.26					
A within B			2.09		5.96					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			08.03.2018		22.03.2018		31.03.2018		15.04.2018	

Table 6.23.5. North Eastern Plains Zone SPL-9 Kanpur 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	39.79	2	36.79	1	32.70	3	23.20	5	33.12	2
HD 2967	39.17	3	35.70	2	30.10	6	22.80	6	31.94	5
HD 3086	38.30	4	34.70	5	32.28	4	23.70	4	32.25	4
HI1544	37.56	5	35.20	3	34.72	1	24.10	2	32.90	3
MACS 6222	46.00	1	32.80	6	34.23	2	23.80	3	34.21	1
WR 544	35.20	6	35.20	3	31.70	5	25.10	1	31.80	6
Mean	39.34		35.07		32.62		23.78		32.70	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.59		2.15		6.27			
Variety (B)	**		0.57		1.63		7.41			
B within A	**		1.40		4.00					
A within B			1.35		3.85					
Earheads/sqm										
HS 562	389	3	378	1	361	4	359	4	372	3
HD 2967	381	5	376	2	359	5	356	6	368	6
HD 3086	385	4	374	4	359	5	360	3	370	5
HI1544	399	2	375	3	371	1	363	2	377	1
MACS 6222	405	1	370	6	369	2	358	5	376	2
WR 544	379	6	372	5	363	3	367	1	370	4
Mean	390		374		364		361		372	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		1.47		5.36		1.37			
Variety (B)	**		1.64		4.69		1.87			
B within A	**		4.02		11.49					
A within B			3.78		10.81					
Grains/Earhead										
HS 562	23.73	3	23.53	3	23.57	3	18.39	3	22.30	2
HD 2967	24.35	2	23.41	4	21.97	6	17.60	6	21.83	6
HD 3086	23.24	4	23.86	2	23.02	4	18.22	5	22.08	4
HI1544	22.09	6	23.36	5	23.87	1	18.35	4	21.92	5
MACS 6222	26.32	1	23.05	6	23.83	2	18.46	2	22.91	1
WR 544	22.22	5	24.18	1	23.00	5	18.96	1	22.09	3
Mean	23.66		23.56		23.21		18.33		22.19	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.47		1.71		7.32			
Variety (B)	*		0.44		1.25		8.35			
B within A	*		1.07		3.06					
A within B			1.04		2.97					
1000 Grains Weight, g										
HS 562	43.10	2	41.40	1	38.40	4	35.20	6	39.53	2
HD 2967	42.20	5	40.60	2	38.20	6	36.40	1	39.35	3
HD 3086	42.80	3	38.90	5	39.10	2	36.20	3	39.25	4
HI1544	42.60	4	40.20	3	39.20	1	36.20	2	39.55	1
MACS 6222	43.20	1	38.50	6	39.00	3	36.00	5	39.18	5
WR 544	41.80	6	39.20	4	38.40	4	36.07	4	38.87	6
Mean	42.62		39.80		38.72		36.01		39.29	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.46		1.67		4.05			
Variety (B)	NS		0.30		0.85		3.20			
B within A	NS		0.73		2.08					
A within B			0.78		2.23					
Date of Sowing:			10.11.2017		27.11.2017		12.12.2017		08.01.2018	
Date of harvesting:			17.04.2018		20.04.2018		22.04.2018		24.04.2018	

Table 6.23.6. North Eastern Plains Zone SPL-9 Ranchi 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	54.00	1	49.07	2	33.80	4	23.53	5	40.10	3
HD 2967	50.80	4	46.73	4	34.63	3	26.77	3	39.73	4
HD 3086	46.00	6	42.37	5	31.83	6	18.40	6	34.65	6
HI1544	51.83	2	49.80	1	33.27	5	28.10	2	40.75	2
MACS 6222	50.97	3	48.47	3	37.13	2	29.13	1	41.43	1
WR 544	46.17	5	40.90	6	37.50	1	25.67	4	37.56	5
Mean	49.96		46.22		34.69		25.27		39.04	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		1.42		5.17		12.62			
Variety (B)	**		0.72		2.05		7.80			
B within A	**		1.76		5.02					
A within B			2.08		5.95					
Earheads/sqm										
HS 562	398	2	408	1	318	5	245	4	342	2
HD 2967	383	4	393	2	320	4	230	5	332	5
HD 3086	388	3	368	4	348	2	248	3	338	3
HI1544	353	5	370	3	328	3	295	1	337	4
MACS 6222	348	6	353	5	310	6	210	6	305	6
WR 544	427	1	343	6	370	1	260	2	350	1
Mean	383		373		333		248		334	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		15.03		54.64		15.58			
Variety (B)	*		11.25		32.15		14.29			
B within A	NS		27.56		78.76					
A within B			28.20		80.60					
Grains/Earhead										
HS 562	35.21	1	31.93	3	27.93	3	26.44	4	30.38	3
HD 2967	33.61	4	30.19	4	28.53	2	32.28	2	31.15	2
HD 3086	26.63	6	29.53	5	23.59	6	20.63	6	25.09	6
HI1544	35.19	2	32.51	2	24.71	5	25.77	5	29.55	4
MACS 6222	33.75	3	34.32	1	29.74	1	38.67	1	34.12	1
WR 544	27.09	5	29.35	6	26.54	4	27.25	3	27.56	5
Mean	31.91		31.31		26.84		28.51		29.64	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		1.48		5.38		17.29			
Variety (B)	NS		1.20		3.42		17.14			
B within A	*		2.93		8.38					
A within B			2.94		8.40					
1000 Grains Weight, g										
HS 562	41.47	5	38.63	6	38.57	6	36.63	3	38.83	6
HD 2967	40.57	6	39.47	4	39.40	4	36.13	5	38.89	5
HD 3086	44.73	1	39.03	5	40.70	3	36.47	4	40.23	3
HI1544	41.73	3	41.47	1	41.07	2	37.33	1	40.40	2
MACS 6222	44.73	1	40.00	3	41.07	1	36.07	6	40.47	1
WR 544	41.73	3	40.80	2	38.73	5	37.07	2	39.58	4
Mean	42.49		39.90		39.92		36.62		39.73	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.63		2.28		5.46			
Variety (B)	NS		0.43		1.22		4.54			
B within A	**		1.04		2.98					
A within B			1.10		3.14					
Date of Sowing:			10.11.2017		30.11.2017		20.12.2017		10.01.2018	
Date of harvesting:			06.04.2018		10.04.2018		20.04.2018		25.04.2018	

Table 6.23.7. North Eastern Plains Zone SPL-9 RAU PUSA 2017-18

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	46.82	4	44.87	4	42.22	4	38.25	4	43.04	4
HD 2967	51.87	1	49.48	1	47.35	1	45.56	1	48.57	1
HD 3086	48.54	3	47.05	3	44.63	3	41.54	2	45.44	3
HI1544	42.44	5	40.32	5	37.18	5	34.29	5	38.56	5
MACS 6222	41.32	6	39.65	6	35.58	6	31.89	6	37.11	6
WR 544	49.68	2	47.18	2	44.85	2	40.75	3	45.62	2
Mean	46.78		44.76		41.97		38.71		43.05	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.39		1.41		3.11			
Variety (B)	**		0.53		1.51		5.22			
B within A	**		1.30		3.71					
A within B			1.19		3.40					
Earheads/sqm										
HS 562	271	4	258	4	248	4	232	4	252	4
HD 2967	285	1	271	1	262	1	245	1	266	1
HD 3086	275	3	264	3	254	3	239	2	258	3
HI1544	265	5	253	5	243	5	226	5	247	5
MACS 6222	262	6	250	6	236	6	219	6	242	6
WR 544	278	2	266	2	256	2	237	3	259	2
Mean	273		260		250		233		254	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.69		2.51		0.94			
Variety (B)	**		0.75		2.14		1.25			
B within A	**		1.84		5.25					
A within B			1.73		4.96					
Grains/Earhead										
HS 562	40.83	4	43.39	2	42.42	4	42.05	4	42.17	4
HD 2967	41.57	1	42.86	3	43.28	1	45.88	1	43.40	1
HD 3086	41.38	3	43.77	1	43.12	2	43.88	2	43.04	2
HI1544	38.61	6	40.07	6	38.62	6	39.30	5	39.15	6
MACS 6222	39.24	5	40.44	5	39.22	5	38.87	6	39.44	5
WR 544	41.56	2	42.29	4	42.68	3	42.83	3	42.34	3
Mean	40.53		42.13		41.56		42.13		41.59	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		0.47		1.70		3.89			
Variety (B)	NS		0.64		1.84		6.58			
B within A	*		1.58		4.51					
A within B			1.45		4.13					
1000 Grains Weight, g										
HS 562	42.32	4	40.08	4	40.22	4	39.21	4	40.46	4
HD 2967	43.78	1	42.69	1	41.75	1	40.65	1	42.22	1
HD 3086	42.69	3	40.72	3	40.82	3	39.76	3	41.00	3
HI1544	41.49	5	39.89	5	39.69	5	38.59	5	39.92	5
MACS 6222	40.21	6	39.26	6	38.43	6	37.54	6	38.86	6
WR 544	43.05	2	41.98	2	41.13	2	40.12	2	41.57	2
Mean	42.26		40.77		40.34		39.31		40.67	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.30		1.10		2.59			
Variety (B)	NS		0.45		1.28		4.66			
B within A	NS		1.09		3.13					
A within B			0.99		2.84					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			24.03.2018		05.04.2018		11.04.2018		09.04.2018	

Table 6.23.8. North Eastern Plains Zone SPL-9 Sabour 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	45.93	4	44.90	2	43.13	2	36.07	3	42.51	4
HD 2967	47.27	2	44.23	3	41.83	6	37.07	2	42.60	3
HD 3086	48.27	1	45.90	1	42.43	5	35.40	5	43.00	2
HI1544	43.57	6	43.90	5	43.13	2	36.07	3	41.67	5
MACS 6222	45.90	5	43.53	6	42.50	4	33.70	6	41.41	6
WR 544	46.63	3	44.20	4	43.57	1	38.73	1	43.28	1
Mean	46.26		44.44		42.77		36.17		42.41	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		1.52		5.51		12.38			
Variety (B)	*		0.48		1.37		4.80			
B within A	**		1.18		3.36					
A within B			1.83		5.22					
Earheads/sqm										
HS 562	252	3	245	2	229	6	223	3	237	4
HD 2967	255	2	241	4	233	5	225	2	239	3
HD 3086	257	1	247	1	235	4	219	5	240	2
HI1544	248	6	239	5	238	2	221	4	236	5
MACS 6222	250	4	237	6	237	3	217	6	235	6
WR 544	250	4	243	3	240	1	227	1	240	1
Mean	252		242		235		222		238	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		1.81		6.57		2.63			
Variety (B)	**		0.79		2.26		1.41			
B within A	**		1.94		5.54					
A within B			2.47		7.05					
Grains/Earhead										
HS 562	43.33	4	43.56	5	47.86	1	41.83	4	44.15	1
HD 2967	42.99	5	43.65	4	43.75	6	42.23	2	43.15	4
HD 3086	43.66	2	44.17	1	44.06	4	41.80	5	43.42	3
HI1544	41.77	6	43.72	2	44.14	3	41.85	3	42.87	6
MACS 6222	43.64	3	43.66	3	43.78	5	40.84	6	42.98	5
WR 544	43.68	1	43.21	6	45.30	2	43.80	1	44.00	2
Mean	43.18		43.66		44.81		42.06		43.43	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		0.77		2.81		6.17			
Variety (B)	NS		0.46		1.31		4.49			
B within A	NS		1.12		3.21					
A within B			1.24		3.56					
1000 Grains Weight, g										
HS 562	42.00	4	42.00	1	39.33	6	38.67	4	40.50	6
HD 2967	43.00	1	42.00	1	41.00	1	39.00	1	41.25	1
HD 3086	43.00	1	42.00	1	41.00	1	38.67	4	41.17	2
HI1544	42.00	4	42.00	1	41.00	1	39.00	1	41.00	3
MACS 6222	42.00	4	42.00	1	41.00	1	38.00	6	40.75	5
WR 544	42.67	3	42.00	1	40.00	5	39.00	1	40.92	4
Mean	42.44		42.00		40.56		38.72		40.93	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.50		1.82		4.23			
Variety (B)	NS		0.26		0.73		2.65			
B within A	NS		0.63		1.79					
A within B			0.74		2.11					
Date of Sowing:			05.11.2017		25.11.2017		14.12.2017		05.01.2018	
Date of harvesting:			02.04.2018		17.04.2018		21.04.2018		23.04.2018	

Table 6.23.9. North Eastern Plains Zone SPL-9 Shillongani 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	35.54	3	31.68	3	26.62	5	25.85	5	29.92	3
HD 2967	36.12	2	32.89	1	31.81	1	25.65	6	31.62	2
HD 3086	39.62	1	30.22	4	29.64	2	27.28	1	31.69	1
HI1544	35.00	4	27.52	6	27.11	4	26.33	3	28.99	5
MACS 6222	32.41	5	32.33	2	25.89	6	25.94	4	29.14	4
WR 544	28.13	6	29.85	5	29.51	3	26.40	2	28.47	6
Mean	34.47		30.75		28.43		26.24		29.97	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.82		2.99		9.51			
Variety (B)	NS		0.45		1.27		6.31			
B within A	**		1.09		3.12					
A within B			1.25		3.58					
Earheads/sqm										
HS 562	180	3	170	5	176	2	177	2	176	3
HD 2967	192	1	194	1	174	3	169	4	182	2
HD 3086	169	5	157	6	145	6	174	3	161	6
HI1544	176	4	182	4	178	1	203	1	185	1
MACS 6222	185	2	192	2	155	5	163	6	173	4
WR 544	148	6	184	3	167	4	165	5	166	5
Mean	175		180		166		175		174	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		6.20		22.54		12.35			
Variety (B)	NS		4.42		12.64		10.79			
B within A	*		10.83		30.96					
A within B			11.24		32.14					
Grains/Earhead										
HS 562	45.27	3	44.20	1	38.90	4	38.27	1	41.66	1
HD 2967	37.40	6	35.38	4	43.29	1	36.77	2	38.21	4
HD 3086	48.87	1	41.07	2	41.06	2	34.32	4	41.33	2
HI1544	46.13	2	33.50	5	33.40	6	33.01	5	36.51	5
MACS 6222	42.13	4	37.52	3	40.25	3	34.68	3	38.64	3
WR 544	39.32	5	33.08	6	36.52	5	29.89	6	34.70	6
Mean	43.19		37.46		38.90		34.49		38.51	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		1.27		4.63		11.45			
Variety (B)	**		1.02		2.92		11.26			
B within A	NS		2.50		7.15					
A within B			2.51		7.18					
1000 Grains Weight, g										
HS 562	44.27	5	42.47	6	39.90	6	39.17	6	41.45	6
HD 2967	51.13	1	48.10	2	42.93	4	41.60	4	45.94	3
HD 3086	48.50	2	47.00	3	49.70	1	46.67	2	47.97	2
HI1544	44.07	6	45.40	4	46.67	3	39.40	5	43.88	5
MACS 6222	44.90	4	45.33	5	41.63	5	46.60	3	44.62	4
WR 544	48.47	3	49.77	1	48.83	2	54.30	1	50.34	1
Mean	46.89		46.34		44.94		44.62		45.70	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	NS		2.06		7.51		15.65			
Variety (B)	NS		1.43		4.08		13.26			
B within A	NS		3.50		10.00					
A within B			3.67		10.48					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			15.04.2018		22.04.2018		30.04.2018		05.05.2018	

Table 6.23.10. North Eastern Plains Zone SPL-9 Varanasi 2017-18

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	42.76	5	42.83	5	42.72	2	28.66	4	39.24	4
HD 2967	45.53	4	50.32	2	39.37	6	29.57	3	41.20	3
HD 3086	46.78	3	46.57	3	39.91	5	22.16	6	38.85	5
HI1544	48.67	1	45.90	4	42.53	3	28.03	5	41.28	2
MACS 6222	47.18	2	55.87	1	45.53	1	32.59	2	45.29	1
WR 544	35.64	6	39.46	6	41.00	4	35.19	1	37.82	6
Mean	44.43		46.82		41.84		29.37		40.61	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.27		0.99		2.32			
Variety (B)	**		0.24		0.70		2.55			
B within A	**		0.60		1.71					
A within B			0.59		1.67					
Earheads/sqm										
HS 562	306	5	392	2	396	3	371	1	366	1
HD 2967	312	4	393	1	343	5	305	4	339	3
HD 3086	314	3	391	3	321	6	244	6	318	6
HI1544	317	1	353	4	413	1	325	3	352	2
MACS 6222	316	2	320	6	404	2	254	5	323	5
WR 544	264	6	339	5	390	4	346	2	335	4
Mean	305		364		378		308		339	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		6.96		25.32		7.12			
Variety (B)	*		5.55		15.86		6.95			
B within A	**		13.59		38.85					
A within B			13.68		39.09					
Grains/Earhead										
HS 562	38.73	1	34.06	3	36.25	1	27.69	5	34.18	3
HD 2967	36.73	2	33.89	4	35.38	2	31.13	2	34.28	2
HD 3086	36.54	3	31.65	5	35.00	3	28.03	4	32.81	4
HI1544	36.46	4	35.77	2	30.97	5	26.26	6	32.36	5
MACS 6222	35.29	5	44.54	1	32.38	4	37.53	1	37.44	1
WR 544	31.58	6	30.27	6	27.56	6	29.52	3	29.73	6
Mean	35.89		35.03		32.92		30.03		33.47	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.60		2.19		6.22			
Variety (B)	**		0.62		1.77		7.85			
B within A	**		1.52		4.33					
A within B			1.44		4.13					
1000 Grains Weight, g										
HS 562	36.25	6	32.15	6	30.05	6	27.95	6	31.60	6
HD 2967	39.75	5	37.84	3	32.47	5	31.15	5	35.30	5
HD 3086	40.93	4	37.83	4	35.52	2	32.39	4	36.67	3
HI1544	42.67	2	36.59	5	33.39	4	32.87	3	36.38	4
MACS 6222	42.39	3	39.32	1	35.34	3	34.33	2	37.85	2
WR 544	42.75	1	38.50	2	38.22	1	34.59	1	38.51	1
Mean	40.79		37.04		34.16		32.21		36.05	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.32		1.17		3.10			
Variety (B)	**		0.32		0.92		3.79			
B within A	**		0.79		2.25					
A within B			0.76		2.16					
Date of Sowing:			06.11.2017		27.11.2017		16.12.2017		05.01.2018	
Date of harvesting:			08.04.2018		12.04.2018		14.04.2018		16.04.2018	

Table 6.24.1. Central Zone **SPL-9** **Bilaspur** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	49.60	2	44.90	2	37.34	2	28.83	3	40.17	2
HD 2967	46.60	5	39.69	6	33.22	6	22.63	5	35.54	5
HD 3086	47.98	3	43.52	3	36.24	3	29.72	2	39.37	3
HI1544	51.74	1	48.00	1	41.36	1	31.54	1	43.16	1
MACS 6222	47.83	4	42.36	4	35.89	4	26.79	4	38.22	4
WR 544	44.28	6	40.86	5	34.34	5	22.23	6	35.43	6
Mean	48.01		43.22		36.40		26.96		38.65	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.35		1.27		3.13			
Variety (B)	**		0.31		0.88		3.39			
B within A	**		0.76		2.16					
A within B			0.74		2.12					
Earheads/sqm										
HS 562	401	2	324	2	294	4	236	3	314	2
HD 2967	332	5	286	6	275	5	219	5	278	5
HD 3086	353	3	317	3	302	3	258	2	308	3
HI1544	457	1	423	1	335	1	268	1	371	1
MACS 6222	340	4	291	5	314	2	230	4	294	4
WR 544	327	6	304	4	254	6	208	6	273	6
Mean	368		324		296		237		306	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		2.84		10.32		3.21			
Variety (B)	**		2.45		6.99		3.39			
B within A	**		5.99		17.13					
A within B			5.91		16.91					
Grains/Earhead										
HS 562	26.48	5	32.13	4	31.64	3	34.62	1	31.22	4
HD 2967	30.28	3	34.34	2	32.45	2	29.60	5	31.67	3
HD 3086	29.33	4	31.75	5	30.32	4	31.82	3	30.80	5
HI1544	23.76	6	25.09	6	29.20	6	30.66	4	27.18	6
MACS 6222	31.03	2	35.01	1	29.90	5	33.14	2	32.27	1
WR 544	31.27	1	32.28	3	35.74	1	29.40	6	32.17	2
Mean	28.69		31.77		31.54		31.54		30.88	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		0.79		2.86		8.82			
Variety (B)	**		0.38		1.09		5.23			
B within A	**		0.93		2.66					
A within B			1.13		3.22					
1000 Grains Weight, g										
HS 562	46.72	2	43.19	3	40.21	2	35.31	4	41.36	3
HD 2967	46.33	4	40.53	6	37.33	6	35.10	6	39.82	6
HD 3086	46.43	3	43.40	2	39.65	3	36.40	3	41.47	2
HI1544	47.61	1	45.35	1	42.53	1	38.59	1	43.52	1
MACS 6222	45.59	5	41.75	4	38.59	4	35.26	5	40.30	4
WR 544	43.31	6	41.69	5	38.12	5	36.42	2	39.89	5
Mean	46.00		42.65		39.41		36.18		41.06	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.73		2.65		6.15			
Variety (B)	**		0.29		0.83		2.99			
B within A	**		0.71		2.02					
A within B			0.95		2.72					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			06.03.2018		20.03.2018		12.04.2018		24.04.2018	

Table 6.24.2. Central Zone **SPL-9** **Gwalior** **2017-18**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
				Yield, q/ha						
HS 562	55.73	5	56.67	5	50.46	5	40.23	4	50.77	4
HD 2967	59.35	1	58.12	3	52.73	4	41.64	3	52.96	3
HD 3086	56.58	4	56.68	4	54.32	3	32.21	6	49.95	5
HI1544	57.91	3	59.42	1	55.13	2	43.91	2	54.09	2
MACS 6222	58.59	2	58.40	2	55.90	1	43.96	1	54.21	1
WR 544	55.06	6	54.73	6	49.03	6	39.17	5	49.50	6
Mean	57.20		57.34		52.93		40.19		51.91	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.44		1.59		2.93			
Variety (B)	**		0.34		0.97		2.76			
B within A	**		0.83		2.36					
A within B			0.84		2.40					
				Earheads/sqm						
HS 562	411	4	414	4	377	5	306	4	377	4
HD 2967	424	1	416	3	399	2	327	1	392	2
HD 3086	402	5	413	5	381	4	284	6	370	5
HI1544	416	3	426	1	395	3	323	3	390	3
MACS 6222	423	2	425	2	405	1	327	1	395	1
WR 544	399	6	411	6	353	6	293	5	364	6
Mean	413		418		385		310		381	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		4.31		15.67		3.92			
Variety (B)	**		2.90		8.30		3.23			
B within A	**		7.11		20.33					
A within B			7.52		21.49					
				Grains/Earhead						
HS 562	39.59	1	44.18	2	42.24	3	44.69	1	42.67	1
HD 2967	34.94	5	44.45	1	40.93	4	41.65	3	40.49	2
HD 3086	37.46	3	37.97	5	44.93	1	37.78	6	39.54	4
HI1544	34.64	6	38.64	4	44.56	2	42.27	2	40.03	3
MACS 6222	37.82	2	40.28	3	40.47	5	39.01	4	39.40	5
WR 544	35.73	4	35.42	6	40.26	6	38.36	5	37.44	6
Mean	36.70		40.16		42.23		40.63		39.93	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.52		1.90		4.52			
Variety (B)	**		0.49		1.40		5.20			
B within A	**		1.20		3.42					
A within B			1.16		3.32					
				1000 Grains Weight, g						
HS 562	34.23	6	31.01	6	31.77	5	29.43	6	31.61	6
HD 2967	40.06	2	31.43	5	32.27	3	30.63	4	33.60	5
HD 3086	37.61	4	36.23	2	31.79	4	30.05	5	33.92	4
HI1544	40.26	1	36.11	3	31.37	6	32.20	3	34.99	2
MACS 6222	36.95	5	34.13	4	34.17	2	34.51	2	34.94	3
WR 544	38.63	3	37.62	1	34.71	1	34.83	1	36.45	1
Mean	37.96		34.42		32.68		31.94		34.25	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.46		1.66		4.63			
Variety (B)	**		0.31		0.89		3.88			
B within A	**		0.77		2.19					
A within B			0.81		2.30					
Date of Sowing:			08.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			29.03.2018		13.04.2018		16.04.2018		18.04.2018	

Table 6.24.3. Central Zone **SPL-9** **Indore** **2017-18**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	50.47	5	53.00	5	47.33	4	29.67	6	45.12	5
HD 2967	54.60	2	54.13	4	51.07	3	30.00	5	47.45	3
HD 3086	51.83	4	54.43	3	46.50	5	31.10	4	45.97	4
HI1544	52.30	3	56.83	1	52.90	1	41.50	1	50.88	1
MACS 6222	55.37	1	56.60	2	52.13	2	35.30	3	49.85	2
WR 544	36.00	6	41.50	6	39.17	6	36.60	2	38.32	6
Mean	50.09		52.75		48.18		34.03		46.26	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.49		5.43		11.18			
Variety (B)	**		0.68		1.95		6.25			
B within A	**		1.67		4.77					
A within B			2.08		5.94					
Earheads/sqm										
HS 562	394	1	357	4	381	1	306	4	360	1
HD 2967	367	3	358	3	353	3	308	3	346	3
HD 3086	384	2	309	6	378	2	290	6	340	4
HI1544	344	4	377	1	348	4	368	1	359	2
MACS 6222	319	5	321	5	308	6	304	5	313	6
WR 544	294	6	360	2	341	5	327	2	330	5
Mean	350		347		351		317		342	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		8.71		31.69		8.84			
Variety (B)	NS		6.15		17.57		7.64			
B within A	**		15.06		43.04					
A within B			15.69		44.83					
Grains/Earhead										
HS 562	29.22	5	40.63	2	33.38	4	37.46	1	35.18	3
HD 2967	33.57	2	37.83	4	37.40	2	33.36	3	35.54	2
HD 3086	29.52	3	41.44	1	31.24	5	31.98	4	33.55	4
HI1544	29.44	4	30.98	5	35.05	3	28.69	5	31.04	5
MACS 6222	35.61	1	38.83	3	38.02	1	33.92	2	36.60	1
WR 544	25.63	6	24.26	6	26.26	6	27.95	6	26.03	6
Mean	30.50		35.66		33.56		32.23		32.99	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		1.30		4.72		13.63			
Variety (B)	**		0.70		2.01		9.03			
B within A	**		1.72		4.92					
A within B			1.98		5.65					
1000 Grains Weight, g										
HS 562	43.90	6	36.63	6	37.77	6	26.03	6	36.08	6
HD 2967	44.53	5	39.97	5	39.20	5	29.27	5	38.24	5
HD 3086	46.00	4	42.67	4	39.50	4	33.47	4	40.41	4
HI1544	51.70	1	48.77	1	43.50	3	39.33	2	45.83	1
MACS 6222	48.63	2	45.70	3	44.53	1	34.23	3	43.28	3
WR 544	48.13	3	47.57	2	43.73	2	40.20	1	44.91	2
Mean	47.15		43.55		41.37		33.76		41.46	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.35		1.26		2.89			
Variety (B)	**		0.24		0.69		2.48			
B within A	**		0.59		1.70					
A within B			0.62		1.77					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			20.03.2018		03.04.2018		15.04.2018		30.04.2018	

Table 6.24.4. Central Zone **SPL-9** **Jabalpur** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	45.23	2	44.37	2	41.74	1	38.40	1	42.44	1
HD 2967	43.89	6	44.30	3	38.42	6	37.61	3	41.05	6
HD 3086	44.00	5	44.16	4	39.69	2	37.88	2	41.43	4
HI1544	45.90	1	43.34	6	38.87	5	36.99	6	41.28	5
MACS 6222	44.95	3	44.13	5	39.43	4	37.61	4	41.53	2
WR 544	44.59	4	44.58	1	39.45	3	37.42	5	41.51	3
Mean	44.76		44.15		39.60		37.65		41.54	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.61		2.20		5.05			
Variety (B)	**		0.22		0.62		2.20			
B within A	*		0.53		1.51					
A within B			0.76		2.17					
Earheads/sqm										
HS 562	289	1	288	1	280	4	276	1	283	1
HD 2967	284	3	282	3	279	5	268	5	278	3
HD 3086	280	6	274	6	284	1	273	3	278	4
HI1544	281	5	282	4	280	3	267	6	277	5
MACS 6222	284	3	282	2	282	2	274	2	280	2
WR 544	285	2	281	5	271	6	272	4	277	5
Mean	284		281		279		272		279	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.39		1.41		0.48			
Variety (B)	**		0.33		0.93		0.50			
B within A	**		0.80		2.29					
A within B			0.79		2.27					
Grains/Earhead										
HS 562	39.74	3	40.73	2	47.09	1	50.72	1	44.57	1
HD 2967	40.00	2	33.49	6	43.44	2	38.63	5	38.89	3
HD 3086	37.08	4	36.34	5	35.81	5	36.45	6	36.42	6
HI1544	36.88	5	36.39	4	29.52	6	45.49	3	37.07	5
MACS 6222	41.85	1	41.05	1	39.25	3	39.89	4	40.51	2
WR 544	33.83	6	37.65	3	37.29	4	45.66	2	38.61	4
Mean	38.23		37.61		38.73		42.81		39.34	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		0.79		2.86		6.93			
Variety (B)	**		0.33		0.93		3.51			
B within A	**		0.80		2.28					
A within B			1.05		2.99					
1000 Grains Weight, g										
HS 562	39.43	4	37.79	6	31.76	6	27.50	6	34.12	6
HD 2967	38.72	5	46.91	1	31.81	5	36.37	2	38.45	4
HD 3086	42.47	3	44.34	2	39.10	2	38.10	1	41.00	2
HI1544	44.38	2	42.33	3	47.07	1	30.47	4	41.06	1
MACS 6222	37.90	6	38.09	5	35.69	4	34.45	3	36.54	5
WR 544	46.26	1	42.14	4	39.01	3	30.19	5	39.40	3
Mean	41.53		41.94		37.41		32.85		38.43	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.40		1.46		3.61			
Variety (B)	**		0.19		0.55		2.13			
B within A	**		0.47		1.35					
A within B			0.57		1.64					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			15.03.2018		30.03.2018		05.04.2018		10.04.2018	

Table 6.24.5. Central Zone **SPL-9** **Junagadh** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	38.40	3	28.57	6	19.29	6	6.57	5	23.21	5
HD 2967	43.17	1	32.16	3	23.27	4	6.77	4	26.34	3
HD 3086	30.99	5	32.79	2	21.36	5	6.24	6	22.84	6
HI1544	39.03	2	31.26	4	26.85	3	11.12	1	27.07	2
MACS 6222	37.58	4	36.16	1	32.65	1	9.74	3	29.03	1
WR 544	25.17	6	29.66	5	31.79	2	10.85	2	24.37	4
Mean	35.72		31.77		25.87		8.55		25.48	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.81		2.95		11.02			
Variety (B)	**		0.48		1.36		7.94			
B within A	**		1.17		3.34					
A within B			1.30		3.70					
Earheads/sqm										
HS 562	291	6	326	2	279	5	365	1	315	1
HD 2967	325	3	305	3	283	2	241	6	289	5
HD 3086	342	2	335	1	282	3	271	4	308	3
HI1544	371	1	296	5	268	6	296	3	308	2
MACS 6222	297	5	296	4	280	4	248	5	280	6
WR 544	322	4	295	6	296	1	304	2	304	4
Mean	325		309		281		287		301	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		3.13		11.39		3.61			
Variety (B)	**		2.59		7.41		3.66			
B within A	**		6.35		18.16					
A within B			6.33		18.10					
Grains/Earhead										
HS 562	35.63	2	27.93	3	27.27	5	5.60	6	24.11	3
HD 2967	36.36	1	30.11	1	29.10	3	8.69	4	26.07	2
HD 3086	21.64	5	23.26	6	24.97	6	6.57	5	19.11	6
HI1544	27.21	4	25.00	4	29.08	4	10.47	3	22.94	4
MACS 6222	27.96	3	28.84	2	36.93	1	10.70	2	26.11	1
WR 544	19.94	6	23.59	5	32.03	2	11.30	1	21.71	5
Mean	28.12		26.46		29.90		8.89		23.34	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.50		1.83		7.46			
Variety (B)	**		0.43		1.22		7.79			
B within A	**		1.05		3.00					
A within B			1.04		2.97					
1000 Grains Weight, g										
HS 562	37.03	5	31.40	6	25.37	6	32.13	5	31.48	6
HD 2967	36.50	6	34.97	5	28.23	5	32.27	4	32.99	5
HD 3086	41.80	2	42.10	4	30.33	4	35.07	3	37.33	3
HI1544	38.67	4	42.33	3	34.47	1	35.87	2	37.83	2
MACS 6222	45.23	1	42.43	2	31.50	3	36.80	1	38.99	1
WR 544	39.30	3	42.53	1	33.60	2	31.60	6	36.76	4
Mean	39.76		39.29		30.58		33.96		35.90	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.39		1.41		3.75			
Variety (B)	NS		0.21		0.60		2.47			
B within A	**		0.51		1.46					
A within B			0.59		1.69					
Date of Sowing:			06.11.2017		24.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			01.03.2018		09.03.2018		17.03.2018		31.03.2018	

Table 6.24.6. Central Zone **SPL-9** **Udaipur** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	48.28	4	45.32	5	30.77	4	24.00	4	37.09	4
HD 2967	53.11	2	48.96	2	35.39	2	24.89	2	40.59	2
HD 3086	48.31	3	45.39	4	32.64	3	24.17	3	37.63	3
HI1544	53.55	1	50.66	1	38.73	1	25.50	1	42.11	1
MACS 6222	47.60	5	47.16	3	29.41	5	23.49	5	36.92	5
WR 544	42.67	6	41.48	6	28.83	6	22.64	6	33.91	6
Mean	48.92		46.50		32.63		24.12		38.04	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.36		1.33		3.32			
Variety (B)	*		0.56		1.61		6.28			
B within A	**		1.38		3.94					
A within B			1.25		3.57					
Earheads/sqm										
HS 562	462	6	475	4	367	2	313	1	404	2
HD 2967	502	1	483	2	350	5	263	5	400	3
HD 3086	493	3	503	1	357	4	265	4	405	1
HI1544	487	4	462	6	373	1	252	6	393	6
MACS 6222	487	4	468	5	360	3	268	3	396	4
WR 544	495	2	480	3	325	6	278	2	395	5
Mean	488		479		355		273		399	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		7.13		25.92		6.19			
Variety (B)	NS		4.71		13.47		5.02			
B within A	**		11.55		33.00					
A within B			12.28		35.10					
Grains/Earhead										
HS 562	23.59	3	22.11	4	20.99	5	20.27	6	21.74	5
HD 2967	24.46	2	23.24	3	25.51	2	25.13	2	24.58	2
HD 3086	22.13	4	20.50	5	22.74	3	23.75	3	22.28	3
HI1544	24.58	1	24.95	1	26.13	1	26.32	1	25.50	1
MACS 6222	21.37	5	23.52	2	20.83	6	23.23	4	22.24	4
WR 544	19.64	6	20.11	6	22.03	4	21.73	5	20.87	6
Mean	22.63		22.41		23.04		23.40		22.87	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		0.55		2.00		8.32			
Variety (B)	**		0.35		0.99		6.42			
B within A	**		0.85		2.42					
A within B			0.92		2.62					
1000 Grains Weight, g										
HS 562	44.37	3	43.21	4	40.00	3	37.80	5	41.34	4
HD 2967	43.33	6	43.60	3	39.72	5	38.03	4	41.17	6
HD 3086	44.35	4	44.00	1	40.30	2	38.50	2	41.79	2
HI1544	44.87	2	44.00	1	39.83	4	38.67	1	41.84	1
MACS 6222	45.67	1	42.84	6	39.32	6	38.05	3	41.47	3
WR 544	43.90	5	43.01	5	40.33	1	37.67	6	41.23	5
Mean	44.41		43.44		39.92		38.12		41.47	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.34		1.22		2.81			
Variety (B)	NS		0.27		0.78		2.80			
B within A	NS		0.67		1.92					
A within B			0.67		1.92					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			25.03.2018		01.04.2018		07.04.2018		14.04.2018	

Table 6.24.7. Central Zone **SPL-9** **Vijapur** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	34.95	3	25.57	5	15.33	4	11.08	4	21.73	2
HD 2967	36.48	2	21.95	6	12.38	6	13.60	3	21.10	4
HD 3086	25.19	5	26.57	3	15.24	5	8.03	5	18.76	6
HI1544	25.24	4	26.95	2	17.05	3	7.55	6	19.20	5
MACS 6222	38.86	1	26.33	4	29.29	1	14.35	2	27.21	1
WR 544	17.62	6	32.38	1	19.62	2	16.55	1	21.54	3
Mean	29.72		26.63		18.15		11.86		21.59	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.43		5.21		23.00			
Variety (B)	**		1.08		3.08		21.16			
B within A	**		2.64		7.54					
A within B			2.70		7.71					
Earheads/sqm										
HS 562	316	1	349	1	343	1	206	1	303	1
HD 2967	299	2	273	4	283	6	162	2	254	4
HD 3086	273	4	290	3	311	2	156	3	258	2
HI1544	280	3	309	2	303	3	127	6	255	3
MACS 6222	251	5	235	6	286	5	151	4	231	6
WR 544	247	6	251	5	298	4	142	5	234	5
Mean	278		285		304		157		256	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		13.57		49.33		18.37			
Variety (B)	**		5.64		16.13		9.36			
B within A	**		13.82		39.50					
A within B			18.09		51.71					
Grains/Earhead										
HS 562	26.02	3	24.77	5	14.79	5	18.61	4	21.05	4
HD 2967	29.39	2	27.15	3	15.04	4	29.50	2	25.27	3
HD 3086	19.39	4	25.86	4	15.14	3	17.63	5	19.50	5
HI1544	16.89	5	18.74	6	13.73	6	14.74	6	16.03	6
MACS 6222	30.64	1	31.25	2	25.85	1	25.61	3	28.34	1
WR 544	14.63	6	33.49	1	20.47	2	36.55	1	26.28	2
Mean	22.83		26.88		17.50		23.77		22.75	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		1.23		4.49		18.80			
Variety (B)	*		1.49		4.25		27.75			
B within A	**		3.64		10.41					
A within B			3.39		9.68					
1000 Grains Weight, g										
HS 562	43.07	5	30.27	5	29.80	5	30.17	4	33.33	5
HD 2967	41.63	6	30.20	6	28.27	6	29.03	6	32.28	6
HD 3086	48.13	4	35.73	4	31.27	4	29.97	5	36.28	4
HI1544	54.63	1	46.70	1	40.97	1	39.67	1	45.49	1
MACS 6222	50.50	2	35.80	3	40.13	2	37.67	2	41.03	2
WR 544	49.00	3	39.47	2	33.13	3	32.43	3	38.51	3
Mean	47.83		36.36		33.93		33.16		37.82	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		1.28		4.67		11.76			
Variety (B)	*		0.98		2.79		10.94			
B within A	**		2.39		6.83					
A within B			2.44		6.96					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			21.03.2018		21.03.2018		21.03.2018		27.03.2018	

Table 6.25.1. Peninsular Zone **SPL-9** **Dharwad** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	41.60	3	35.50	4	30.67	3	20.47	4	32.06	4
HD 2967	43.64	1	37.53	2	33.59	1	23.92	2	34.67	1
HD 3086	36.43	6	32.61	6	23.65	6	16.59	6	27.32	6
HI1544	40.70	4	36.48	3	30.38	4	21.56	3	32.28	3
MACS 6222	42.70	2	38.29	1	32.60	2	24.57	1	34.54	2
WR 544	38.86	5	34.69	5	25.61	5	18.57	5	29.44	5
Mean	40.65		35.85		29.42		20.95		31.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.31		1.12		3.35			
Variety (B)	**		0.69		1.98		9.28			
B within A	**		1.70		4.86					
A within B			1.50		4.30					
Earheads/sqm										
HS 562	248	3	234	4	216	4	212	5	227	4
HD 2967	252	1	238	2	224	1	219	2	233	2
HD 3086	240	6	231	6	216	4	212	5	225	6
HI1544	247	4	235	3	218	3	214	3	228	3
MACS 6222	250	2	242	1	222	2	220	1	234	1
WR 544	244	5	234	4	215	6	214	3	227	5
Mean	247		236		219		215		229	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.50		5.47		2.28			
Variety (B)	NS		1.35		3.86		2.50			
B within A	*		3.31		9.46					
A within B			3.24		9.25					
Grains/Earhead										
HS 562	40.05	3	37.75	4	39.03	1	29.69	3	36.63	3
HD 2967	40.95	1	38.67	2	38.66	2	30.99	2	37.32	2
HD 3086	37.32	6	34.98	6	29.83	6	24.76	6	31.72	6
HI1544	39.64	4	38.14	3	36.10	4	29.18	4	35.77	4
MACS 6222	40.77	2	38.89	1	38.04	3	31.56	1	37.32	1
WR 544	39.52	5	36.54	5	32.64	5	28.05	5	34.19	5
Mean	39.71		37.50		35.72		29.04		35.49	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.30		1.08		2.90			
Variety (B)	NS		0.70		2.01		8.39			
B within A	**		1.72		4.91					
A within B			1.52		4.34					
1000 Grains Weight, g										
HS 562	41.89	3	40.21	6	36.46	6	32.89	4	37.86	4
HD 2967	42.32	1	40.79	1	38.76	1	35.44	2	39.33	1
HD 3086	40.61	5	40.31	5	36.68	4	31.35	5	37.24	5
HI1544	41.56	4	40.72	2	38.58	3	34.70	3	38.89	3
MACS 6222	41.90	2	40.63	4	38.59	2	35.48	1	39.15	2
WR 544	40.42	6	40.70	3	36.53	5	30.97	6	37.15	6
Mean	41.45		40.56		37.60		33.47		38.27	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.16		0.60		1.49			
Variety (B)	NS		0.55		1.58		6.12			
B within A	NS		1.35		3.87					
A within B			1.18		3.38					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			02.03.2018		12.03.2018		30.03.2018		03.04.2018	

Table 6.25.2. Peninsular Zone **SPL-9** **Niphad** **2017-18**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	44.39	4	42.37	3	37.15	2	25.20	5	37.28	5
HD 2967	45.05	3	41.77	4	37.08	3	26.07	4	37.49	4
HD 3086	46.73	2	40.53	6	36.68	5	29.10	2	38.26	3
HI1544	44.37	5	43.10	2	39.74	1	28.50	3	38.93	2
MACS 6222	47.67	1	46.07	1	36.69	4	30.57	1	40.25	1
WR 544	44.03	6	41.73	5	35.44	6	23.83	6	36.26	6
Mean	45.37		42.59		37.13		27.21		38.08	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.85		3.10		7.75			
Variety (B)	**		0.58		1.65		6.42			
B within A	**		1.41		4.03					
A within B			1.49		4.26					
Earheads/sqm										
HS 562	409	3	390	6	395	4	391	4	396	4
HD 2967	414	2	398	3	390	5	394	3	399	2
HD 3086	416	1	407	1	409	2	413	1	411	1
HI1544	350	6	396	5	406	3	376	6	382	6
MACS 6222	384	5	397	4	388	6	403	2	393	5
WR 544	390	4	399	2	411	1	389	5	397	3
Mean	394		398		400		394		396	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		3.41		12.40		2.98			
Variety (B)	*		3.12		8.93		3.34			
B within A	**		7.65		21.87					
A within B			7.45		21.30					
Grains/Earhead										
HS 562	25.30	5	25.84	2	24.10	3	16.92	5	23.04	4
HD 2967	24.82	6	25.27	3	23.52	4	16.98	4	22.65	5
HD 3086	27.29	3	22.95	6	23.45	5	18.56	3	23.06	3
HI1544	28.99	1	24.63	4	24.65	1	20.28	2	24.64	2
MACS 6222	27.90	2	26.52	1	24.54	2	20.97	1	24.98	1
WR 544	26.79	4	24.37	5	20.46	6	16.00	6	21.90	6
Mean	26.85		24.93		23.45		18.28		23.38	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.60		2.18		8.88			
Variety (B)	NS		0.41		1.18		7.51			
B within A	**		1.01		2.90					
A within B			1.06		3.04					
1000 Grains Weight, g										
HS 562	42.89	4	42.10	5	39.11	4	38.12	3	40.56	5
HD 2967	43.82	3	41.54	6	40.47	2	39.02	1	41.21	3
HD 3086	41.22	6	43.44	3	38.27	6	38.00	4	40.23	6
HI1544	43.88	2	44.20	1	39.70	3	37.21	5	41.25	2
MACS 6222	44.47	1	43.82	2	38.57	5	36.35	6	40.80	4
WR 544	42.14	5	42.96	4	42.19	1	38.35	2	41.41	1
Mean	43.07		43.01		39.72		37.84		40.91	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.22		0.82		1.90			
Variety (B)	**		0.13		0.38		1.39			
B within A	**		0.33		0.94					
A within B			0.36		1.04					
Date of Sowing:			06.11.2017		25.11.2017		16.12.2017		05.01.2018	
Date of harvesting:			16.03.2018		30.03.2018		10.04.2018		20.04.2018	

Table 6.25.3. Peninsular Zone **SPL-9** **Pune** **2017-18**

Variety	Sowing time 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
				Yield, q/ha						
HS 562	54.23	1	41.66	6	30.78	5	22.97	4	37.41	3
HD 2967	50.77	3	44.75	3	32.59	4	20.52	6	37.16	4
HD 3086	45.73	5	43.50	4	28.64	6	21.09	5	34.74	6
HI1544	52.01	2	49.96	1	38.05	1	29.61	1	42.41	1
MACS 6222	49.91	4	43.42	5	33.79	3	24.82	3	37.99	2
WR 544	34.73	6	46.51	2	36.10	2	27.75	2	36.27	5
Mean	47.90		44.97		33.33		24.46		37.66	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.21		4.40		11.13			
Variety (B)	**		0.80		2.28		8.99			
B within A	**		1.95		5.59					
A within B			2.08		5.95					
				Earheads/sqm						
HS 562	388	4	377	2	373	2	372	3	378	2
HD 2967	343	5	333	6	338	5	348	4	341	5
HD 3086	342	6	343	4	370	3	378	2	358	4
HI1544	430	1	407	1	438	1	403	1	420	1
MACS 6222	407	3	372	3	360	4	347	5	371	3
WR 544	413	2	335	5	280	6	317	6	336	6
Mean	387		361		360		361		367	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	NS		9.57		34.81		9.03			
Variety (B)	NS		8.50		24.30		9.82			
B within A	**		20.82		59.51					
A within B			20.42		58.35					
				Grains/Earhead						
HS 562	31.82	3	30.64	5	26.31	5	19.05	4	26.96	3
HD 2967	34.90	1	41.97	1	28.90	2	17.10	5	30.72	1
HD 3086	32.49	2	36.18	2	23.23	6	15.15	6	26.76	4
HI1544	26.52	5	31.31	4	27.61	3	20.55	2	26.50	5
MACS 6222	27.91	4	27.75	6	27.24	4	19.35	3	25.56	6
WR 544	20.66	6	32.49	3	39.81	1	26.07	1	29.76	2
Mean	29.05		33.39		28.85		19.54		27.71	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		1.17		4.27		14.69			
Variety (B)	*		0.85		2.44		13.08			
B within A	**		2.09		5.98					
A within B			2.16		6.17					
				1000 Grains Weight, g						
HS 562	44.00	3	36.33	4	31.33	5	32.33	6	36.00	5
HD 2967	42.67	4	32.00	6	33.33	3	34.33	4	35.58	6
HD 3086	41.33	6	35.33	5	33.33	3	37.00	1	36.75	4
HI1544	46.00	1	39.33	3	31.33	5	35.67	3	38.08	3
MACS 6222	44.33	2	42.00	2	34.33	1	37.00	1	39.42	1
WR 544	41.67	5	43.00	1	34.33	1	33.67	5	38.17	2
Mean	43.33		38.00		33.00		35.00		37.33	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.35		1.27		3.25			
Variety (B)	NS		0.43		1.24		4.94			
B within A	**		1.07		3.04					
A within B			0.99		2.82					
Date of Sowing:			05.11.2017		25.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			05.03.2018		16.03.2018		29.04.2018		15.04.2018	

Table 6.25.4. Peninsular Zone **SPL-9** **Akola** **2017-18**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	33.98	3	28.72	3	19.33	3	7.80	5	22.46	4
HD 2967	35.93	2	24.03	6	13.32	6	13.50	3	21.70	5
HD 3086	27.50	5	27.48	5	18.80	4	5.08	6	19.72	6
HI1544	30.75	4	34.45	1	21.65	1	15.17	1	25.50	1
MACS 6222	36.22	1	28.68	4	18.47	5	8.97	4	23.08	2
WR 544	26.13	6	28.98	2	20.05	2	14.98	2	22.54	3
Mean	31.75		28.73		18.60		10.92		22.50	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.72		6.24		26.41			
Variety (B)	NS		1.41		4.03		26.58			
B within A	NS		3.45		9.87					
A within B			3.45		9.85					
Earheads/sqm										
HS 562	230	4	224	4	204	4	152	4	203	5
HD 2967	245	1	234	2	184	6	187	3	212	2
HD 3086	238	2	239	1	210	3	124	6	203	4
HI1544	224	5	207	5	197	5	193	2	205	3
MACS 6222	203	6	189	6	232	1	145	5	192	6
WR 544	235	3	230	3	213	2	198	1	219	1
Mean	229		220		207		166		206	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.47		5.34		2.47			
Variety (B)	**		0.77		2.19		1.58			
B within A	**		1.88		5.36					
A within B			2.19		6.26					
Grains/Earhead										
HS 562	33.96	2	30.16	5	29.95	2	15.58	5	27.41	4
HD 2967	33.09	4	25.35	6	21.98	6	21.66	2	25.52	5
HD 3086	27.66	5	33.26	4	26.11	4	12.04	6	24.77	6
HI1544	33.90	3	36.57	1	31.30	1	21.13	3	30.73	1
MACS 6222	44.13	1	36.30	3	23.47	5	17.31	4	30.30	2
WR 544	25.54	6	36.34	2	28.92	3	25.05	1	28.96	3
Mean	33.05		33.00		26.96		18.80		27.95	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		2.22		8.08		7.76			
Variety (B)	NS		1.96		5.59		7.40			
B within A	NS		4.79		13.69					
A within B			4.71		13.46					
1000 Grains Weight, g										
HS 562	43.47	3	42.72	2	31.27	6	32.47	5	37.48	4
HD 2967	44.29	1	40.47	4	32.47	4	32.72	4	37.49	3
HD 3086	41.72	4	34.67	5	34.42	2	35.02	2	36.45	5
HI1544	40.22	6	45.62	1	35.42	1	37.07	1	39.58	1
MACS 6222	40.52	5	42.07	3	33.77	3	34.52	3	37.72	2
WR 544	43.67	2	34.62	6	32.42	5	30.32	6	35.25	6
Mean	42.31		40.03		33.29		33.68		37.33	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)										
Variety (B)										
B within A										
A within B										
Date of Sowing:			05.11.2017		26.11.2017		15.12.2017		05.01.2018	
Date of harvesting:			20.03.2018		23.03.2018		30.03.2018		02.04.2018	

Table 6.26.1. Northern Hills Zone SPL-10 Almora 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	268	7	48.10	7	12.97	7	16.73	7	35	7
RDF	387	5	49.50	5	25.44	1	48.72	5	116	5
150% RDF	450	2	50.67	2	24.70	3	56.25	2	128	3
150% PK	288	6	49.43	6	14.68	6	20.96	6	48	6
150% NK	438	4	49.67	4	24.86	2	54.29	4	127	4
150% NP	448	3	49.80	3	24.68	4	55.18	3	128	2
NE	477	1	51.16	1	23.11	5	56.34	1	130	1
CD(0.05)	47.24		3.48		2.65		8.72		18.68	
CV(%)	6.74		3.93		6.93		11.12		10.35	
Date of Sowing: 07.11.2017					Date of Harvesting:		14.05.2018			
Nutrient expert- N: P_2O_5:K_2O	170:61:81									

Table 6.26.2. Northern Hills Zone SPL-10 Bajaura 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	278	7	38.84	7	15.48	6	16.66	7	45	6
RDF	354	5	45.02	5	27.60	4	43.45	4	109	4
150% RDF	363	4	47.88	1	29.75	2	51.73	1	117	3
150% PK	302	6	40.38	6	14.08	7	17.24	6	45	7
150% NK	371	1	46.22	3	25.29	5	43.09	5	105	5
150% NP	369	2	45.72	4	30.29	1	50.23	2	120	1
NE	367	3	46.23	2	28.74	3	48.70	3	118	2
CD(0.05)	54.21		5.47		5.38		5.29		12.14	
CV(%)	8.88		6.93		12.36		7.67		7.26	
Date of Sowing: 08.11.2017					Date of Harvesting:		20.05.2018			
Nutrient expert- N: P_2O_5:K_2O	140:60:68									

Table 6.26.3. Northern Hills Zone SPL-10 Malan 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	208	7	41.13	7	16.02	7	13.74	7	35	7
RDF	275	3	42.59	2	29.56	4	34.53	3	95	3
150% RDF	285	1	43.51	1	32.65	1	40.34	1	112	1
150% PK	226	6	42.11	4	16.93	6	16.11	6	43	6
150% NK	263	4	42.05	6	29.59	3	32.73	4	89	4
150% NP	260	5	42.40	3	28.48	5	31.35	5	77	5
Nutrient Expert	279	2	42.07	5	30.21	2	35.37	2	98	2
CD(0.05)	30.45		1.54		2.44		2.83		9.85	
CV(%)	6.67		2.05		5.23		5.45		7.06	
Date of Sowing: 14.11.2017					Date of Harvesting:		10.05.2018			
Nutrient expert- N: P_2O_5:K_2O	140:45:68									

Table 6.27.1. North Western Plains Zone SPL-10 Hisar 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	283	7	40.00	1	32.13	7	36.37	7	99	7
RDF	438	3	37.22	3	36.93	3	60.15	2	147	3
150% RDF	442	2	34.65	5	39.46	1	60.24	1	151	1
150% PK	303	6	39.78	2	35.77	5	43.13	6	115	6
150% NK	428	5	33.63	7	37.67	2	54.23	4	143	4
150% NP	443	1	33.78	6	34.92	6	52.11	5	140	5
Nutrient Expert	435	4	36.84	4	36.48	4	58.42	3	149	2
CD(0.05)	34.39		2.07		3.76		4.80		11.41	
CV(%)	4.88		3.18		5.83		5.18		4.76	
Date of Sowing: 10.11.2017					Date of Harvesting:		17.04.2018			
Nutrient expert- N: P_2O_5:K_2O	200:71:75									

Table 6.27.2. North Western Plains Zone SPL-10 Karnal 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	243	7	39.43	1	17.51	6	16.78	6	45	6
RDF	444	5	38.01	3	34.69	1	58.51	2	141	5
150% RDF	474	1	36.14	4	34.32	2	58.76	1	146	3
150% PK	253	6	39.07	2	16.38	7	16.15	7	44	7
150% NK	467	3	35.81	6	33.24	4	55.32	4	147	2
150% NP	472	2	36.03	5	32.62	5	55.30	5	142	4
Nutrient Expert	467	3	35.47	7	33.86	3	56.04	3	148	1
CD(0.05)	33.61		1.15		2.97		2.89		6.07	
CV(%)	4.69		1.74		5.77		3.59		2.94	

Date of Sowing: 21.11.2017 Date of Harvesting: 20.04.2018

Nutrient expert- N: P_2O_5:K_2O 200:86:95

Table 6.27.3. North Western Plains Zone SPL-10 Ludhiana 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	182	7	34.92	7	25.80	6	16.00	7	41	7
RDF	270	5	37.26	5	39.17	1	38.00	5	92	5
150% RDF	313	1	38.94	1	35.06	5	42.67	1	104	1
150% PK	203	6	36.60	6	24.72	7	18.33	6	47	6
150% NK	297	2	37.95	2	37.51	4	42.17	3	93	3
150% NP	293	3	37.92	3	38.18	2	42.33	2	104	2
Nutrient Expert	272	4	37.41	4	37.97	3	38.50	4	92	4
CD(0.05)	38.15		4.08		10.97		5.62		8.68	
CV(%)	8.20		6.15		18.10		9.29		5.96	

Date of Sowing: 22.11.2017 Date of Harvesting: 24.04.2018

Nutrient expert- N: P_2O_5:K_2O 170:68:80

Table 6.27.4. North Western Plains Zone SPL-10 Pantnagar 2017-18

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute Control	239	7	38.83	7	34.61	1	31.93	7	78	7
RDF	415	4	40.47	4	28.03	3	46.57	2	133	3
150% RDF	419	3	42.87	1	27.37	4	48.87	1	138	1
150% PK	294	6	40.87	3	31.84	2	36.40	6	79	6
150% NK	404	5	39.43	6	27.12	5	43.23	4	135	2
150% NP	434	1	41.43	2	22.31	7	40.03	5	117	5
Nutrient Expert	424	2	39.73	5	26.97	6	45.30	3	121	4
CD(0.05)	62.07		3.46		6.17		6.21		13.67	
CV(%)	9.29		4.80		12.25		8.36		6.70	

Date of Sowing: 24.11.2017 Date of Harvesting: 24.04.2018

Nutrient expert- N: P_2O_5:K_2O 115:50:59

ANNEXURE -II

METEOROLOGICAL INFORMATION: 2017-2018

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
NORTHERN HILLS ZONE								
ALMORA	**Latitude 29^{0}36' N**		**Longitude 79^{0}40' E**		**Height above MSL 1250 m**			
40 (01-07 Oct)	30.2	17.6	90.7	62.6	0.0	3.1		7.2
41 (08-14 Oct)	30.4	13.0	79.7	53.0	0.0	3.1		7.8
42 (15-21 Oct)	29.6	8.2	76.1	56.4	0.0	2.9		9.2
43 (22-28 Oct)	26.7	5.5	59.9	40.4	0.0	2.7		8.6
44 (29-04 Nov)	25.6	5.7	68.4	36.6	0.0	2.4		7.6
45 (05-11 Nov)	26.2	4.9	66.9	30.6	0.0	2.5		8.5
46 (12-18 Nov)	24.6	3.9	71.3	29.4	0.0	2.3		8.3
47 (19-25 Nov)	23.2	0.9	76.6	27.3	0.0	1.9		8.0
48 (26-02 Dec)	23.6	0.4	72.4	29.0	0.0	1.9		7.6
49 (03-09 Dec)	21.2	5.3	82.0	51.7	0.0	1.5		4.4
50 (10-16 Dec)	22.6	2.7	81.6	33.1	4.5	1.8		7.0
51 (17-23 Dec)	24.3	-0.6	71.3	28.3	0.0	2.0		8.3
52 (24-31 Dec)	22.3	-1.1	82.9	31.0	0.0	1.9		8.1
1 (01-07 Jan)	19.6	-3.4	87.7	42.6	0.0	1.8		7.3
2 (08-14 Jan)	22.6	-2.9	97.6	32.1	0.0	2.0		7.1
3 (15-21 Jan)	23.1	-2.9	80.9	32.3	0.0	2.0		8.0
4 (22-28 Jan)	19.6	0.4	94.3	37.1	14.5	1.7		7.0
5 (29-04 Feb)	22.0	-0.2	77.6	31.6	0.0	2.2		8.4
6 (05-11 Feb)	21.0	2.4	77.4	44.0	0.0	1.7		6.5
7 (12-18 Feb)	21.5	2.5	87.4	41.9	0.0	1.9		6.5
8 (19-25 Feb)	23.7	5.0	81.1	31.4	5.0	2.4		8.2
9 (26-04 Mar)	25.7	6.0	80.2	32.9	2.5	2.6		7.8
10 (05-11 Mar)	25.8	4.1	75.4	28.3	0.0	2.7		8.5
11 (12-18 Mar)	25.6	5.5	67.8	24.1	2.0	2.5		7.8
12 (19-25 Mar)	26.4	5.4	64.5	30.9	4.0	2.6		7.2
13 (26-01 Apr)	29.2	6.8	64.9	32.9	0.0	3.4		8.8
14 (02-08 Apr)	26.7	10.9	66.9	43.4	16.3	3.0		5.8
15 (09-15 Apr)	24.9	10.6	85.4	50.6	33.0	2.3		4.8
16 (16-22 Apr)	29.3	9.4	63.3	32.7	5.0	3.3		8.2
17 (23-29 Apr)	30.7	9.6	57.3	30.7	22.0	3.7		8.9
18 (30-06 May)	28.8	11.6	64.9	45.5	13.0	3.7		8.0
19 (7-13 May)	28.9	11.3	74.4	47.9	6.3	3.3		7.6
20 (14-20 May)	31.1	12.8	5.6	44.1	0.0	4.7		9.6
21 (21-27 May)	35.0	12.9	51.3	36.0	0.0	5.0		7.7

BAJAURA	**Latitude 31^{0}48' N**		**Longitude 77^{0}00' E**		**Height above MSL 1090 m**			
44 (29-04 Nov)	25.4	4.9	92.0	36.0	0.0			
45 (05-11 Nov)	25.8	4.3	91.0	35.0	0.0			
46 (12-18 Nov)	22.3	4.5	89.0	53.0	1.2			
47 (19-25 Nov)	20.0	-0.3	93.0	33.0	10.2			
48 (26-02 Dec)	23.1	-0.5	93.0	58.0	0.0			
49 (03-09 Dec)	21.7	0.1	92.0	61.0	0.0			
50 (10-16 Dec)	16.3	3.2	87.0	67.0	28.6			
51 (17-23 Dec)	21.5	-0.6	91.0	39.0	0.0			
52 (24-31 Dec)	18.9	-1.4	92.0	34.0	0.0			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
1 (01-07 Jan)	18.6	-1.9	90.0	28.0	0.0			
2 (08-14 Jan)	18.1	-2.7	92.0	27.0	0.0			
3 (15-21 Jan)	21.6	-2.8	93.0	20.0	0.0			
4 (22-28 Jan)	18.1	-1.4	96.0	35.0	14.0			
5 (29-04 Feb)	22.1	0.5	92.0	24.0	0.0			
6 (05-11 Feb)	20.3	1.7	87.0	23.0	0.0			
7 (12-18 Feb)	17.6	3.1	88.0	47.0	28.2			
8 (19-25 Feb)	22.8	4.4	86.0	38.0	13.6			
9 (26-04 Mar)	23.1	6.4	87.0	35.0	15.4			
10 (05-11 Mar)	23.8	3.0	85.0	26.0	7.0			
11 (12-18 Mar)	25.5	4.8	88.0	29.0	8.8			
12 (19-25 Mar)	24.5	6.4	85.0	41.0	11.6			
13 (26-01 Apr)	29.7	6.7	90.0	27.0	0.0			
14 (02-08 Apr)	28.7	9.9	88.0	35.0	18.0			
15 (09-15 Apr)	25.2	9.1	89.0	43.0	31.2			
16 (16-22 Apr)	25.7	7.2	88.0	42.0	28.6			
17 (23-29 Apr)	30.7	9.5	89.0	32.0	-			
18 (30-06 May)	30.6	11.4	89.0	48.0	8.2			
19 (7-13 May)	27.1	12.3	92.0	48.0	11.8			

KHUDWANI	Latitude 34^0 N			Longitude 74^0 E			Height above MSL 1590 m	
40 (01-07 Oct)	28.7	6.4	84.7	32.6	0.0	4.0	1.1	8.1
41 (08-14 Oct)	26.7	4.7	74.6	39.6	0.0	2.8	0.8	7.4
42 (15-21 Oct)	24.9	2.6	71.0	44.9	0.0	2.4	0.5	6.7
43 (22-28 Oct)	23.3	1.6	73.7	51.1	0.0	2.7	0.4	7.4
44 (29-04 Nov)	22.6	1.0	84.9	52.0	0.0	2.0	0.1	6.0
45 (05-11 Nov)	21.1	0.1	80.9	53.4	0.0	1.5	0.1	3.9
46 (12-18 Nov)	13.4	-0.1	84.1	64.3	0.9	1.1	0.7	1.8
47 (19-25 Nov)	11.6	-2.4	87.9	62.0	1.3	0.5	0.3	2.4
48 (26-02 Dec)	13.9	-2.5	84.4	57.6	0.0	0.7	0.1	1.6
49 (03-09 Dec)	14.3	-4.3	86.1	49.6	0.0	0.6	0.0	4.5
50 (10-16 Dec)	6.6	-1.0	92.6	81.0	6.2	0.4	0.3	1.3
51 (17-23 Dec)	8.1	-1.4	87.1	75.9	6.7	0.5	0.1	1.8
52 (24-31 Dec)	10.4	-3.7	89.4	69.3	0.0	0.4	0.1	2.8
1 (01-07 Jan)	9.2	-4.9	92.6	59.6	1.0	0.3	0.1	4.0
2 (08-14 Jan)	10.5	-5.8	90.7	49.3	0.0	0.2	0.0	3.7
3 (15-21 Jan)	12.1	-5.0	93.4	51.1	0.0	0.3	0.3	4.7
4 (22-28 Jan)	11.7	-5.7	94.3	40.7	0.0	0.3	0.2	5.1
5 (29-04 Feb)	11.9	-1.3	93.0	48.9	0.9	0.6	0.3	2.8
6 (05-11 Feb)	14.4	-3.7	88.6	31.3	0.0	0.8	0.6	5.8
7 (12-18 Feb)	7.6	-0.5	89.1	73.0	32.3	0.6	0.7	1.7
8 (19-25 Feb)	12.8	0.5	88.7	42.3	14.3	0.7	0.7	3.2
9 (26-04 Mar)	13.3	3.7	89.1	65.9	21.8	0.5	0.8	1.1
10 (05-11 Mar)	17.6	0.8	87.0	40.0	0.0	1.0	1.2	6.4
11 (12-18 Mar)	15.7	3.1	80.3	55.1	20.6	1.7	1.5	4.3
12 (19-25 Mar)	20.2	3.8	64.1	39.3	0.0	2.3	1.4	5.8
13 (26-01 Apr)	25.4	5.0	56.9	18.9	0.0	3.1	1.2	8.8
14 (02-08 Apr)	22.9	7.7	78.3	43.3	4.0	2.9	1.4	4.7
15 (09-15 Apr)	18.1	7.3	85.3	57.4	75.3	1.9	0.9	5.4
16 (16-22 Apr)	16.3	6.4	83.9	66.3	81.0	2.0	1.5	3.5
17 (23-29 Apr)	26.3	6.4	66.0	45.4	0.0	3.3	1.1	10.0
18 (30-06 May)	23.8	8.9	75.1	54.4	2.8	3.6	0.9	6.3
19 (7-13 May)	23.0	8.6	74.6	60.1	38.8	3.3	1.0	6.0
20 (14-20 May)	21.7	9.7	77.3	63.3	9.2	3.1	1.4	5.4
21 (21-27 May)	28.1	8.0	60.1	37.1	0.0	4.2	1.0	10.4

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
MALAN	**Latitude 32^{0}1' N**		**Longitude 76^{0}2' E**			**Height above MSL 950 m**		
40 (01-07 Oct)	30.1	14.4	70.4	68.4				
41 (08-14 Oct)	29.8	11.5	74.1	72.0				
42 (15-21 Oct)	30.2	11.9	66.9	63.0				
43 (22-28 Oct)	30.7	11.9	68.8	64.9				
44 (29-04 Nov)	28.8	11.3	65.4	62.4				
45 (05-11 Nov)	29.7	10.7	64.1	61.6				
46 (12-18 Nov)	28.4	9.5	64.1	61.0				
47 (19-25 Nov)	29.3	9.1	63.6	60.4				
48 (26-02 Dec)	23.3	7.8	72.0	65.4				
49 (03-09 Dec)	23.3	6.8	74.9	73.7	65.3			
50 (10-16 Dec)	26.3	7.9	72.0	70.4				
51 (17-23 Dec)	27.3	8.1	71.9	66.3				
52 (24-31 Dec)	25.8	9.8	74.5	72.0				
1 (01-07 Jan)	25.2	5.9	69.4	63.6				
2 (08-14 Jan)	21.3	7.6	64.4	62.9				
3 (15-21 Jan)	20.1	9.2	68.4	62.4				
4 (22-28 Jan)	22.3	5.7	69.9	67.4	11.4			
5 (29-04 Feb)	20.0	6.1	67.6	62.6				
6 (05-11 Feb)	21.1	5.3	69.1	66.1				
7 (12-18 Feb)	21.5	5.8	74.3	69.6	18.0			
8 (19-25 Feb)	20.3	8.2	71.6	68.3	2.2			
9 (26-04 Mar)	23.7	9.4	73.0	68.7				
10 (05-11 Mar)	26.5	8.2	72.3	68.7				
11 (12-18 Mar)	27.7	9.0	71.0	66.3	4.0			
12 (19-25 Mar)	27.1	10.1	73.7	70.9	10.4			
13 (26-01 Apr)	28.6	10.3	73.8	68.9				
14 (02-08 Apr)	28.6	11.5	71.9	69.6				
15 (09-15 Apr)	29.2	12.7	75.3	71.1				
16 (16-22 Apr)	29.5	11.1	76.7	71.1	18.2			
17 (23-29 Apr)	31.6	10.7	71.1	66.6	6.3			
18 (30-06 May)	32.9	17.1	75.3	73.0	9.1			
19 (7-13 May)	31.2	13.8	74.3	70.4	14.8			
20 (14-20 May)	33.3	16.0	78.9	73.6	1.5			
21 (21-27 May)	35.9	17.9	73.3	68.6				

NORTH WESTERN PLAINS ZONE

AGRA	**Latitude 27.2^0 N**		**Longitude 77.9^0 E**			**Height above MSL 163.4 m**		
40 (01-07 Oct)	37.7	21.8	84.6	49.0		5.1		
41 (08-14 Oct)	36.5	21.3	79.7	41.3		4.1		
42 (15-21 Oct)	38.3	19.1	83.6	33.4		4.3		
43 (22-28 Oct)	36.5	17.7	80.3	34.1		3.3		
44 (29-04 Nov)	32.0	17.4	89.7	50.9		2.3		
45 (05-11 Nov)	30.4	14.7	95.7	55.6		1.7		
46 (12-18 Nov)	27.8	14.7	90.0	67.6		1.7		
47 (19-25 Nov)	25.9	9.1	80.9	57.1		2.1		
48 (26-02 Dec)	27.7	8.5	86.3	56.7		1.9		
49 (03-09 Dec)	24.3	11.5	95.3	60.9	1.2	1.1		
50 (10-16 Dec)	23.1	10.8	94.7	73.6		1.3		
51 (17-23 Dec)	24.2	7.9	90.9	71.3		1.7		
52 (24-31 Dec)	23.1	7.0	95.4	67.3		1.1		
1 (01-07 Jan)	17.0	6.4		57.6		0.4		
2 (08-14 Jan)	23.0	5.1	87.0	58.1		1.7		
3 (15-21 Jan)	24.5	6.4	86.0	59.4		1.4		
4 (22-28 Jan)	19.8	6.8		68.3		0.6		

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
5 (29-04 Feb)	26.3	6.9	61.6	58.4		1.4		
6 (05-11 Feb)	23.7	8.8	86.6	69.7		2.1		
7 (12-18 Feb)	25.5	11.0	63.3	63.9		2.1		
8 (19-25 Feb)	30.9	14.0	88.0	61.1		2.4		
9 (26-04 Mar)	32.2	14.9	86.3	63.9		3.1		
10 (05-11 Mar)	32.0	13.2	86.9	62.6		3.6		
11 (12-18 Mar)	33.7	15.6	87.7	54.7		4.0		
12 (19-25 Mar)	34.0	16.6	85.0	60.6		4.0		
13 (26-01 Apr)	38.0	18.0	67.1	42.6		5.4		
14 (02-08 Apr)	38.7	23.3	80.7	49.3	26.0	6.1		
15 (09-15 Apr)	35.6	19.9	76.7	48.0	89.0	4.1		
16 (16-22 Apr)	38.7	24.0	65.5	37.0		6.1		
17 (23-29 Apr)	40.4	22.9	75.0	36.4	12.0	7.3		

BIKANER	Latitude 28^{0}4' N		Longitude 73^{0}20' E			Height above MSL 236 m		
40 (01-07 Oct)	39.4	21.0	53.4	20.4		7.1	4.8	9.9
41 (08-14 Oct)	39.8	19.9	51.6	16.7		6.3	3.7	9.6
42 (15-21 Oct)	40.2	16.8	44.7	23.4		6.9	3.3	10.3
43 (22-28 Oct)	36.8	16.9	47.1	21.9		5.1	3.4	9.8
44 (29-04 Nov)	35.6	15.4	51.0	20.9		5.4	3.3	9.5
45 (05-11 Nov)	33.4	13.6	78.1	24.0		4.0	2.3	8.4
46 (12-18 Nov)	27.4	12.4	81.0	41.4	1.4	3.3	3.6	2.0
47 (19-25 Nov)	27.2	6.9	68.6	23.4		2.9	2.4	
48 (26-02 Dec)	30.5	9.8	55.7	22.7		3.1	3.0	
49 (03-09 Dec)	27.8	7.9	54.9	26.3		3.4	3.0	
50 (10-16 Dec)	20.5	7.1	81.3	46.1		2.1	4.6	
51 (17-23 Dec)	26.1	4.9	81.4	27.4		2.5	2.2	
52 (24-31 Dec)	26.2	5.3	76.8	27.9		2.2	2.6	
1 (01-07 Jan)	23.6	3.8	82.4	29.0		2.4	2.7	
2 (08-14 Jan)	25.8	5.0	74.1	26.3		2.3	2.8	
3 (15-21 Jan)	26.1	6.0	78.3	29.9		2.6	3.1	
4 (22-28 Jan)	24.4	5.5	81.6	35.4		2.3	3.8	
5 (29-04 Feb)	27.6	7.7	69.7	25.3		3.1	3.6	
6 (05-11 Feb)	26.6	7.9	55.3	20.4		3.3	4.4	
7 (12-18 Feb)	28.1	9.3	82.0	33.1		4.4	5.0	
8 (19-25 Feb)	32.6	13.7	73.9	30.4		4.9	5.1	
9 (26-04 Mar)	32.8	15.4	69.7	28.0	0.6	5.0	4.7	
10 (05-11 Mar)	34.0	14.2	61.3	20.4		5.6	5.1	
11 (12-18 Mar)	35.0	16.9	55.6	17.7	0.8	7.6	6.3	6.8
12 (19-25 Mar)	33.6	16.4	58.6	23.1		6.6	6.3	8.7
13 (26-01 Apr)	40.7	19.5	35.9	12.0		9.7	5.6	9.8
14 (02-08 Apr)	39.9	21.4	46.3	19.9	3.2	7.6	5.4	7.5
15 (09-15 Apr)	38.9	22.2	47.4	21.7		8.9	6.0	8.5
16 (16-22 Apr)	37.6	21.5	44.3	18.7		10.3	6.5	9.0
17 (23-29 Apr)	43.5	21.6	28.4	14.1		12.7	5.2	11.1
18 (30-06 May)	43.7	26.8	37.6	18.9		11.1	6.3	8.7

DELHI	Latitude N28^0 40^4'N		Longitude 70^0 79'E			Height above MSL 228 m		
40 (01-07 Oct)	35.31	19.84	87.14	39.43		5.3	3.60	9.14
41 (08-14 Oct)	34.26	19.39	93.86	44.00		3.9	2.00	7.36
42 (15-21 Oct)	35.25	16.90	89.00	40.50		3.9	2.10	6.80
43 (22-28 Oct)	32.90	14.80	92.00	42.00		3.1	2.10	4.00
44 (29-04 Nov)	29.80	15.10	94.00	55.00		2.8	1.60	1.20
45 (05-11 Nov)	28.60	12.40	95.00	50.00		2.1	1.20	0.10
46 (12-18 Nov)	25.70	12.58	91.75	55.75		1.8	2.50	0.35
47 (19-25 Nov)	24.47	7.40	83.57	47.00		2.4	3.90	5.79

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
48 (26-02 Dec)	26.03	6.07	88.71	39.71		2.6	2.00	5.77
49 (03-09 Dec)	23.91	8.91	82.71	45.29		2.2	2.60	3.34
50 (10-16 Dec)	21.50	7.14	96.57	63.29	1.1	2.0	3.80	3.17
51 (17-23 Dec)	22.56	8.01	88.14	51.00		2.4	4.60	4.94
52 (24-31 Dec)	23.33	4.04	91.75	53.25		2.4	1.90	5.35
1 (01-07 Jan)	18.22	4.37	94.17	64.50		1.5	2.10	1.42
2 (08-14 Jan)	18.27	4.03	94.57	63.14		1.5	3.30	1.70
3 (15-21 Jan)	21.44	3.00	91.29	44.00		2.3	3.70	6.14
4 (22-28 Jan)	19.00	5.49	94.43	59.43		2.7	4.00	4.44
5 (29-04 Feb)	23.70	6.67	89.00	37.86		3.6	4.10	6.76
6 (05-11 Feb)	22.51	4.60	88.71	32.71		2.9	3.30	5.66
7 (12-18 Feb)	22.99	9.16	86.29	51.71		3.1	6.00	5.87
8 (19-25 Feb)	28.36	10.51	88.00	40.29		4.0	2.50	6.33
9 (26-04 Mar)	29.04	12.83	88.86	46.29		4.3	4.40	6.70
10 (05-11 Mar)	29.43	11.56	91.14	34.86		4.5	4.70	8.16
11 (12-18 Mar)	31.87	12.80	84.71	30.00		4.8	4.40	7.70
12 (19-25 Mar)	31.51	14.87	80.43	29.29		6.0	5.10	8.04
13 (26-01 Apr)	34.79	15.47	71.14	26.43		5.9	5.50	9.30
14 (02-08 Apr)	35.86	18.94	65.71	29.86	1.1	6.1	4.37	7.71
15 (09-15 Apr)	36.40	19.10	67.30	27.80	1.0	6.2	4.81	7.90
16 (16-22 Apr)	38.11	21.24	55.42	19.85		6.3	6.44	6.94
17 (23-29 Apr)	38.24	21.40	57.71	25.71	1.0	6.2	6.18	8.65

DURGAPURA	Latitude 26^{0}51' N		Longitude 75^{0}47' E			Height above MSL 390 m		
44(29-04 Nov)	33.2	17.1	50	17		5.0	3.2	8.2
45(05-11 Nov)	31.0	16.0	68	22		3.1	2.2	7.2
46(12-18 Nov)	28.6	16.3	60	32		2.6	4.0	5.5
47(19-25 Nov)	25.3	10.4	54	16		3.1	3.5	6.8
48(26-02 Dec)	28.3	11.0	59	16		3.1	2.2	8.7
49(03-09 Dec)	24.4	11.4	64	30		3.2	2.9	4.5
50(10-16 Dec)	23.8	10.0	65	33	5.4	2.1	3.4	6.6
51(17-23 Dec)	25.0	8.4	62	19		3.0	3.3	7.2
52(24-31 Dec)	24.9	7.9	79	24		2.3	2.0	8.5
1(01-07 Jan)	22.5	6.0	88	24		1.9	2.3	7.9
2(08-14 Jan)	23.8	6.4	80	18		2.4	2.2	9.1
3(15-21 Jan)	26.7	8.1	71	18		3.9	3.3	8.9
4(22-28 Jan)	23.9	8.0	84	29	1.4	3.9	4.3	8.2
5(29-04 Feb)	27.5	10.9	61	19		4.1	3.8	8.8
6(05-11 Feb)	24.6	9.8	50	19		3.6	3.7	6.6
7(12-18 Feb)	25.8	10.0	69	23		4.3	5.3	8.4
8(19-25 Feb)	31.1	14.6	65	22		4.1	3.0	8.7
9(26-04 Mar)	31.9	16.4	63	21		5.6	4.6	8.6
10(05-11 Mar)	31.5	15.4	53	17		6.1	4.7	9.3
11(12-18 Mar)	33.2	16.9	45	13		6.1	4.3	8.9
12(19-25 Mar)	32.2	17.3	53	20		6.7	5.1	8.3
13(26-01 Apr)	37.5	18.2	40	8		8.5	5.4	10.0
14(02-08 Apr)	38.3	23.0	40	15	1.4	8.6	5.0	9.0
15(09-15 Apr)	36.1	23.9	44	24	5.0	7.9	6.1	8.7
16(16-22 Apr)	38.2	25.0	28	12		9.6	6.6	9.0
17(23-29 Apr)	39.6	25.0	27	8		10.8	6.0	11.1

Gurdaspur	Latitude- 32º3'5.85" N			Longitude- 75º25'27.10" E			Height Above MSL - 878 m	
40 (01-07 Oct)	33.5	21.9	88	56		4.9	0.4	5.9
41 (08-14 Oct)	32.9	20.9	84	54		4.8	0.5	5.8
42 (15-21 Oct)	33.0	17.2	81	45		4.3	0.3	8.4
43 (22-28 Oct)	30.5	14.8	80	46		4.4	0.3	5.6

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
44 (29-04 Nov)	27.1	14.7	84	63		4.3	0.4	0.5
45 (05-11 Nov)	27.2	13.8	89	63		4.3	0.1	2.3
46 (12-18 Nov)	23.6	12.0	86	57	2.8	3.3	0.5	1.3
47 (19-25 Nov)	23.9	8.5	82	47		4.2	0.2	6.7
48 (26-02 Dec)	24.0	8.3	84	46		4.3	0.2	5.3
49 (03-09 Dec)	22.7	7.3	87	44		4.3	0.3	6.0
50 (10-16 Dec)	16.7	9.0	93	80	34.6	1.3	0.7	0.8
51 (17-23 Dec)	20.5	8.1	93	70		1.8	0.1	5.0
52 (24-31 Dec)	20.8	7.7	91	61		1.9	0.5	5.0
1 (01-07 Jan)	16.7	5.8	95	69		1.4	0.9	4.1
2 (08-14 Jan)	19.8	4.6	85	55		1.8	0.7	6.4
3 (15-21 Jan)	21.5	4.9	86	60		2.3	0.3	7.0
4 (22-28 Jan)	16.0	5.6	88	75	24.5	1.9	0.3	3.1
5 (29-04 Feb)	21.2	7.2	90	57		1.9	0.2	6.1
6 (05-11 Feb)	21.6	6.3	90	44		2.6	0.3	6.2
7 (12-18 Feb)	21.0	8.0	90	61	59.0	1.4	0.3	5.5
8 (19-25 Feb)	24.0	10.2	87	61	12.7	2.3	0.1	5.0
9 (26-04 Mar)	25.1	11.0	88	62	0.2	2.1	0.1	4.6
10 (05-11 Mar)	26.8	12.6	85	54		2.6	0.0	8.7
11 (12-18 Mar)	31.7	14.5	82	53		3.1	0.2	8.3
12 (19-25 Mar)	26.2	13.4	82	54	21.2	3.2	0.3	6.6
13 (26-01 Apr)	30.3	15.4	80	45		5.4	0.0	8.8
14 (02-08 Apr)	31.8	16.1	76	46		6.6	0.6	5.7
15 (09-15 Apr)	30.6	17.7	80	40	14.4	4.3	1.2	7.2
16 (16-22 Apr)	32.0	17.1	78	36	11.1	5.5	2.5	6.8
17 (23-29 Apr)	36.2	18.0	65	28		6.7	2.1	8.8
18 (30-06 May)	35.1	22.4	63	40	2.1	6.9	5.5	4.1
19 (7-13 May)	35.1	20.0	63	43	6.0	5.0	3.4	6.4
20 (14-20 May)	36.2	22.6	62	52		5.4	3.0	2.9

HISAR	Latitude 29º10'N		Longitude 75º 46'E		Height above MSL 215.2 m			
40 (01-07 Oct)	36.76	19.03	78.29	29.14		5.13	2.49	8.29
41 (08-14 Oct)	35.29	18.83	88.57	30.29		3.57	1.73	6.83
42 (15-21 Oct)	35.71	16.21	91.29	24.86		3.10	1.17	7.59
43 (22-28 Oct)	33.76	15.50	83.86	25.57		3.07	2.10	5.91
44 (29-04 Nov)	31.04	15.26	88.14	42.71		1.96	2.03	2.23
45 (05-11 Nov)	29.77	12.71	99.00	46.14		1.80	0.96	1.64
46 (12-18 Nov)	25.01	13.67	90.29	50.86		3.90	3.57	0.26
47 (19-25 Nov)	24.66	6.43	81.71	28.29		3.64	1.64	6.24
48 (26-02 Dec)	26.84	6.69	87.00	23.71		2.44	1.16	6.59
49 (03-09 Dec)	23.10	6.81	84.29	33.00		1.57	1.23	4.24
50 (10-16 Dec)	16.87	7.37	92.43	60.57	3.8	1.00	2.23	3.06
51 (17-23 Dec)	22.36	5.96	88.43	41.86		1.30	2.13	6.31
52 (24-31 Dec)	23.35	4.53	96.50	41.75		1.08	1.65	6.53
1 (01-07 Jan)	17.51	4.01	100.00	55.86		0.74	1.30	3.77
2 (08-14 Jan)	21.91	2.64	94.43	42.71		1.40	1.91	6.87
3 (15-21 Jan)	22.91	4.99	93.86	48.29		1.37	2.89	6.87
4 (22-28 Jan)	18.17	7.17	96.86	75.29	10.9	1.50	2.80	3.83
5 (29-04 Feb)	22.87	5.74	97.14	60.14		1.41	1.43	6.86
6 (05-11 Feb)	22.01	4.67	86.00	66.71		1.83	1.76	7.04
7 (12-18 Feb)	22.77	8.07	93.14	53.57	1.2	1.97	3.76	5.69
8 (19-25 Feb)	27.93	10.59	90.14	43.71		2.14	1.90	6.53
9 (26-04 Mar)	28.13	12.10	91.43	47.14		2.66	2.51	5.90
10 (05-11 Mar)	28.90	10.54	86.00	36.29		2.97	2.33	7.19
11 (12-18 Mar)	31.84	12.74	80.29	31.29		3.77	2.53	7.27
12 (19-25 Mar)	29.84	12.46	81.86	42.29		3.53	3.10	6.71

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
13 (26-01 Apr)	34.69	13.80	73.00	27.29		5.24	3.59	7.83
14 (02-08 Apr)	35.74	19.76	61.43	33.43		5.59	5.63	5.37
15 (09-15 Apr)	33.64	18.04	72.00	39.14	14.0	5.40	6.06	7.01
16 (16-22 Apr)	37.64	19.36	56.29	31.00		7.70	5.54	8.26
17 (23-29 Apr)	39.26	21.53	52.14	27.00		6.86	5.27	8.47

JAMMU	Latitude- 32º44' N			Longitude- 74º54" E			Height Above MSL - 356 m	
40 (01-07 Oct)	34.4	20.6	87	46			1.4	7.5
41 (08-14 Oct)	34.1	18.2	82	43			1.6	7.5
42 (15-21 Oct)	33.8	14.6	80	37			1.6	8.4
43 (22-28 Oct)	31.0	13.4	82	35			1.5	7.7
44 (29-04 Nov)	27.6	12.8	90	49			1.3	1.1
45 (05-11 Nov)	27.1	10.8	95	48			1.0	2.6
46 (12-18 Nov)	23.7	9.3	92	49	10.6		2.2	1.9
47 (19-25 Nov)	23.9	6.3	94	40			1.3	6.7
48 (26-02 Dec)	24.1	6.4	93	40			1.0	6.3
49 (03-09 Dec)	23.0	4.6	92	41			1.1	6.4
50 (10-16 Dec)	16.8	8.5	95	76	51.2		3.1	1.9
51 (17-23 Dec)	23.1	6.1	88	46			2.4	6.8
52 (24-31 Dec)	22.7	3.6	92	51			0.1	58.0
1 (01-07 Jan)	17.5	3.3	94	56			2.4	5.3
2 (08-14 Jan)	20.0	2.6	94	42			1.4	6.2
3 (15-21 Jan)	21.8	3.5	91	42			2.0	6.6
4 (22-28 Jan)	16.8	5.1	94	69	1.4		2.4	4.4
5 (29-04 Feb)	21.4	6.1	91	49			2.6	6.2
6 (05-11 Feb)	21.9	4.1	89	37			2.0	6.7
7 (12-18 Feb)	20.5	7.7	92	54	6.7		4.8	6.6
8 (19-25 Feb)	24.2	9.8	87	54	0.5		2.9	3.6
9 (26-04 Mar)	24.5	12.2	84	58	0.8		3.6	4.1
10 (05-11 Mar)	27.2	10.3	88	43			3.2	8.5
11 (12-18 Mar)	29.2	11.6	84	38			3.6	7.4
12 (19-25 Mar)	28.2	12.3	84	45	1.1		4.3	6.1
13 (26-01 Apr)	32.4	13.6	84	35			3.6	8.0
14 (02-08 Apr)	33.1	17.0	77	39			3.2	5.2
15 (09-15 Apr)	31.7	16.3	78	36	3.8		4.9	6.8
16 (16-22 Apr)	30.4	16.0	77	45	2.6		5.9	7.6
17 (23-29 Apr)	38.5	16.9	66	20			3.3	10.2
18 (30-06 May)	36.5	20.2	60	30	1.0		5.8	10.4
19 (7-13 May)	36.2	19.4	61	26	0.7		6.4	8.4
20 (14-20 May)	37.2	21.1	57	26	0.4		6.3	5.4
21 (21-27 May)	41.3	18.6	49	15			4.3	9.0

KARNAL	Latitude 29^{0}43'N		Longitude 76^{0}58'E			Height above MSL 245 m		
40(01-07 Oct)	33.9	19.7	90.6	49.9		3.40	8.7	1.0
41(08-14 Oct)	34.0	19.6	92.6	43.3		3.64	5.5	0.8
42(15-21 Oct)	33.9	16.4	92.6	34.9		3.69	7.2	0.8
43(22-28 Oct)	31.2	15.0	91.1	39.0		3.01	6.3	1.0
44(29-04 Nov)	28.1	15.5	95.4	55.7		2.46	0.4	1.3
45(05-11 Nov)	26.2	13.4	100.0	62.4		2.13	2.1	0.4
46(12-18 Nov)	23.3	12.2	94.6	59.1	1.8	1.29	1.3	2.0
47(19-25 Nov)	24.1	7.8	85.9	29.7		1.71	7.1	2.3
48(26-02 Dec)	25.0	6.8	91.4	31.4		2.09	7.6	1.7
49(03-09 Dec)	23.4	8.4	86.1	35.7		1.59	3.3	1.9
50(10-16 Dec)	19.3	9.1	98.6	66.1	5.2	1.47	2.6	2.6
51(17-23 Dec)	20.9	7.9	92.3	57.0		1.67	7.0	3.1
52(24-31 Dec)	20.9	6.1	99.6	61.9		1.79	4.3	1.2

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
1(01-07 Jan)	12.9	6.2	100.0	79.6		1.14	3.1	1.8
2(08-14 Jan)	20.4	3.9	94.7	46.3		1.43	8.2	3.4
3(15-21 Jan)	21.5	5.1	100.0	48.9		1.73	8.1	3.1
4(22-28 Jan)	17.7	6.7	96.3	75.9	34.2	1.50	3.3	3.1
5(29-04 Feb)	21.9	7.8	92.7	51.3		2.29	8.0	4.3
6(05-11 Feb)	21.0	5.3	92.6	41.4		2.49	7.7	2.8
7(12-18 Feb)	21.4	8.6	94.1	57.7	29.0	2.24	7.9	5.8
8(19-25 Feb)	24.7	10.4	95.0	55.9		3.36	7.6	3.0
9(26-04 Mar)	26.8	13.0	93.1	51.6		3.37	8.0	4.8
10(05-11 Mar)	27.5	11.0	89.7	44.1		3.63	9.7	4.8
11(12-18 Mar)	29.6	12.7	86.6	38.3		3.93	10.3	4.8
12(19-25 Mar)	29.5	13.7	86.3	39.6		4.39	10.3	4.3
13(26-01 Apr)	32.4	15.2	71.7	36.1		5.34	10.7	4.9
14(02-08 Apr)	34.3	17.5	68.4	40.4		5.37	10.7	4.6
15(09-15 Apr)	32.7	17.2	76.6	38.7	15.2	4.99	8.8	6.1
16(16-22 Apr)	37.1	19.3	51.9	14.0		8.23	10.6	7.2
17(23-29 Apr)	37.9	20.3	50.7	15.8		7.20	11.1	6.9

LUDHIANA	Latitude 30^{0}54' N		Longitude 75^{0}52' E			Height above MSL 247 m		
40 (01-07 Oct)	34.9	21.0	85.7	37.7		4.6	2.0	9.9
41 (08-14 Oct)	34.4	21.1	91	43		4.1	1.5	7.1
42 (15-21 Oct)	34.3	17.3	90	32		3.6	1.6	8.3
43 (22-28 Oct)	31.3	16.2	87	36		2.9	1.7	4.8
44 (29-04 Nov)	28.0	15.3	91	53		1.9	1.5	0.0
45 (05-11 Nov)	26.1	14.1	96	57		1.1	0.8	1.7
46 (12-18 Nov)	22.3	12.9	90	60	7	1.1	3.1	1.3
47 (19-25 Nov)	23.9	7.4	94	29		2.3	2.1	7.9
48 (26-02 Dec)	25.4	7.9	94	31		2.0	1.2	7.4
49 (03-09 Dec)	22.7	7.3	87	30	24	2.0	2.2	6.2
50 (10-16 Dec)	17.1	9.3	90	70		1.5	2.8	3.4
51 (17-23 Dec)	21.9	7.4	91	47		1.3	1.4	7.9
52 (24-31 Dec)	20.7	6.3	96	49		1.7	1.5	4.9
1 (01-07 Jan)	15.9	5.4	96	66		0.9	2.4	2.6
2 (08-14 Jan)	20.8	5.3	94	43		1.7	2.8	7.6
3 (15-21 Jan)	22.0	6.1	92	40		2.0	3.5	7.7
4 (22-28 Jan)	15.5	7.6	93	76	18.4	1.4	4.0	3.6
5 (29-04 Feb)	21.2	7.6	91	46		1.9	3.3	8.1
6 (05-11 Feb)	21.1	5.6	89	38	2.4	2.1	2.9	8.0
7 (12-18 Feb)	21.1	9.3	89	53	21.4	2.3	5.0	7.4
8 (19-25 Feb)	25.5	11.7	88	48	3.2	2.5	3.1	7.5
9 (26-04 Mar)	25.8	13.1	89	51		2.6	3.0	6.5
10 (05-11 Mar)	27.2	12.2	88	42		3.5	3.2	10.4
11 (12-18 Mar)	29.9	14.1	85	30		4.3	3.0	10.0
12 (19-25 Mar)	29.2	14.2	86	44		4.0	4.3	7.8
13 (26-01 Apr)	33.1	16.5	74	29		5.5	4.6	10.1
14 (02-08 Apr)	34.8	20.3	69	33		6.0	5.1	5.9
15 (09-15 Apr)	33.1	18.0	73	32	10	5.8	4.7	7.4
16 (16-22 Apr)	35.4	19.5	58	24		8.2	6.5	9.7
17 (23-29 Apr)	39.6	21.5	45	19		9.0	5.2	11.0

PANTNAGAR	Latitude 29^{0}N		Longitude 79^0 30´E			Height above MSL 243.84 m		
40 (01-07 Oct)	33.2	23.7	88	62		2.6	2.7	6.0
41 (08-14 Oct)	33.5	20.7	78	48		3.3	2.6	8.3
42 (15-21 Oct)	32.9	17.9	86	48		3.1	2.1	9.0
43 (22-28 Oct)	30.3	14.5	87	48		2.7	2.3	7.5
44 (29-04 Nov)	28.6	14.7	90	53		2.2	1.9	4.5

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
45 (05-11 Nov)	28.5	12.8	94	53		2.0	1.4	5.1
46 (12-18 Nov)	27.9	11.3	92	47		2.1	2.7	6.6
47 (19-25 Nov)	25.5	8.5	92	46		2.4	4.2	7.7
48 (26-02 Dec)	24.8	7.8	92	49		1.8	1.6	6.8
49 (03-09 Dec)	23.2	10.9	93	57		1.6	2.8	3.9
50 (10-16 Dec)	21.7	11.3	94	66	2.8	1.6	6.2	4.7
51 (17-23 Dec)	21.7	8.3	95	64		1.3	2.5	5.3
52 (24-31 Dec)	23.0	7.2	96	66		1.1	1.8	6.6
1 (01-07 Jan)	13.5	6.0	95	82		0.7	3.3	1.5
2 (08-14 Jan)	14.1	5.3	95	79		0.8	2.6	1.8
3 (15-21 Jan)	20.5	4.2	93	65		1.1	2.6	5.5
4 (22-28 Jan)	17.6	6.4	94	70	6.8	1.1	4.6	3.4
5 (29-04 Feb)	22.2	6.9	94	60		1.4	4.3	6.6
6 (05-11 Feb)	23.2	5.6	95	50	4.0	2.3	5.5	6.0
7 (12-18 Feb)	23.2	9.2	89	64		1.9	4.7	6.6
8 (19-25 Feb)	27.4	11.5	89	51		2.4	3.4	7.6
9 (26-04 Mar)	29.1	11.5	91	44		3.3	5.5	7.5
10 (05-11 Mar)	29.4	10.7	92	39		4.1	5.3	9.0
11 (12-18 Mar)	31.2	11.8	86	44		4.3	5.0	8.7
12 (19-25 Mar)	32.2	12.7	84	40	Trace	4.5	4.7	8.9
13 (26-01 Apr)	33.5	14.4	77	48		5.7	4.8	8.5
14 (02-08 Apr)	32.8	18.7	78	52	40.0	5.5	5.2	6.4
15 (09-15 Apr)	32.6	16.2	81	50	2.2	5.2	4.8	7.7
16 (16-22 Apr)	37.1	17.2	76	19	Trace	8.0	6.2	8.9
17 (23-29 Apr)	36.2	19.4	65	38		7.6	7.8	8.8
18 (30-06 May)	35.9	22.1	68	40	2.8	7.4	9.4	9.8

SRIGANGANAGAR	Latitude – 29^{0}66’		Longitude – 75^{0}53’			Height Above MSL – 175m		
40(01-07 Oct)	39.71	21.27	59.00	31.14				8.97
41(08-14 Oct)	38.44	20.19	74.14	39.14				7.89
42(15-21 Oct)	38.20	17.79	69.71	37.43				8.30
43(22-28 Oct)	35.41	15.69	72.57	37.86				6.99
44(29-04 Nov)	32.33	14.70	82.43	55.43				4.20
45(05-11 Nov)	25.49	12.90	96.57	64.14				0.82
46(12-18 Nov)	22.71	10.09	92.86	72.29	5.6			2.53
47(19-25 Nov)	27.09	7.67	68.14	43.57				8.47
48(26-02 Dec)	28.51	7.21	80.29	49.29				8.60
49(03-09 Dec)	24.86	5.97	71.00	42.71				6.89
50(10-16 Dec)	17.11	6.16	87.86	68.29				2.53
51(17-23 Dec)	24.93	7.36	76.43	53.00				7.63
52(24-31 Dec)	23.89	4.93	87.14	56.43				7.36
1(01-07 Jan)	19.86	2.60	95.71	64.86				5.87
2(08-14 Jan)	24.09	3.56	90.43	51.00				7.94
3(15-21 Jan)	24.84	5.90	84.29	48.14				8.00
4(22-28 Jan)	17.73	5.23	94.00	65.53				4.76
5(29-04 Feb)	24.27	6.41	82.43	47.43				7.93
6(05-11 Feb)	24.20	6.53	85.43	43.57				6.96
7(12-18 Feb)	24.29	9.93	88.43	49.86				7.14
8(19-25 Feb)	28.53	13.10	85.86	47.14				7.47
9(26-04 Mar)	29.69	15.21	83.29	46.14				6.96
10(05-11 Mar)	31.74	14.20	77.86	39.86				8.77
11(12-18 Mar)	33.93	16.26	65.57	29.29				8.51
12(19-25 Mar)	31.43	16.07	73.86	37.71				7.89
13(26-01 Apr)	38.77	17.64	59.33	21.83				9.04
14(02-08 Apr)	39.21	21.21	63.29	30.14				7.19
15(09-15 Apr)	35.91	20.90	55.43	25.71	3.2			7.87

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day

NORTH EASTERN PLAINS ZONE

BURDWAN	Latitude 23^{0}15' N			Longitude 87^{0}52'E			Height above MSL 32 m	
40 (01-07 Oct)	32.4	25.0			1.2			
41 (08-14 Oct)	30.7	24.5			196.2			
42 (15-21 Oct)	31.6	23.6			106.0			
43 (22-28 Oct)	30.4	21.6						
44 (29-04 Nov)	28.9	18.8						
45 (05-11 Nov)	29.7	17.9						
46 (12-18 Nov)	26.3	18.5			34.8			
47 (19-25 Nov)	27.3	14.6						
48 (26-02 Dec)	27.1	11.8						
49 (03-09 Dec)	22.9	14.5			1.6			
50 (10-16 Dec)	22.1	16.1			11.5			
51 (17-23 Dec)	17.6	12.2						
52 (24-31 Dec)	18.4	11.0						
1 (01-07 Jan)	16.3	8.6						
2 (08-14 Jan)	22.1	7.2						
3 (15-21 Jan)	24.0	8.1						
4 (22-28 Jan)	24.8	8.7						
5 (29-04 Feb)	25.9	10.7						
6 (05-11 Feb)	27.2	14.0						
7 (12-18 Feb)	28.3	14.1						
8 (19-25 Feb)	34.1	16.6						
9 (26-04 Mar)	32.2	18.5						
10 (05-11 Mar)	27.1	17.0						
11 (12-18 Mar)	30.7	19.2						
12 (19-25 Mar)	30.9	19.6			19.0			
13 (26-01 Apr)	28.5	21.6			26.2			
14 (02-08 Apr)	27.2	20.1			21.0			
15 (09-15 Apr)	29.8	21.0			27.4			
16 (16-22 Apr)	33.6	23.0			2.8			

COOCHBEHAR	Latitude 26^{0}19'86" N			Longitude 89^{0}23'53" E			Height above MSL 43 m	
40 (01-07 Oct)	29.33	23.56	99	84	40.20			
41 (08-14 Oct)	33.67	24.59	96	72	0.16			
42 (15-21 Oct)	32.76	23.19	95	70	4.11			
43 (22-28 Oct)	29.33	21.29	96	80	6.76			
44 (29-04 Nov)	28.56	17.66	97	67	4.13			
45 (05-11 Nov)	30.66	16.51	95	51				
46 (12-18 Nov)	29.70	14.87	94	51				
47 (19-25 Nov)	29.29	16.19	94	61				
48 (26-02 Dec)	28.66	14.80	96	57				
49 (03-09 Dec)	27.59	12.80	98	51				
50 (10-16 Dec)	27.97	13.29	96	54				
51 (17-23 Dec)	25.56	13.63	98	63				
52 (24-31 Dec)	26.59	12.54	98	57				
1 (01-07 Jan)	25.09	10.23	90	52				
2 (08-14 Jan)	19.27	7.97	97	63				
3 (15-21 Jan)	20.44	9.26	99	70				
4 (22-28 Jan)	24.53	10.21	99	55				
5 (29-04 Feb)	22.57	8.94	90	56				
6 (05-11 Feb)	24.26	12.20	93	64				
7 (12-18 Feb)	26.07	10.61	83	48				
8 (19-25 Feb)	27.50	13.00	82	47				

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
9 (26-04 Mar)	27.57	15.40	78	54	0.54			
10 (05-11 Mar)	28.93	16.17	74	53	0.37			
11 (12-18 Mar)	29.79	16.36	68	47	0.54			
12 (19-25 Mar)	31.44	15.76	73	41				
13 (26-01 Apr)	31.17	18.23	68	53	9.60			
14 (02-08 Apr)	30.66	17.53	69	53	5.16			
15 (09-15 Apr)	30.19	19.46	80	63	8.09			
16 (16-22 Apr)	30.67	20.17	72	64	17.9			

IARI PUSA BIHAR	Latitude 25^{0}98' N		Longitude 85^{0}67' E			Height above MSL 52.1 m		
40 (01-07 Oct)	33.3	25.0	87	70		3.5	3.6	6.9
41 (08-14 Oct)	33.3	24.8	89	69	3.5	3.7	4.2	
42 (15-21 Oct)	33.6	22.8	88	63		2.7	3.5	
43 (22-28 Oct)	31.6	20.7	90	66		2.7	2.8	
44 (29-04 Nov)	30.7	19.5	86	60		2.6	2.4	
45 (05-11 Nov)	30.9	17.3	87	57		2.5	1.5	
46 (12-18 Nov)	29.9	16.6	87	56		2.5	2.0	
47 (19-25 Nov)	28.1	12.2	85	61		2.9	2.5	
48 (26-02 Dec)	26.2	10.6	91	64		1.8	1.2	
49 (03-09 Dec)	26.7	10.5	94	64		1.8	1.2	
50 (10-16 Dec)	27.3	12.4	92	64		2.4	2.3	
51 (17-23 Dec)	22.6	11.8	94	72		1.4	2.2	
52 (24-31 Dec)	19.9	9.4	95	78		0.9	2.4	
1 (01-07 Jan)	14.1	6.9	93	79		0.5	3.7	
2 (08-14 Jan)	12.8	6.2	93	84		0.4	2.6	
3 (15-21 Jan)	15.2	8.2	95	77		0.3	2.9	
4 (22-28 Jan)	21.0	8.4	92	72		0.8	2.6	
5 (29-04 Feb)	22.1	9.9	93	66		1.1	1.7	
6 (05-11 Feb)	25.0	9.8	88	62		3.2	4.2	
7 (12-18 Feb)	24.4	11.5	91	69		2.2	2.9	
8 (19-25 Feb)	28.5	13.1	91	65		2.9	2.1	
9 (26-04 Mar)	29.4	16.1	89	62		3.5	2.7	
10 (05-11 Mar)	31.0	14.6	80	54		4.0	3.6	
11 (12-18 Mar)	31.6	16.5	82	58		3.6	3.4	
12 (19-25 Mar)	34.2	14.8	77	48		4.4	2.6	
13 (26-01 Apr)	34.0	18.2	75	56		5.6	4.8	
14 (02-08 Apr)	31.9	19.5	79	62	22.0	4.8	5.3	
15 (09-15 Apr)	32.7	20.9	80	59	16.8	4.1	4.2	
16 (16-22 Apr)	35.8	22.2	82	58		5.4	5.8	
17 (23-29 Apr)	35.3	20.5	76	56		5.8	7.0	
18 (30-06 May)	32.4	21.5	80	66	4.5	5.1	8.6	
19 (7-13 May)	36.6	23.9	82	59		5.4	7.3	

KALYANI	Latitude 22^{0}57'N			Longitude 88^{0}20'E			Height above MSL 9.75 m	
40 (01-07 Oct)	33.10	25.30	97.71	81.00	5.18	2.30	0.18	5.16
41 (08-14 Oct)	32.37	25.47	97.86	79.14	10.93	1.44	1.27	5.08
42 (15-21 Oct)	31.86	25.50	95.86	74.14	14.23	1.97	0.54	5.47
43 (22-28 Oct)	31.96	22.74	99.43	69.14	2.41	1.66	0.19	7.04
44 (29-04 Nov)	30.46	20.24	95.43	62.14		1.51	0.21	7.38
45 (05-11 Nov)	31.83	19.88	94.00	53.86		2.04	0.40	9.74
46 (12-18 Nov)	27.97	20.31	94.71	76.00	5.28	1.34	0.26	3.53
47 (19-25 Nov)	28.50	16.08	92.28	51.86		1.54	0.26	8.68
48 (26-02 Dec)	27.71	12.83	89.73	46.57		1.23	0.26	7.80
49 (03-09 Dec)	25.97	14.86	90.43	62.00	0.37	1.04	0.23	4.73
50 (10-16 Dec)	27.50	17.41	95.58	68.71	1.83	0.98	0.14	5.98
51 (17-23 Dec)	23.81	13.74	93.57	66.14		0.96	0.27	4.91

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
52 (24-31 Dec)	26.00	12.17	94.87	53.12		0.91	0.31	7.87
1 (01-07 Jan)	23.16	9.40	93.28	51.86		1.07	0.34	6.90
2 (08-14 Jan)	21.86	7.34	90.57	53.86		0.96	0.30	4.23
3 (15-21 Jan)	24.97	8.54	91.28	46.43		1.06	0.18	7.08
4 (22-28 Jan)	26.40	9.76	89.14	42.14		1.51	7.84	7.84
5 (29-04 Feb)	28.28	11.28	90.71	45.43		1.58	6.83	6.83
6 (05-11 Feb)	29.38	15.73	89.00	43.71		1.80	5.00	5.00
7 (12-18 Feb)	29.41	13.96	88.14	43.43		2.18	0.43	8.40
8 (19-25 Feb)	32.98	17.64	91.28	44.43		2.31	0.24	5.70
9 (26-04 Mar)	34.77	19.90	91.43	34.57		2.88	0.27	6.31
10 (05-11 Mar)	34.36	18.17	84.43	29.86		3.87	0.68	8.93
11 (12-18 Mar)	35.26	20.94	88.71	39.43	0.04	3.40	0.43	6.96
12 (19-25 Mar)	35.54	21.97	91.71	44.00	0.03	3.31	0.56	5.54
13 (26-01 Apr)	34.56	23.71	92.14	55.71	0.14	3.64	1.38	5.47
14 (02-08 Apr)	33.94	21.93	90.57	51.43	0.94	3.51	0.94	6.50
15 (09-15 Apr)	34.84	22.08	90.14	55.14	5.16	3.66	0.94	8.66
16 (16-22 Apr)	37.08	25.93	92.00	54.14	1.23	4.87	2.31	8.14
17 (23-29 Apr)	36.23	24.24	85.14	49.86	0.03	4.21	1.26	7.57

KANPUR	Latitude 26^{0}29'N		Longitude 80^{0}18'E			Height above MSL 125.9 m		
40 (01-07 Oct)	35.4	22.7	86.8	50.8		3.1	2.1	7.7
41 (08-14 Oct)	35.8	21.9	82.4	44.7		2.9	2.3	4.0
42 (15-21 Oct)	35.9	19.3	87.1	37.0		3.2	2.3	7.0
43 (22-28 Oct)	34.2	15.7	86.0	29.5		3.0	2.5	7.5
44 (29-04 Nov)	30.8	16.0	91.2	46.4		2.6	2.1	4.6
45 (05-11 Nov)	30.0	14.5	93.8	46.2		2.5	1.4	1.8
46 (12-18 Nov)	29.4	12.8	85.8	43.2		2.4	2.2	2.6
47 (19-25 Nov)	26.3	9.7	68.7	38.5		2.5	4.3	2.8
48 (26-02 Dec)	26.4	7.6	87.0	37.8		0.5	1.8	4.8
49 (03-09 Dec)	25.2	11.8	80.5	45.1	1.2	2.4	3.0	3.5
50 (10-16 Dec)	24.5	10.5	91.8	44.8		2.6	3.1	2.3
51 (17-23 Dec)	23.2	8.1	89.4	53.0		2.2	4.0	3.0
52 (24-31 Dec)	21.0	6.8	97.3	65.5		1.6	2.4	2.1
1 (01-07 Jan)	17.2	5.6	98.2	69.2		1.3	2.9	1.4
2 (08-14 Jan)	20.3	5.3	96.7	61.1		1.2	2.8	5.4
3 (15-21 Jan)	22.7	6.4	93.0	53.7		1.4	3.2	7.5
4 (22-28 Jan)	21.6	5.6	96.8	62.2	4.2	1.4	3.4	6.4
5 (29-04 Feb)	25.5	9.8	77.0	49.5		1.6	6.0	8.7
6 (05-11 Feb)	29.9	8.4	83.0	46.8		1.8	4.5	6.4
7 (12-18 Feb)	24.2	11.1	87.0	55.0		1.9	5.9	5.5
8 (19-25 Feb)	30.2	12.0	84.2	41.5		2.0	2.9	7.9
9 (26-04 Mar)	30.7	13.1	85.2	44.5		2.2	4.7	8.4
10 (05-11 Mar)	29.6	13.6	71.5	35.0		3.0	5.4	8.8
11 (12-18 Mar)	33.4	15.4	67.0	30.4		3.1	4.1	8.2
12 (19-25 Mar)	34.0	15.5	65.5	30.7		3.3	4.8	8.1
13 (26-01 Apr)	35.9	17.5	64.4	37.5		3.7	6.5	8.6
14 (02-08 Apr)	31.4	23.8	65.5	40.1	0.4	3.3	6.6	6.4
15 (09-15 Apr)	36.0	19.9	67.2	46.2	10.0	4.0	4.6	7.2
16 (16-22 Apr)	39.3	22.1	51.0	23.2		4.4	2.4	7.8
17 (23-29 Apr)	38.8	22.4	48.5	33.7		5.0	4.4	8.8

RANCHI	Latitude 23^{0}21'N			Longitude 85^{0}20'E			Height above MSL 629 m	
40 (01-07 Oct)	29.9	21.5	85.6	69.9	53.0	3.5	1.6	8.3
41 (08-14 Oct)	29.5	21.6	85.7	68.3	2.0	2.9	2.3	6.8
42 (15-21 Oct)	28.5	16.7	86.0	70.0	27.6	3.2	1.5	6.8
43 (22-28 Oct)	29.6	15.3	84.2	69.4	0.0	2.8	1.6	6.9

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
44 (29-04 Nov)	27.1	13.1	83.7	65.9	0.0	3.2	2.1	8.5
45 (05-11 Nov)	26.4	11.5	85.3	66.3	0.0	2.9	1.5	9.3
46 (12-18 Nov)	24.9	12.8	84.0	68.3	2.0	3.1	1.7	4.3
47 (19-25 Nov)	25.0	9.2	86.9	68.0	0.0	2.8	2.6	9.0
48 (26-02 Dec)	24.2	5.4	85.3	68.0	0.0	2.9	2.9	9.3
49 (03-09 Dec)	24.1	6.1	86.4	67.4	0.0	3.0	1.9	8.7
50 (10-16 Dec)	25.3	10.4	85.3	67.6	0.0	2.5	1.5	6.5
51 (17-23 Dec)	24.0	4.9	84.9	68.4	0.0	2.0	2.3	8.5
52 (24-31 Dec)	23.7	5.2	85.1	68.8	0.0	2.2	2.5	8.9
1 (01-07 Jan)	22.5	2.7	83.1	67.0	0.0	2.0	3.6	8.8
2 (08-14 Jan)	20.0	2.0	85.1	66.7	0.0	1.5	3.1	8.9
3 (15-21 Jan)	23.3	4.3	84.7	66.1	0.0	2.2	5.5	9.2
4 (22-28 Jan)	26.5	6.2	86.4	51.6	0.0	2.7	1.9	8.6
5 (29-04 Feb)	26.9	6.8	85.0	36.4	0.0	2.3	3.5	9.0
6 (05-11 Feb)	27.3	8.7	85.6	36.1	0.0	2.6	2.2	7.0
7 (12-18 Feb)	26.8	10.5	87.3	36.3	4.2	1.9	3.0	7.2
8 (19-25 Feb)	28.8	11.8	86.0	35.4	0.0	3.0	3.2	9.3
9 (26-04 Mar)	29.7	12.6	85.6	36.1	0.0	3.6	4.5	8.7
10 (05-11 Mar)	30.5	13.6	83.7	35.9	0.0	2.1	4.6	8.0
11 (12-18 Mar)	30.9	16.1	83.6	36.1	0.0	3.0	2.3	6.9
12 (19-25 Mar)	31.7	16.2	85.7	33.7	0.0	3.1	3.9	7.9
13 (26-01 Apr)	34.2	15.7	84.9	36.3	0.0	4.4	2.5	8.5
14 (02-08 Apr)	29.1	14.1	85.6	36.0	8.5	4.8	2.9	7.5
15 (09-15 Apr)	29.2	15.5	86.3	37.7	18.6	4.2	3.1	6.5
16 (16-22 Apr)	35.2	19.7	84.1	35.4	0.0	4.4	4.9	7.8
17 (23-29 Apr)	37.4	21.1	85.4	39.0	0.0	5.7	4.9	8.5
18 (30-06 May)	33.9	20.2	85.0	41.4	3.2	4.8	4.5	6.7

RAU PUSA BIHAR	Latitude 28.98^0 N		Longitude 85.67^0 E		Height above MSL 52.0 m			
40 (01-07 Oct)	33.2	25.0	87	70		3.5	3.6	
41 (08-14 Oct)	33.1	25.0	89	69	3.5	3.7	4.2	
42 (15-21 Oct)	33.4	22.8	88	63		2.7	3.5	
43 (22-28 Oct)	31.5	20.8	90	66		2.7	2.8	
44 (29-04 Nov)	29.8	19.5	86	60		2.6	2.4	
45 (05-11 Nov)	30.2	17.3	87	56		2.5	1.5	
46 (12-18 Nov)	29.6	16.7	87	56		2.5	2.0	
47 (19-25 Nov)	27.8	12.4	85	61		2.9	2.5	
48 (26-02 Dec)	26.1	10.6	91	64		1.8	1.2	
49 (03-09 Dec)	26.5	10.5	94	64		1.8	1.2	
50 (10-16 Dec)	27.1	12.5	92	64		2.4	2.3	
51 (17-23 Dec)	22.6	11.8	94	71		1.4	2.2	
52 (24-31 Dec)	20.3	9.3	95	77		0.9	2.3	
1 (01-07 Jan)	13.8	6.9	93	78		0.4	3.6	
2 (08-14 Jan)	12.8	6.2	92	84		0.3	2.5	
3 (15-21 Jan)	15.2	8.2	94	76		0.3	2.8	
4 (22-28 Jan)	19.9	8.5	92	72		0.7	2.2	
5 (29-04 Feb)	21.8	9.8	93	65		1.1	1.6	
6 (05-11 Feb)	24.8	10.2	88	61		3.2	4.5	
7 (12-18 Feb)	24.3	11.5	90	68		2.2	2.8	
8 (19-25 Feb)	28.1	13.1	90	65		2.8	2.1	
9 (26-04 Mar)	29.4	16.1	89	62		3.5	2.7	
10 (05-11 Mar)	31.0	14.6	80	54		4.0	3.6	
11 (12-18 Mar)	31.6	16.5	82	58		3.6	3.4	
12 (19-25 Mar)	34.2	14.8	77	48		4.4	2.6	
13 (26-01 Apr)	34.0	18.2	75	56		5.6	4.8	
14 (02-08 Apr)	31.9	19.5	79	62	22.0	4.8	5.3	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
15 (09-15 Apr)	32.7	20.9	80	59	16.8	4.1	4.2	
16 (16-22 Apr)	35.8	22.2	82	58		5.4	5.8	
17 (23-29 Apr)	35.3	20.5	76	56		5.8	7.0	
18 (30-06 May)	32.4	21.5	80	66	4.5	5.1	8.6	
19 (7-13 May)	36.6	23.9	82	59		5.4	7.3	

SABOUR	Latitude 25^0 23' N		Longitude 87^0 07' E		Height above MSL 37.1m			
40 (01-07 Oct)	32.4	24.6	92.6	78.0	86.2	2.2	2.0	5.6
41 (08-14 Oct)	32.8	24.1	93.4	74.7	116.0	2.3	2.1	5.4
42 (15-21 Oct)	32.6	23.4	90.4	73.3	34.8	2.3	2.2	5.2
43 (22-28 Oct)	31.5	20.0	92.3	72.3		2.2	1.4	6.4
44 (29-04 Nov)	29.2	17.6	90.6	64.1		2.6	1.9	8.0
45 (05-11 Nov)	30.2	15.9	86.4	59.7		2.7	1.2	8.4
46 (12-18 Nov)	29.2	16.4	88.3	58.4		1.6	1.3	4.9
47 (19-25 Nov)	28.8	12.7	81.9	44.7		1.7	1.5	6.9
48 (26-02 Dec)	26.7	9.5	87.4	43.3		1.1	0.6	4.6
49 (03-09 Dec)	26.6	9.9	89.0	49.9		1.5	0.8	6.3
50 (10-16 Dec)	27.8	12.9	86.4	50.9		2.0	1.7	6.2
51 (17-23 Dec)	23.5	10.0	95.0	68.7		0.9	1.4	3.3
52 (24-31 Dec)	22.2	8.0	95.1	72.1		0.8	1.5	4.1
1 (01-07 Jan)	18.3	5.9	97.4	77.7		0.5	4.2	1.4
2 (08-14 Jan)	15.3	5.7	96.6	77.4		0.1	3.2	0.3
3 (15-21 Jan)	16.7	6.7	98.1	82.3		0.4	1.8	2.0
4 (22-28 Jan)	22.1	7.5	95.1	65.1		2.3	2.7	6.2
5 (29-04 Feb)	23.2	7.5	94.1	57.0		1.4	1.3	2.2
6 (05-11 Feb)	25.5	10.8	87.9	46.3		2.2	4.5	7.0
7 (12-18 Feb)	25.2	11.2	76.9	53.4		2.1	3.9	6.0
8 (19-25 Feb)	28.5	12.1	84.1	48.6		2.4	2.3	6.5
9 (26-04 Mar)	29.4	16.2	81.1	57.0		2.5	2.8	3.0
10 (05-11 Mar)	30.8	15.1	84.3	41.1		3.3	3.7	6.8
11 (12-18 Mar)	32.0	15.7	90.9	44.3		2.3	3.2	4.4
12 (19-25 Mar)	34.0	16.7	91.4	41.3		3.3	2.3	8.0
13 (26-01 Apr)	34.1	16.6	85.3	46.3	24.2	3.1	5.3	4.7
14 (02-08 Apr)	31.5	18.9	83.7	50.4	6.6	2.2	5.0	3.8
15 (09-15 Apr)	33.8	19.8	77.7	49.4	14.6	2.4	4.9	7.8
16 (16-22 Apr)	35.0	22.2	75.7	58.7		3.4	7.3	6.6
17 (23-29 Apr)	35.4	21.9	78.9	53.4	0.2	6.9	4.7	4.9

SHILLONGANI	Latitude 26^0 21' N		Longitude 90^{0}45' E		Height above MSL 50.2 m			
40 (01-07 Oct)	31.9	24.4	89	75	79.4	2.9	2.1	
41 (08-14 Oct)	33.1	24.1	94	75	29.2	3.0	2.1	
42 (15-21 Oct)	31.8	22.9	96	81	24.8	3.1	1.7	
43 (22-28 Oct)	27.6	19.4	95	82	33.4	3.0	1.7	
44 (29-04 Nov)	27.8	17.4	94	81		3.2	1.9	
45 (05-11 Nov)	29.8	17.3	95	74		3.2	1.0	
46 (12-18 Nov)	28.6	16.7	94	71	1.0	3.3	1.2	
47 (19-25 Nov)	29.4	17.6	94	70		3.5	1.3	
48 (26-02 Dec)	26.7	13.9	93	69	8.8	3.0	1.2	
49 (03-09 Dec)	26.9	12.1	94	70		3.4	1.1	
50 (10-16 Dec)	25.9	15.4	93	77		3.4	1.5	
51 (17-23 Dec)	25.6	12.6	92	70		3.5	1.2	
52 (24-31 Dec)	25.9	11.4	92	68		0.5	1.1	
1 (01-07 Jan)	24.2	11.9	94	71		3.7	1.4	
2 (08-14 Jan)	22.6	9.4	94	73		3.8	1.5	
3 (15-21 Jan)	25.1	11.1	93	68		3.4	1.0	
4 (22-28 Jan)	25.0	11.7	92	68		3.3	1.4	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
5 (29-04 Feb)	23.0	10.6	94	66		3.5	1.8	
6 (05-11 Feb)	23.6	12.1	91	66		3.2	1.6	
7 (12-18 Feb)	26.1	11.9	93	59		3.1	1.6	
8 (19-25 Feb)	26.4	13.4	91	56	1.2	3.3	1.7	
9 (26-04 Mar)	25.4	14.9	94	70	19.0	2.7	2.4	
10 (05-11 Mar)	28.4	14.6	95	62		3.4	2.6	
11 (12-18 Mar)	27.2	14.9	94	68	9.4	3.1	2.3	
12 (19-25 Mar)	29.0	16.4	93	59	0.2	3.0	2.7	
13 (26-01 Apr)	28.7	16.8	92	60	3.0	2.5	2.0	
14 (02-08 Apr)	32.1	16.9	91	61	7.0	2.6	2.5	
15 (09-15 Apr)	28.1	18.8	92	67	28.3	2.5	2.6	
16 (16-22 Apr)	28.9	18.9	91	71	38.2	2.4	2.7	
17 (23-29 Apr)	30.9	18.6	93	65	41.2	2.5	2.9	
18 (30-06 May)	28.9	18.9	94	78	15.2	2.6	2.3	
19 (7-13 May)	29.0	19.5	92	82	27.9	7.0	2.2	

VARANASI	Latitude 25^0 20' N		Longitude 83^0 03' E		Height above MSL 128.93 m			
40 (01-07 Oct)	33.3	25.2	89	71		3.3	0.9	7.8
41 (08-14 Oct)	32.7	24.8	86	70		3.0	1.3	7.7
42 (15-21 Oct)	30.7	21.0	88	71		2.3	1.5	8.1
43 (22-28 Oct)	34.1	17.4	88	41		2.8	1.0	8.6
44 (29-04 Nov)	30.1	16.8	92	52		2.3	0.6	8.5
45 (05-11 Nov)	30.3	15.8	92	50		2.0	0.4	6.1
46 (12-18 Nov)	29.1	15.1	91	48		2.0	0.8	6.9
47 (19-25 Nov)	24.7	11.4	85	37		3.0	2.3	7.7
48 (26-02 Dec)	26.4	8.5	91	37		1.7	0.9	7.6
49 (03-09 Dec)	25.7	9.3	90	54		1.8	0.6	7.6
50 (10-16 Dec)	26.2	11.2	86	46		1.8	1.1	7.2
51 (17-23 Dec)	23.5	8.8	84	50		1.4	1.8	4.3
52 (24-31 Dec)	21.2	8.2	92	61		1.2	1.4	5.4
1 (01-07 Jan)	16.1	6.2	93	69		0.7	0.8	0.8
2 (08-14 Jan)	19.4	5.9	96	57		1.0	1.6	5.7
3 (15-21 Jan)	23.1	6.4	94	49		1.2	1.3	8.0
4 (22-28 Jan)	2.1	7.7	94	60		2.1	1.7	7.3
5 (29-04 Feb)	24.9	9.1	86	47		2.3	3.2	8.8
6 (05-11 Feb)	24.4	9.5	80	38		2.5	2.2	7.0
7 (12-18 Feb)	24.6	11.8	87	55		2.4	2.3	6.7
8 (19-25 Feb)	29.6	13.2	90	42		2.6	1.0	8.6
9 (26-04 Mar)	30.0	14.9	88	43		3.5	2.6	9.3
10 (05-11 Mar)	30.4	13.8	82	36		3.9	2.4	7.9
11 (12-18 Mar)	33.1	15.7	72	28		4.5	2.2	8.5
12 (19-25 Mar)	34.1	15.6	73	27		4.8	1.8	8.8
13 (26-01 Apr)	35.4	16.8	69	24		6.6	3.7	9.0
14 (02-08 Apr)	33.8	20.0	70	42	9.2	6.4	3.2	9.2
15 (09-15 Apr)	34.8	20.2	72	35		5.8	2.6	8.5

CENTRAL ZONE

BILASPUR	Latitude 22^0 9' N		Longitude 82^0 12' E		Height above MSL 292.3 m			
40 (01-07 Oct)	32.7	23.9	93.3	66.0	40.2	2.4	1.8	6.2
41 (08-14 Oct)	32.2	23.7	91.4	62.1	1.0	2.3	1.9	7.8
42 (15-21 Oct)	33.3	21.2	85.0	54.0	3.2	2.8	2.0	8.0
43 (22-28 Oct)	33.1	20.3	87.5	57.0		2.8	1.5	7.8
44 (29-04 Nov)	30.5	16.8	85.1	52.1		2.6	1.1	8.3
45 (05-11 Nov)	30.6	15.5	91.1	47.1		2.6	1.2	8.7
46 (12-18 Nov)	29.0	17.3	91.0	58.8	1.4	2.1	1.8	5.7

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
47 (19-25 Nov)	30.2	15.4	83.1	43.8		2.5	1.6	7.8
48 (26-02 Dec)	29.4	10.4	86.1	42.5		2.0	0.4	8.9
49 (03-09 Dec)	28.5	12.2	87.0	41.8		2.2	0.1	8.2
50 (10-16 Dec)	29.5	12.7	88.1	44.6		2.1	0.1	7.6
51 (17-23 Dec)	27.9	10.6	83.8	41.1		1.9	0.1	8.1
52 (24-31 Dec)	28.3	9.0	85.0	37.2		2.1	0.1	8.9
1 (01-07 Jan)	26.8	9.1	81.5	38.3		2.1	0.0	8.2
2 (08-14 Jan)	27.1	8.8	81.3	33.8		2.1	0.0	9.2
3 (15-21 Jan)	28.5	8.5	84.6	38.4		2.4	0.0	9.6
4 (22-28 Jan)	28.0	9.5	83.0	33.4		2.2	0.0	9.1
5 (29-04 Feb)	30.1	9.5	83.3	30.1		2.8	0.1	9.6
6 (05-11 Feb)	30.1	14.5	79.3	42.3		2.5	0.1	5.5
7 (12-18 Feb)	28.1	12.5	90.0	44.3	29.4	2.3	0.1	7.9
8 (19-25 Feb)	32.7	14.5	83.7	36.6		3.0	0.0	9.2
9 (26-04 Mar)	34.8	16.0	79.4	34.6		3.6	0.1	9.1
10 (05-11 Mar)	34.1	17.5	65.7	32.5		3.9	0.1	7.3
11 (12-18 Mar)	34.5	17.6	75.5	39.7	1.6	3.7	0.1	6.1
12 (19-25 Mar)	36.1	17.9	64.8	30.7		4.5	0.2	7.6
13 (26-01 Apr)	38.6	18.7	63.7	25.4		5.6	0.3	7.9
14 (02-08 Apr)	37.4	21.2	70.8	43.0	2.6	5.1	0.5	7.0
15 (09-15 Apr)	36.0	21.5	75.6	48.7	30.6	5.3	0.4	7.4
16 (16-22 Apr)	39.5	22.6	70.4	35.1	2.2	5.2	0.6	9.9
17 (23-29 Apr)	40.4	22.5	57.7	34.1	4.4	7.1	0.5	9.3

GWALIOR	Latitude 26^0 13' N		Longitude 78^0 14' E		Height above MSL 211.52 m			
45 (05-11 Nov)	36.1	21.1	86.7	39.7		4.5		
46 (12-18 Nov)	36.7	21.7	82.7	33.6		4.6		
47 (19-25 Nov)	37.1	17.2	83.4	25.7		4.7		
48 (26-02 Dec)	36.5	17.7	75.9	23.3		5.4		
49 (03-09 Dec)	33.4	14.6	86.0	39.0		3.1		
50 (10-16 Dec)	31.3	13.3	93.7	39.0		2.5		
51 (17-23 Dec)	29.8	12.5	90.6	49.3		2.2		
52 (24-31 Dec)	25.6	8.4	85.1	41.1		2.5		
1 (01-07 Jan)	29.1	7.9	90.9	35.0		2.7		
2 (08-14 Jan)	24.9	10.1	87.1	47.3	6.0	1.8		
3 (15-21 Jan)	23.7	10.8	92.3	56.1	1.0	1.5		
4 (22-28 Jan)	24.0	8.1	78.7	45.1		2.5		
5 (29-04 Feb)	25.1	5.6	96.3	49.0		1.8		
6 (05-11 Feb)	20.8	4.5	83.2	61.5		1.3		
7 (12-18 Feb)	23.0	4.2	93.0	45.1		2.1		
8 (19-25 Feb)	28.4	5.7	93.0	40.7		2.4		
9 (26-04 Mar)	24.4	5.9	74.2	57.7		1.9		
10 (05-11 Mar)	26.7	8.3	87.4	49.4		3.1		
11 (12-18 Mar)	24.0	7.2	89.0	52.8		2.4		
12 (19-25 Mar)	24.5	9.7	90.2	67.5		2.4		
13 (26-01 Apr)	30.7	11.8	87.5	41.2		3.5		
14 (02-08 Apr)	32.3	14.4	81.5	37.8		5.4		
15 (09-15 Apr)	31.3	11.9	74.4	42.7		5.2		
16 (16-22 Apr)	34.7	13.9	54.2	38.8		5.0		

INDORE	Latitude 22^0 37'N		Longitude 75^{0}50' N		Height above MSL 557 m			
40 (01-07 Oct)	34.7	24.6	76.80	60.90		3.2	0.20	
41 (08-14 Oct)	33.3	24.7	86.20	71.90	1.40	3.5	0.40	
42 (15-21 Oct)	35.1	21.4	78.60	54.70		3.6	0.20	
43 (22-28 Oct)	34.2	20.3	69.90	57.40		3.9	0.40	
44 (29-04 Nov)	32.9	12.9	78.40	63.60		3.1	0.20	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
45 (05-11 Nov)	30.4	13.1	82.60	61.00		2.9	0.20	
46 (12-18 Nov)	29.3	12.4	83.00	64.40		2.5	0.10	
47 (19-25 Nov)	27.9	12.4	78.70	60.50		2.8	0.10	
48 (26-02 Dec)	29.4	10.3	78.90	58.50		2.7	0.20	
49 (03-09 Dec)	26.0	10.9	85.50	68.10		2.2	0.30	
50 (10-16 Dec)	27.9	11.5	79.00	61.30		2.2	0.20	
51 (17-23 Dec)	25.6	9.8	81.00	64.90		2.3	0.30	
52 (24-31 Dec)	26.8	7.5	89.70	70.50		2.2	0.10	
1 (01-07 Jan)	26.8	7.8	87.90	66.74		2.5	0.29	
2 (08-14 Jan)	26.2	9.4	86.30	62.19		2.1	0.25	
3 (15-21 Jan)	29.7	10.6	90.30	67.94		1.8	0.20	
4 (22-28 Jan)	27.6	8.3	91.80	65.26		2.6	0.36	
5 (29-04 Feb)	30.9	9.9	91.01	70.77		2.7	0.21	
6 (05-11 Feb)	30.6	11.5	87.69	65.46		3.2	0.43	
7 (12-18 Feb)	30.8	10.6	90.53	69.00		3.5	0.56	
8 (19-25 Feb)	34.5	13.9	81.41	61.89		3.8	0.28	
9 (26-04 Mar)	35.7	16.9	79.77	64.59		3.7	0.48	
10 (05-11 Mar)	35.1	17.1	74.10	65.74		4.2	0.62	
11 (12-18 Mar)	36.9	17.8	65.44	58.94		4.4	0.67	
12 (19-25 Mar)	36.4	18.4	58.40	56.51		4.5	1.12	
13 (26-01 Apr)	39.9	18.2	61.69	55.60		3.8	0.97	
14 (02-08 Apr)	40.9	21.6	62.99	61.34		5.1	1.28	
15 (09-15 Apr)	39.5	22.4	55.96	57.73		5.2	0.74	
16 (16-22 Apr)	41.5	24.1	57.41	55.73		6.1	1.72	
17 (23-29 Apr)	37.4	26.0	73.71	59.00		5.3	2.91	
18 (30-06 May)	40.4	29.4	70.43	46.00		5.2	1.26	

JABALPUR	Latitude 21^0 31' N		Longitude 70^0 33' E		Height above MSL 61 m			
40 (01-07 Oct)	33.4	20.3	90	51	7.4	4.3	3.0	8.9
41 (08-14 Oct)	32.6	21.7	92	56	9.2	3.7	4.2	8.4
42 (15-21 Oct)	33.6	17.9	87	40	0	3.9	2.5	8.8
43 (22-28 Oct)	33.1	15.9	81	26	0	3.9	2.9	8.9
44 (29-04 Nov)	31.1	12.2	87	29	0	3.2	2.4	8.4
45 (05-11 Nov)	30.0	10.2	86	27	0	3.4	2.2	8.8
46 (12-18 Nov)	28.9	11.9	87	42	0	2.5	2.0	7.2
47 (19-25 Nov)	27.6	10.1	86	31	0	2.4	1.4	5.9
48 (26-02 Dec)	28.1	5.1	82	21	0	2.4	1.7	8.6
49 (03-09 Dec)	26.7	8.1	80	30	0	2.1	2.1	6.7
50 (10-16 Dec)	27.5	9.0	88	35	0	2.1	2.0	6.6
51 (17-23 Dec)	24.8	5.5	88	32	0	1.2	1.8	4.2
52 (24-31 Dec)	25.2	3.9	86	28	0	2.1	1.9	7.3
1 (01-07 Jan)	28.8	9.7	87	30	0.0	2.0	2.8	7.8
2 (08-14 Jan)	24.7	12.6	88	29	0.0	2.0	2.9	9.1
3 (15-21 Jan)	28.4	10.5	88	30	0.0	2.3	3.1	9.3
4 (22-28 Jan)	31.0	12.7	86	25	0.0	2.8	2.9	9.2
5 (29-04 Feb)	26.7	6.8	85	28	0.0	3.0	2.3	9.8
6 (05-11 Feb)	26.6	12.4	81	52	0.0	2.6	3.2	5.4
7 (12-18 Feb)	25.2	11.5	91	45	18.0	2.6	2.9	6.4
8 (19-25 Feb)	31.2	12.5	80	28	0.0	3.1	3.3	9.8
9 (26-04 Mar)	32.4	14.0	79	26	15.0	3.6	2.6	8.9
10 (05-11 Mar)	30.9	14.1	75	33	1.0	3.2	4.5	6.9
11 (12-18 Mar)	33.3	15.4	74	30	0.8	4.0	2.7	7.4
12 (19-25 Mar)	34.4	14.7	64	20	17.0	4.8	3.4	8.4
13 (26-01 Apr)	37.0	13.5	54	18	8.7	6.1	3.5	9.1
14 (02-08 Apr)	38.0	18.1	56	22	10.8	6.0	6.1	11.4
15 (09-15 Apr)	37.0	20.6	67	40	17.9	5.2	3.7	15.3

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
JUNAGARH	**Latitude 21^0 31' N**		**Longitude 70^0 33' E**				**Height above MSL**	
40 (01-07 Oct)	36.0	25.3	41	76				9.4
41 (08-14 Oct)	36.6	24.6	42	75				7.8
42 (15-21 Oct)	37.3	22.7	31	62				9.4
43 (22-28 Oct)	36.2	21.0	27	69				9.5
44 (29-04 Nov)	36.0	18.0	18	56				8.7
45 (05-11 Nov)	35.1	18.1	25	71				8.9
46 (12-18 Nov)	31.9	18.0	27	62				7.7
47 (19-25 Nov)	31.1	15.1	30	70				8.7
48 (26-02 Dec)	32.6	14.4	30	67				8.4
49 (03-09 Dec)	27.0	17.9	63	73	2.5			1.5
50 (10-16 Dec)	27.9	14.6	38	72				7.2
51 (17-23 Dec)	29.9	15.8	32	67				3.0
52 (24-31 Dec)	30.0	10.0	23	68				9.2
1 (01-07 Jan)	28.3	10.5	27	74				8.9
2 (08-14 Jan)	29.8	15.0	33	70				4.3
3 (15-21 Jan)	32.1	15.6	32	74				8.6
4 (22-28 Jan)	29.0	12.0	25	72				8.9
5 (29-04 Feb)	32.0	13.5	23	70				9.0
6 (05-11 Feb)	30.3	14.8	29	68	1.2			7.2
7 (12-18 Feb)	32.2	16.7	20	56				8.9
8 (19-25 Feb)	35.4	17.1	22	62				8.7
9 (26-04 Mar)	37.3	20.3	20	47				8.5
10 (05-11 Mar)	36.3	18.4	21	78				10.3
11 (12-18 Mar)	36.7	20.3	16	60				10.4
12 (19-25 Mar)	36.2	20.4	21	60				9.7
13 (26-01 Apr)	41.4	21.3	16	60				9.6
14 (02-08 Apr)	40.1	22.2	21	76				9.7
15 (09-15 Apr)	39.4	23.9	22	78				8.7
POWARKHEDA	**Latitude 22^0 44'N**			**Longitude 77^0 42' E**			**Height above MSL 299 m**	
40 (01-07 Oct)	36.10	22.60						
41 (08-14 Oct)	34.33	24.44			6.2			
42 (15-21 Oct)	35.29	20.73						
43 (22-28 Oct)	34.71	18.21						
44 (29-04 Nov)	33.33	15.60						
45 (05-11 Nov)	32.20	15.70						
46 (12-18 Nov)	30.90	16.30						
47 (19-25 Nov)	29.90	17.00						
48 (26-02 Dec)	28.70	11.20						
49 (03-09 Dec)	29.00	14.80						
50 (10-16 Dec)	29.70	14.90						
51 (17-23 Dec)	27.10	11.90						
52 (24-31 Dec)	27.90	11.10						
1 (01-07 Jan)	25.80	10.50						
2 (08-14 Jan)	27.30	11.50						
3 (15-21 Jan)	29.30	13.10						
4 (22-28 Jan)	27.40	11.40						
5 (29-04 Feb)	30.00	11.50						
6 (05-11 Feb)	28.20	15.60			18.6			
7 (12-18 Feb)	28.10	14.40						
8 (19-25 Feb)	33.33	16.66						
9 (26-04 Mar)	34.77	18.40						
10 (05-11 Mar)	34.36	19.13						
11 (12-18 Mar)	36.71	19.00						

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
12 (19-25 Mar)	37.70	20.11						
13 (26-01 Apr)	40.24	19.23						
14 (02-08 Apr)	39.01	22.33						

UDAIPUR	Latitude 24^0 34' N		Longitude 70^{0}42'E			Height above MSL 582 m		
40 (01-07 Oct)	34.8	18.5	63.4	25.3		5.2	3.4	7.7
41 (08-14 Oct)	34.7	18.7	68.3	24.6		5.5	3.1	6.5
42 (15-21 Oct)	35.6	18.7	61.4	18.9		5.7	3.2	8.9
43 (22-28 Oct)	33.6	14.4	73.9	47.1		5.4	2.7	9.0
44 (29-04 Nov)	32.4	13.5	78.6	58.6		4.4	2.5	8.4
45 (05-11 Nov)	30.0	13.0	83.3	64.0		3.4	2.2	7.7
46 (12-18 Nov)	28.6	12.0	84.1	61.1		3.0	2.1	6.6
47 (19-25 Nov)	26.2	9.3	79.9	59.7		2.6	2.3	5.7
48 (26-02 Dec)	28.6	8.8	80.1	58.0		2.3	1.6	8.2
49 (03-09 Dec)	23.5	11.7	93.7	80.1	4.2	1.5	2.3	2.4
50 (10-16 Dec)	24.9	9.6	89.3	68.3		1.8	2.3	6.0
51 (17-23 Dec)	25.4	7.8	83.6	55.0		2.0	1.7	5.5
52 (24-31 Dec)	26.2	6.3	91.5	52.4		2.2	1.8	8.6
1 (01-07 Jan)	24.2	5.2	89.9	44.6		2.3	1.7	8.1
2 (08-14 Jan)	25.2	7.4	87.3	40.7		2.1	1.5	7.2
3 (15-21 Jan)	27.8	7.3	90.4	35.1		3.2	1.9	8.8
4 (22-28 Jan)	25.4	6.1	84.3	31.9		3.3	2.5	8.7
5 (29-04 Feb)	28.6	7.7	80.4	30.4		3.7	2.1	8.9
6 (05-11 Feb)	25.7	8.5	81.1	35.9		3.1	1.9	5.7
7 (12-18 Feb)	26.9	9.1	78.3	40.3		3.6	2.8	8.4
8 (19-25 Feb)	31.7	12.0	77.3	23.1		4.8	2.2	8.6
9 (26-04 Mar)	32.5	12.8	68.7	20.1		4.6	3.5	7.3
10 (05-11 Mar)	32.3	12.0	56.4	22.9		5.8	3.1	7.5
11 (12-18 Mar)	33.5	13.5	52.2	18.2		6.5	3.7	7.7
12 (19-25 Mar)	32.6	14.2	58.4	21.3		5.8	3.9	7.2
13 (26-01 Apr)	37.5	15.7	46.6	12.7		8.4	3.4	8.6
14 (02-08 Apr)	37.8	17.6	46.0	18.0	2.2	7.9	4.2	7.5
15 (09-15 Apr)	36.7	19.8	48.7	23.4		7.3	3.4	5.2
16 (16-22 Apr)	34.6	19.2	29.1	14.9		10.2	6.0	8.3

VIJAPUR	Latitude 23^{0}35' N		Longitude 72^{0}55' E			Height above MSL 124 m		
40 (01-07 Oct)	38.2	23.3	84.7	26.7				10.3
41 (08-14 Oct)	36.5	22.8	96.1	39.0				10.0
42 (15-21 Oct)	37.3	19.9	91.6	22.6				10.2
43 (22-28 Oct)	35.4	18.1	92.6	25.9				10.1
44 (29-04 Nov)	35.0	18.1	85.0	19.4				9.4
45 (05-11 Nov)	33.2	17.6	91.7	23.6				9.3
46 (12-18 Nov)	31.0	16.3	91.4	33.3				9.1
47 (19-25 Nov)	30.4	14.9	87.4	25.3				9.1
48 (26-02 Dec)	30.5	14.5	90.7	25.4				9.2
49 (03-09 Dec)	26.5	18.3	90.6	59.3	3.5			6.4
50 (10-16 Dec)	27.0	14.3	91.3	39.9				8.7
51 (17-23 Dec)	28.1	14.0	87.0	26.0				8.6
52 (24-31 Dec)	28.3	12.4	88.9	28.0				9.4
1 (01-07 Jan)	26.8	10.7	88.0	26.7				9.2
2 (08-14 Jan)	28.5	14.3	88.4	30.1				9.1
3 (15-21 Jan)	29.5	12.8	95.3	26.9				9.7
4 (22-28 Jan)	27.7	11.2	93.6	25.1				9.4
5 (29-04 Feb)	30.8	12.2	93.7	23.7				9.5
6 (05-11 Feb)	28.9	12.9	91.4	28.1				9.8
7 (12-18 Feb)	30.6	13.5	89.1	23.9				9.9

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
8 (19-25 Feb)	34.3	16.1	90.7	22.1				10.3
9 (26-04 Mar)	35.1	18.0	83.3	19.3				10.3
10 (05-11 Mar)	36.0	17.2	77.6	17.4				10.4
11 (12-18 Mar)	35.4	18.1	72.4	17.4				10.3
12 (19-25 Mar)	36.2	19.1	56.7	15.3				11.4
13 (26-01 Apr)	38.6	19.6	52.1	8.1				11.5

PENINSULAR ZONE

AKOLA	Latitude 20^0 70' N		Longitude 77^{0}03' E		Height above MSL 282 m			
40(01-07 Oct)	30.0	22.4	93	72	25.0		0.8	7.5
41(08-14 Oct)	29.6	24.2	90	51			1.2	7.7
42(15-21 Oct)	32.2	22.0	93	57	21.0		1.3	7.9
43(22-28 Oct)	31.8	23.4	90	58	0.5		1.7	8.3
44(29-04 Nov)	33.0	23.3	88	59			1.0	6.9
45(05-11 Nov)	32.8	23.8	9	50			1.9	3.8
46(12-18 Nov)	34.6	22.2	85	40			3.9	6.1
47(19-25 Nov)	35.0	19.0	83	30			1.5	8.0
48(26-02 Dec)	35.2	18.8	76	28			1.7	8.1
49(03-09 Dec)	34.4	16.0	88	55			4.0	6.1
50(10-16 Dec)	30.0	20.5	72	46			2.5	4.8
51(17-23 Dec)	33.6	24.2	85	53			3.3	7.4
52(24-31 Dec)	34.4	21.8	88	44			3.2	9.2
1(01-07 Jan)	34.0	20.6	71	40			2.4	7.7
2(08-14 Jan)	34.2	15.7	76	22			2.9	8.6
3(15-21 Jan)	33.8	14.6	77	21			5.6	9.9
4(22-28 Jan)	34.0	14.7	56	26			4.2	10.1
5(29-04 Feb)	33.8	14.8	79	28			1.0	6.9
6(05-11 Feb)	33.4	14.2	82	25			1.9	3.8
7(12-18 Feb)	33.4	14.3	84	31			3.9	6.1
8(19-25 Feb)	33.0	15.2	88	24			1.8	8.0
9(26-04 Mar)	33.2	12.5	83	20			2.0	7.2

DHARWAD	Latitude 15^0 26'N		Longitude 75^0 07' E		Height above MSL 678 m			
40(01-07 Oct)	29.2	20.7	97	78	21.4			
41(08-14 Oct)	28.9	21.4	98	77	19.0			
42(15-21 Oct)	29.8	20.1	97	67	30.8			
43(22-28 Oct)	29.7	19.1	95	74	1.4			
44(29-04 Nov)	30.0	15.6	91	76				
45(05-11 Nov)	29.6	15.9	84	70				
46(12-18 Nov)	30.1	15.0	85	65				
47(19-25 Nov)	30.1	18.2	89	69	16.2			
48(26-02 Dec)	28.9	15.1	84	57				
49(03-09 Dec)	28.7	17.9	88	66	0.4			
50(10-16 Dec)	29.6	14.6	85	65				
51(17-23 Dec)	28.0	11.8	89	69				
52(24-31 Dec)	28.4	10.7	81	75				
1(01-07 Jan)	28.9	13.3	89	67				
2(08-14 Jan)	30.0	15.2	78	55				
3(15-21 Jan)	30.3	13.9	75	58				
4(22-28 Jan)	30.1	13.7	79	54				
5(29-04 Feb)	31.0	12.6	53	40				
6(05-11 Feb)	30.5	16.3	61	47	1.0			
7(12-18 Feb)	31.9	16.1	67	46				
8(19-25 Feb)	33.3	16.7	59	33				
9(26-04 Mar)	34.7	16.4	43	24				

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
10(05-11 Mar)	35.3	18.0	71	18				
11(12-18 Mar)	33.5	20.1	71	33	26.8			
12(19-25 Mar)	34.5	19.5	60	25	45.6			
13(26-01 Apr)	36.4	20.6	85	25				

NIPHAD	Latitude 20.6^0 N		Longitude 74.6^0 E		Height above MSL 548.6 m			
40(01-07 Oct)	33.54	20.03	87.6	46.6		6.1	3.7	8.9
41(08-14 Oct)	30.57	21.94	95.4	76.6	228.0	1.5	3.0	5.5
42(15-21 Oct)	32.43	19.54	86.1	45.9	8.0	4.9	2.8	8.3
43(22-28 Oct)	32.40	15.74	75.3	41.1		6.2	3.3	9.0
44(29-04 Nov)	30.91	12.80	76.9	34.9		6.3	3.0	7.9
45(05-11 Nov)	29.89	12.29	80.3	34.4		6.2	3.3	8.8
46(12-18 Nov)	29.43	11.14	78.3	31.9		6.2	1.7	8.7
47(19-25 Nov)	30.34	14.14	84.3	40.7		6.2	2.4	7.6
48(26-02 Dec)	29.30	10.70	81.0	37.0		6.0	1.8	8.9
49(03-09 Dec)	26.50	15.80	84.0	69.0	4.8	4.8	3.6	6.5
50(10-16 Dec)	28.60	12.50	81.0	50.0		5.0	2.1	8.2
51(17-23 Dec)	28.10	10.90	82.0	49.0		5.5	3.2	8.4
52(24-31 Dec)	28.40	8.00	80.0	35.0		5.4	2.9	8.6
1(01-07 Jan)	27.50	8.10	81.0	44.0		4.6	1.6	8.2
2(08-14 Jan)	28.00	10.80	80.0	40.0		4.1	1.8	8.9
3(15-21 Jan)	30.30	11.20	78.0	32.0		4.9	1.9	8.6
4(22-28 Jan)	28.90	7.50	79.0	35.0		5.5	1.7	8.7
5(29-04 Feb)	30.50	8.60	78.0	33.0		5.6	1.6	8.5
6(05-11 Feb)	31.20	11.00	76.0	35.0		5.3	1.9	8.8
7(12-18 Feb)	32.00	10.80	78.0	32.0		5.5	2.1	8.7
8(19-25 Feb)	32.70	11.20	70.0	30.0		5.2	2.2	8.4
9(26-04 Mar)	33.50	14.20	69.0	34.0		5.4	1.8	8.6
10(05-11 Mar)	34.00	15.10	72.0	29.0		6.0	1.9	9.4
11(12-18 Mar)	33.80	16.00	74.0	32.0		6.1	2.1	9.2
12(19-25 Mar)	33.00	14.80	68.0	36.0		6.0	3.2	9.0
13(26-01 Apr)	37.30	15.40	70.0	39.0		6.3	2.4	9.9
14(02-08 Apr)	38.30	18.80	69.0	26.0		6.8	3.8	9.9
15(09-15 Apr)	37.40	18.00	76.0	25.0		6.8	3.7	10.0
16(16-22 Apr)	38.10	20.30	79.0	27.0	0.2	7.0	5.6	9.5
17(23-29 Apr)	38.60	18.00	70.0	23.0		9.4	5.3	10.3
18(30-06 May)	38.70	20.20	66.0	23.0		11.5	8.1	11.0
19(07-13 May)	38.90	21.90	60.0	24.0		13.3	6.1	11.3

PUNE	Latitude 18^{0}04' N		Longitude 74^{0}21' E		Height above MSL 548.6 m			
40(01-07 Oct)	31.8	20.9	91.3	58.1	46.0			
41(08-14 Oct)	31.3	20.3	95.8	70.2	74.9			
42(15-21 Oct)	31.9	20.3	93.9	52.0	11.8			
43(22-28 Oct)	31.3	20.5	92.7	51.0				
44(29-04 Nov)	32.1	18.7	93.9	47.4				
45(05-11 Nov)	29.7	15.1	87.8	46.4				
46(12-18 Nov)	29.4	12.4	83.5	43.8				
47(19-25 Nov)	31.0	14.5	93.5	58.7	29.2			
48(26-02 Dec)	30.2	18.5	91.8	53.5				
49(03-09 Dec)	29.0	13.3	88.2	62.4				
50(10-16 Dec)	29.0	8.0	95.9	46.7				
51(17-23 Dec)	29.1	9.0	88.8	43.7				
52(24-31 Dec)	28.6	12.5	90.9	38.6				
1(01-07 Jan)	29.1	10.2	93.8	36.9				
2(08-14 Jan)	29.8	12.2	91.0	46.8				
3(15-21 Jan)	31.1	12.4	93.8	41.2				

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
4(22-28 Jan)	29.7	9.6	95.5	39.9				
5(29-04 Feb)	30.8	10.0	93.1	39.4				
6(05-11 Feb)	30.0	11.9	94.4	45.3				
7(12-18 Feb)	31.7	13.4	94.9	45.5				
8(19-25 Feb)	33.6	13.9	90.4	38.0				
9(26-04 Mar)	34.8	14.0	87.3	37.6				
10(05-11 Mar)	35.8	17.8	92.4	32.0				
11(12-18 Mar)	34.2	18.2	80.0	45.8				
12(19-25 Mar)	36.4	14.5	72.2	24.6				
13(26-01 Apr)	38.5	17.0	74.6	22.7				
14(02-08 Apr)	37.5	18.9	80.9	27.2	TR			
15(09-15 Apr)	37.4	17.5	74.4	27.1	0.5			

UGAR	Latitude 16^{0}66' N		Longitude 74^{0}82' E		Height above MSL 548 m			
40(01-07 Oct)	30.3	22.1			26.0			
41(08-14 Oct)	30.8	21.8			116.0			
42(15-21 Oct)	29.6	19.9			3.0			
43(22-28 Oct)	25.7	20.6						
44(29-04 Nov)	29.4	15.9						
45(05-11 Nov)	28.6	16.0						
46(12-18 Nov)	28.5	20.8						
47(19-25 Nov)	28.6	20.0						
48(26-02 Dec)	28.3	17.1						
49(03-09 Dec)	28.4	16.6						
50(10-16 Dec)	27.3	13.5						
51(17-23 Dec)	26.4	11.8						
52(24-31 Dec)	28.1	13.7						
1(01-07 Jan)	28.4	15.8						
2(08-14 Jan)	29.0	14.9						
3(15-21 Jan)	28.0	13.6						
4(22-28 Jan)	27.7	12.1						
5(29-04 Feb)	29.6	14.0						
6(05-11 Feb)	33.4	15.6						
7(12-18 Feb)	35.0	18.2						
8(19-25 Feb)	36.3	20.0						
9(26-04 Mar)	37.8	20.4						
10(05-11 Mar)	39.0	18.6						
11(12-18 Mar)	40.0	17.9						

ANNEXURE-III

SOIL PHYSICO-CHEMICAL PROPERTIES 2017-18

Zone/ Centre	Textural class	Sand %	Silt %	Clay %	Db Mg m^{-3}	FC %	PWP %	OC %	Avail. N kg/ha	Avail. P kg/ha	Avail. K kg/ha	pH	EC dsm^{-1}
NORTHERN HILLS ZONE													
Almora	Clay Loam	27-30	36-45	28-34	1.34-1.36	27.4-28	17.6-17.8	1.02-1.05	346-364	14.8-15.4	182-198	6.5-6.6	0.09
Bajaura	Silty Loam	28.2	53.4	18.4	1.54	NA	NA	0.60-0.62	345-372	48-55	165-188	6.0-6.2	0.06
Khudwani	Loam	41	37	22	1.25	NA	NA	1.18	227	15.2	275	7.02	0.15
Malan	Silty clay loam				1.54-1.58	30-34	13-14.5	0.7-0.8	434-468	42-46	218-258	5.1-5.3	0.16-0.17
NORTH WESTERN PLAINS ZONE													
Agra	Sandy loam	59.95	21.20	18.51		18.50	9.80	0.34	183.00	28.30	290.00	8.10	1.80
Bikaner								0.318	132.10	19.97	264.32	7.97	0.393
Gurdaspur	loam texture							0.41		5.0	80.0	7.3	0.18
Durgapura	Loamy sand	86.15	5.2	6.82	1.45	10.4	3.15	0.24	142.0	49.64	154.29	7.9	0.22
Hisar	Sandy loam	72	18.5	9.5	1.4			36	142.0	18.2	294.0	7.8	0.24
Jammu	Clay Loam	40.29	32.11	27.6	1.45	22.67		0.43	172.0	13.9	139.0	7.4	0.22
Karnal	Sandy Loam	62.4	27.5	10.1	1.63	18.9	7.3	0.37	179.0	15.6	209.7	8.11	0.22
Ludhiana	Loamy sand	84.60	7.30	8.00	1.44			0.6		37.0	220.5	7.7	0.15
New Delhi		61.25	15.6	23.2	1.51	22.2	9.74	0.44	258	10.01	296.0	7.5	125
Pantnagar	Loam	36	48	16	1.39	22	8	0.7	230	44.0	145.0	7.3	0.40
Sriganganagar								0.29	190	17.5	365.0	8.53	0.11
NORTH EASTERN PLAINS ZONE													
Burdwan	Sandy Loam							0.52	236	299	179	5.37	0.08
Coochbehar	Sandy loam	64	23	13	1.36			0.94	238.9	32.6	146.8	5.81	
Faizabad	Sandy loam	56.6	29.3	14.7	1.4	23	8	0.47	119	23	264	7.6	0.48
IARI Pusa								0.47		18.83	187.67	8.36	0.43
Kalyani	Loam	44.59	32.05	23.36	1.53	33	11	0.46	252.23	23.92	268.33	7.2	0.33
Kanpur								0.42		23	185	8.83	0.18
Ranchi	Clay Loam	32.27	31.50	36.23	1.45	25.93	13.60	0.42	188.53	13.60	200.80	6.23	
RAU Pusa	Clay Loam	23.85	49.01	26.85	1.42	21.07	7.76	0.44	194.2	21.07	123.69	8.3	0.23
Sabour	Clay Loam	25	43	32	1.54	23	12	0.58	204	25	185	7.1	0.14
Shillongani	Sandy Clay Loam	50.8	22.6	26.6	1.36	43.03	7.8	1.15	148.8	12.6	278.6	5.5	0.262
Varanasi	Sandy Clay Loam	48.5	29.1	22.4	1.6	20.2	5.4	0.37	170.3	27.5	225.8	7.3	0.35
CENTRAL ZONE													
Bilaspur	Sandy clay loam	44.11	23.1	34.23	1.31	21.56	8.4	0.37	273	13.24	289	7.4	0.19
Gwalior	Sandy clay loam	56.0	17.2	26.8	-	-	-	0.45	180	12.5	200	7.4	-
Indore	Clay Loam	14.2	26.8	59	1.48	36	16	0.53	259	16.8	456.8	7.8	0.24
Jabalpur	Clay Loam	28.15	23.6	44.7	1.36	39	18	0.54	236.8	17.78	311.62	7.1	0.38
Junagarh	Clay Loam	-	-	-	-	-	-	-	212.00	38.60	203.00	8.00	0.46
Powarkheda	Clay Loam	26.0	24.5	47.5	1.53	-	-	0.48	285	32.15	351	7.5	0.39
Udaipur	Clay loam	38.75	26.78	34.47	1.46	-	-	0.55	287.52	23.67	365.15	7.87	0.9
Vijapur	Sandy loam	74.8	11.8	8.8	1.59	11.45	2.44	0.31-0.33	158-162	37.7-41.2	293-303	7.67-7.79	0.32-0.36
PENINSULAR ZONE													
Dharwad	Clay	20.0	26.0	50.0	1.3	35.0	18.0	0.4	224-268	28-49	328-416	7.1	0.3
Niphad	Clay	21.6	33.7	44.8	1.3	-	-	0.5	198.6	21.6	389.0	8.1	0.4
Pune	Clay	5.7-9.6	48.8-64.3	12.8-27.8	1.3-1.4			0.4-1.1	118-274	8.9-15.1	187-510	8.1-8.3	0.2-0.4
Ugar	Clay	18.0	36.0	52.0	1.3	35.0	18.0	0.5	272.0	29.0	326.0	7.5	0.2

ANNEXURE-IV

SOWING DATES FOR DIFFERENT ZONES UNDER IRRIGATED CONDITIONS

ZONE		*Triticum aestivum*	*Triticum durum*
NORTHERN HILLS ZONE			
	Normal	5th Nov. to 11th Nov.	
	Late	26th Nov. to 2nd Dec.	
	Very Late	17th Dec. to 23nd Dec.	
NORTH WESTERN PLAINS ZONE			
	Normal	5th Nov. to 11th Nov.	29th Oct. to 4th Nov.
	Late	10th Dec. to 16th Dec.	26th Nov. to 2nd Dec.
	Very Late	1st Jan. to 7th Jan.	
NORTH EASTERN PLAINS ZONE			
	Normal	12th Nov. to 18th Nov.	
	Late	10th Dec. to 16th Dec.	
	Very Late	1st Jan. to 7th Jan.	
CENTRAL ZONE			
	Normal	12th Nov. to 18h Nov.	5th Nov. to 11th Nov.
	Late	3rd Dec. to 9th Dec.	
	Very Late	24th Dec. to 31st Dec.	
PENINSULAR ZONE			
	Normal	5th Nov. to 11th Nov.	5th Nov. to 11th Nov.
	Late	26th Nov. to 2nd Dec.	
	Very Late	17th Dec. to 23rd Dec.	
SOUTHERN HILLS ZONE			
	Normal	26th Nov. to 2nd Dec.	
	Late	24th Dec. to 31st Dec.	

ANNEXURE-V

LIST OF CENTRES AND COOPERATING SCIENTISTS WORKING UNDER RESOURCE MANAGEMENT PROGRAMME OF THE AICW&BIP (2017-18)

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Agrisearch with a human touch

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