प्रगति प्रतिवेदन

PROGRESS REPORT

2018-19

अखिल भारतीय समन्वित गेहूँ एवं जौ अनुसंधान परियोजना

AICRP on Wheat and Barley

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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Correct Citation:

Anonymous 2019. Progress Report of All India Coordinated Research Project on Wheat and Barley 2018-19, Vol. II, Resource Management. Eds: Ramesh Kumar Sharma, Subhash Chandra Tripathi, Subhash Chander Gill, Rajender Singh Chhokar, Raj Pal Meena, Ankita Jha, Ajay Verma and Gyanendra Pratap Singh. ICAR-Indian Institute of Wheat and Barley Research, Karnal, Haryana, India. P. 171.

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Issued on the occasion of 58th All India Wheat & Barley Research Workers' Meet held at Indian Agricultural Research Institute-Regional Station, Indore during August 24-26, 2019.

ACKNOWLEDGEMENT

The Resource Management Group of the ICAR-Indian Institute of Wheat and Barley Research expresses sincere thanks to;

- *The Director, ICAR-IIWBR, Karnal Dr Gyanendra Pratap Singh for providing the facilities and support for smooth execution of the Resource Management programme.*
- *The scientists of the cooperating centres for successful implementation of the Resource Management programme.*
- *The technical staff of the Resource Management Programme Sh Ram Kumar Singh, Sh PHP Verma and Sh Rajinder Pal Sharma for help in successful execution of the Resource Management programme.*
- *The administrative, finance and farm services of the Indian Institute of Wheat and Barley Research for their cooperation and support to the Resource Management Programme.*

The authors are also thankful to all those who might have helped directly or indirectly in effective execution of the programme.

Dated: 3rd August, 2019

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

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SUMMARY

Food security of the country is mainly dependent on available natural resources and climatic conditions. Despite shrinking land and water resources, climate abrasions and little genetic gain, India harvested more than 100 million tonnes of wheat during the current year. This was possible by adoption of latest high yielding diseases resistant varieties and their production technologies by Indian farmers. The imbalanced fertilisation and intensive tillage are still matters of concern leading to the degradation of natural resources. The multiple nutrient deficiencies are being reported from various parts of the Indo-Gangetic plains, the food basket of the country which is a result continuous mining of the soil coupled with imbalanced fertilisation. Nitrogen is generally applied in excess in NWPZ and in NEPZ it is applied less than the recommended ones 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, diversification/intensification by including leguminous crops, integrated nutrient and weed management, to make food production cost and input efficient in order to increase the profit margins to the farmers.

The Resource Management group of the “All India Co-ordinated Wheat and Barley Improvement Project” (AICW&BIP), 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 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 four wheat growing zones, seven varietal evaluation trial series were conducted at a number of locations under different growing conditions. The newly developed genotypes were evaluated against the existing varieties used as checks. In addition, seven special coordinated trials were also proposed to address the zone-wise problems and priorities.

The zone-wise details of the varietal evaluation trials conducted are given in Table 1. In all, 62 trials were proposed, of which 58 were conducted. Out of the conducted trials, four trials were rejected due to low yield and/or high CV and improper data reporting. The overall

conduct of trial was 93.5 percent with a success and rejection rate of 93.1 percent and 6.9 percent, respectively.

In NWPZ, out of 27 proposed trials, 25 were successfully conducted. In NEPZ and CZ, 12 and 20 trials were proposed for respective zones out of which 12 and 16 were conducted successfully in NEPZ and CZ, respectively. In PZ, out of 20 proposed 18 were conducted. In PZ, one was rejected by the monitoring team; two were rejected due to high CV and one due to incomplete set at Dharwad. Akola centre did not conduct RIR-TS-TAS trial. 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-TS--DOS	10	10	-	-	-	-
RIR-TS-TAS	10	10	-	-	-	-
IR-ES-HYT	07	05	02	Delhi, Ladowal (BISA)	-	-
Total	**27**	**25**	**02**	-	-	-
North Eastern Plains Zone						
IR-TS--DOS	11	11	-	-	-	-
RIR-TS-TAS	11	11	-	-	-	-
Total	**22**	**22**	**-**		-	
Central Zone						
RIR-TS-TAD	08	08	-	-	03	Jabalpur, Junangarh, Vijapur
Total	**08**	**08**	**-**	**-**	**03**	**-**
Peninsular Zone						
RIR-TS-TAS	05	03	02	Akola, Washim	01	Niphad
Total	**05**	**03**	**02**		**01**	
Total Trials	**62**	**58**	**04**		**04**	

The performance of 34 test entries has been presented in the Table 2. In NWPZ, the results showed that out of five test entries in the AVT-II year timely sown condition, only three genotypes namely, DBW 222, PBW 771, and HD 3271 for irrigated timely sown condition were significantly superior to best check (PBW 752) with a yield gain of 3.46, 2.08 and 1.71 percent. Whereas, in restricted irrigation trial in NWPZ, out of 3 test entries viz. BRW 3806, HI 1628 and NIAW 3170, only one test entry BRW 3806 was found numerically better than the best check HUI 1620 with a yield gain of 1.25%. In early sown high yield trial out of the 13 test entries, one entry DBW 187 was significantly superior to the best check HD 3086 with an yield gain of 5.80 percent whereas four test entries i.e. WH 1254, WH 1270, UP 3043, DBW 303 were numerically better with an yield of 0.15 to 2.07 percent.

In NEPZ, three test genotypes namely HD 3249, HD3271 and HI1681 were test and only HD 3249 was found significantly superior to the best check DBW 187 with a yield gain of 3.79%.for irrigated timely sown conditions. Whereas in restricted irrigation trial one test entry namely DBW 252 was evaluated and found inferior to best check variety K 1317.

In CZ, two durum test entries namely DDW 47 and UAS 466 were evaluated and none was found significantly superior to best check DBW 110.

In PZ, under restricted irrigation conditions seven test entries viz. MACS 6695, MACS 6696, NIAW 3170, MACS 4059(d), GW 1346(d), HI 8802(d) and HI 8805(d) were evaluated and two test entries were found significantly superior to best check HI 1605 with a yield gain of 8.46 and 5.72%, respectively. One test entry NIAW 3170 gave numerically better yield than the respective best check HI 1605 with a yield gain of 1.63 percent.

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-TS--DOS	DBW 221, DBW 222,	-	DBW222,	PBW752(I)	3.46	10
	PBW 771, HD 3271,	-	PBW771,	PBW752(I)	2.08	10
	HI 1621		HD3271	PBW752(I)	1.71	10
RIR-TS-TAS	BRW3806, HI1628, NIAW3170	BRW3806	-	HI1620	1.25	10
IR-ES-HYT	HD 3317, WH 1254,		DBW 187	HD3086	5.80	05
	DBW 301, WH 1270,	WH 1254,			1.00	
	PBW 824, UP 3043,	WH 1270,			0.15	
	DBW 187, DBW 303,	UP 3043,			2.07	
	DBW 304, UP 3042,	DBW 303			1.90	
	DBW 302, PBW 825, HD 3347					
North Eastern Plains Zone						
IR-TS--DOS	HD 3249, HD3271, HI1681	-	HD 3249	DBW187	3.79	11
RIR-TS-TAS	DBW 252	-		K1317	-	11
Central Zone						
RIR-TS-TAD	DDW 47, UAS 466	-	-	DBW110	-	05
Peninsular Zone						
RIR-TS-TAS	MACS 6695, MACS	-	MACS 6695,	HI 1605	8.46	02
	6696, NIAW 3170,	-	MACS 6696	HI 1605	5.72	
	MACS 4059(d), GW	NIAW 3170		HI 1605	1.63	
	1346(d), HI 8802(d), HI 8805(d)					

The details of the special trials conducted in different zones are presented in Table 3. In all, 70 trials were proposed, out of which 57 were conducted and the conduct percentage was 81.4. The maximum numbers of special trials were conducted in NWPZ (18) followed by NEPZ (12), NHZ (11), PZ (09) and CZ (07), respectively.

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

Trial Series	Locations	Trials conducted	Trials not conducted	
			Number	Centres
Northern Hill Zone				
SPL-2: Role of PSB	02	02	-	-
SPL-3: Enhancing Zn in wheat grain	03	03	01	Shimla
SPL-6 Varieties at date of sowing	05	02	03	Almora, Khudwani, Shimla
SPL-7 :Precision nutrient management	04	04	-	-
Total	**14**	**11**	**03**	
North Western Plains Zone				
SPL-1:Early sown high yielding trial	07	05	02	Delhi, Ladowal (BISA)
SPL-2: Role of PSB	02	02	-	
SPL-6 Varieties at date of sowing	10	07	03	Agra, Delhi, Sriganganagar
SPL-7 :Precision nutrient management	04	04	-	-
Total	**23**	**18**	**05**	
North Eastern Plains Zone				
SPL-2: Role of PSB	01	01	-	-
SPL-5: Precision nitrogen management	02	02	-	-
SPL-6 Varieties at date of sowing	11	08	03	IARI Pusa, Kanpur, CAU Pusa
SPL-7 :Precision nutrient management	01	01	-	-
Total	**15**	**12**	**03**	
Central Zone				
SPL-6 Varieties at date of sowing	07	06	01	Junagarh
SPL-7 :Precision nutrient management	01	01	-	-
Total	**08**	**07**	**01**	
Peninsular Zone				
SPL-4: Yield maximization of dicoccum	04	03	01	Akola
SPL-5: Precision nitrogen management	02	02	-	-
SPL-6 Varieties at date of sowing	03	03	-	-
SPL-7 :Precision nutrient management	01	01	-	-
Total	**10**	**09**	**01**	
Total Trials	**70**	**57**	**13**	

NORTH WESTERN PLAINS ZONE

In North Western Plains, three varietal evaluation trials (irrigated timely sown and restricted irrigatioon and early sown high yielding) were conducted to evaluate the performance of new genotypes as compared to existing varieties as checks.

The performance of five *aestivum* test entries (DBW 221, DBW 222, PBW 771, HD 3271 and HI 1621) against seven checks (HD 3086, HD 3226, HD 3059, DBW 173, PBW 752, DBW 71 and PBW 757) was evaluated at ten locations *i.e.* Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar under timely, late and very late sown conditions. The test entry DBW 222 ranked 1st in all sowing conditions with mean yield of 50.81 q/ha and produced significantly higher grain yield (Figure 1) in timely (61.53 q/ha), late 50.19

q/ha) and very late (40.71 q/ha) sown condition as compared to all the check varieties of timely, late and very late sown conditions and was at par with late sown test entry PBW 771 (50.14 q/ha) closely followed by very late sown entry HD 3271 (49.96 q/ha).

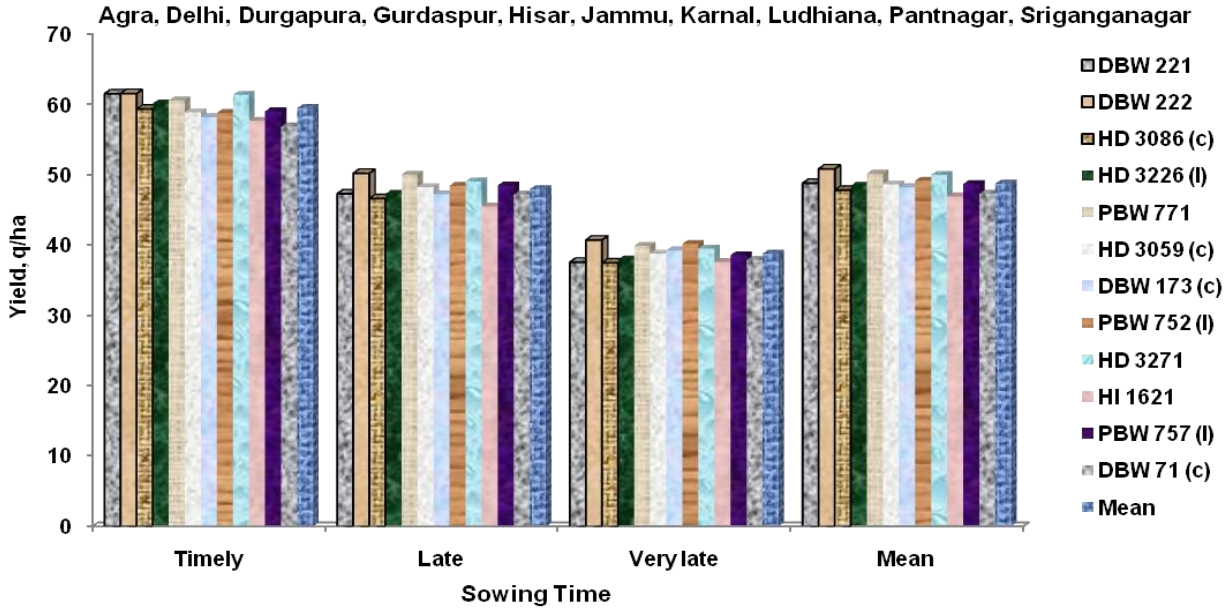

Figure 1. Genotypes for irrigated conditions in North Western Plains Zone

The restricted irrigation trial was conducted with the objective to evaluate the three *aestivum* test entries namely BRW 3806, HI 1628 and NIAW 3170 against six checks (WH 1080, HD 3043, HI 1620, HD 3237, WH 1142 and PBW 644) at ten locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar). The perusal of data in Figure-2 indicates that increasing the irrigation level significantly increased the grain yield with maximum and significantly higher productivity (51.19 q/ha) with two irrigations as compared with no and one irrigation. The test entry BRW 3806 produced significantly higher grain yield (48.43 q/ha) as compared to other entries and checks on mean basis except HI1620, which was at par.

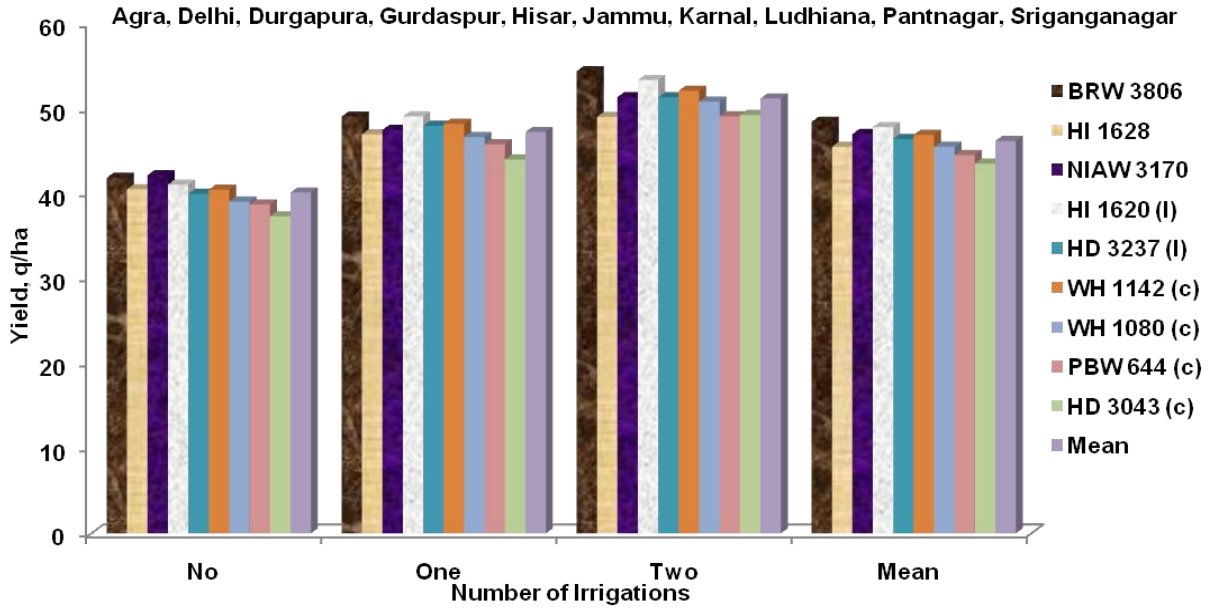

Figure 2. Genotypes under restricted irrigations in North Western Plains Zone

The experiment to achieve wheat productivity of 8 t/ha was conducted using higher level of inorganic and organic fertiliser with spray of growth retardant to control lodging. The experiment consisted of three fertility treatments viz. RDF, RDF +15 t FYM/ha and 150% RDF+15 t FYM/ha+two sprays as tank mix-Chlormequat chloride (Lihocin) @ 0.2%+ tebuconazole (Folicur 430 SC) @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application) stages using 15 wheat genotypes. The trial was conducted at five locations namely Gurdaspur, Hisar, Karnal, Ludhiana and Pantnagar. Genotype DBW 187 ranked first under all nutrient management condition with mean yield of 77.5 q/ha which was significantly higher than other genotypes (Figure 3). This genotype yielded 82.2 q/ha under 150% RDF + 15t FYM/ha + two sprays as tank mix- Chlormequat chloride (Lihocin) @ 0.2%+tebuconazole (Folicur 430 SC) @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application) stage which was higher than other genotypes.

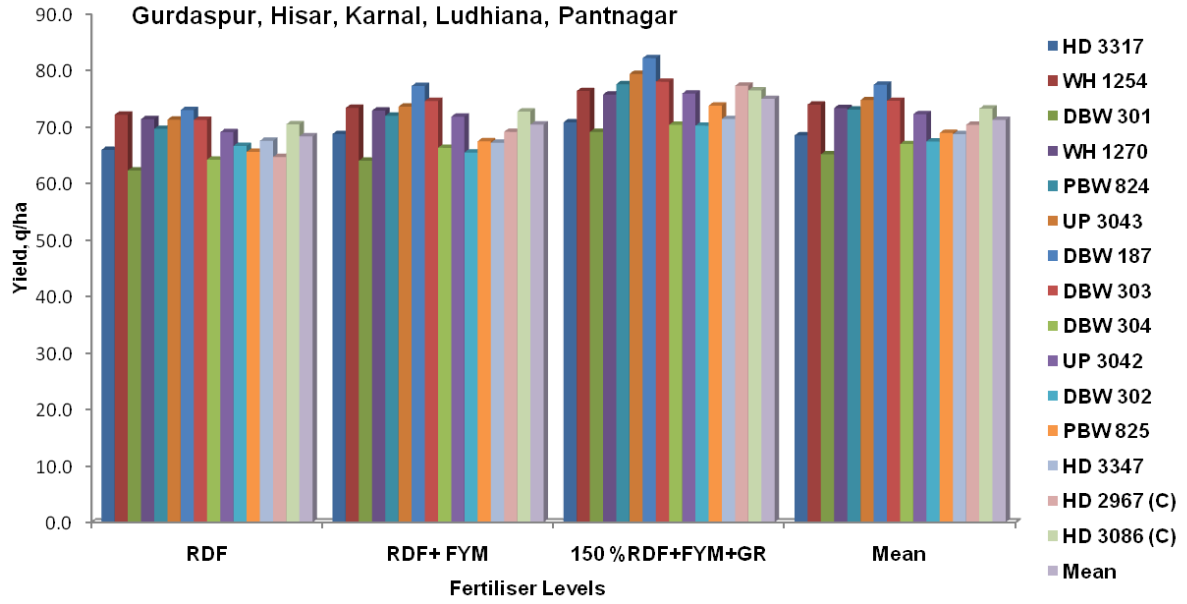

Figure 3. Genotypes under early sown high fertility conditions in North Western Plains Zone

NORTH EASTERN PLAINS ZONE

In this zone, the performance of test genotypes was evaluated under different sowing conditions and restricted irrigation conditions at different locations and the results are summarized here under;

The three test genotypes, one for timely (HD 3249) and two for late sown (HD 3271 and HI 1621) conditions were evaluated against six checks (four for timely i.e. DBW 187, HD 2733, HD 2967, DBW 39 and two i.e. PBW 757, DBW 71 for late sown) at eleven centres *i.e.* Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RPCAU Pusa, Sabour, Shillongani and Varanasi under Timely, Late and Very late sown conditions. The perusal of Figure 4 indicates that test genotype HD 3249 (42.49 q/ha) yielded the maximum and significantly higher to the best check DBW 187 (40.94 q/ha). Among the timely and late sown entries and checks, the timely sown test entry HD 3249 was the best even under late and very late sown conditions.

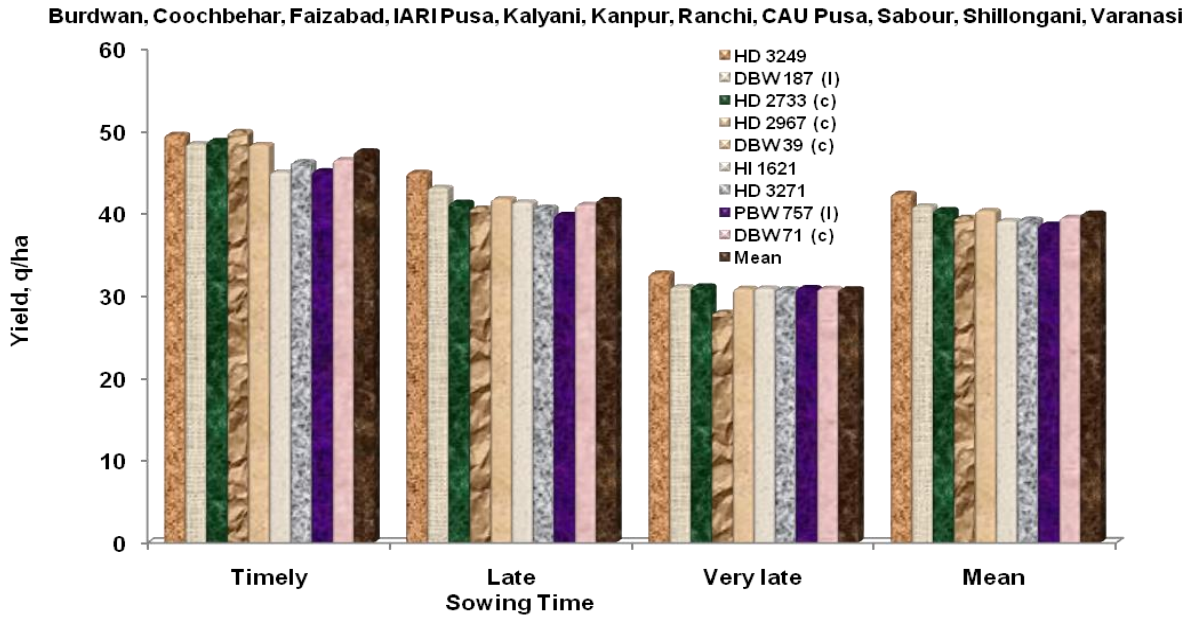

Figure 4. Genotypes under irrigated conditions in North Estern Plains Zone

In restricted irrigation trial, one test entry DBW 252 and five checks (HD 3171, HI 1612, HD 2888, K 8027, and K 1317) were evaluated at no irrigation, one irrigation (CRI stage) and two irrigations (CRI and boot stage). The trial was conducted at eleven locations (Burdman, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, CAU Pusa, Sabour, Shillongani and Varanasi). The pooled analysis (Figure 5) showed that increasing number of irrigations successively gave significantly higher grain yield. One and two irrigation application gave 20.44% and 34.44% higher grain yield, respectively than no irrigation. All the yield attributing parameters were significantly increased as level of irrigation enhanced. So, the yield increase was due to cumulative effect of all the yield attributing parameters. The check genotype K 1317 (38.50 q/ha) ranked 1st and produced significantly higher grain yield (38.50 q/ha) than new test entry DBW 252 (37.69 q/ha) and all the other checks except HI 1612 (37.85 q/ha).

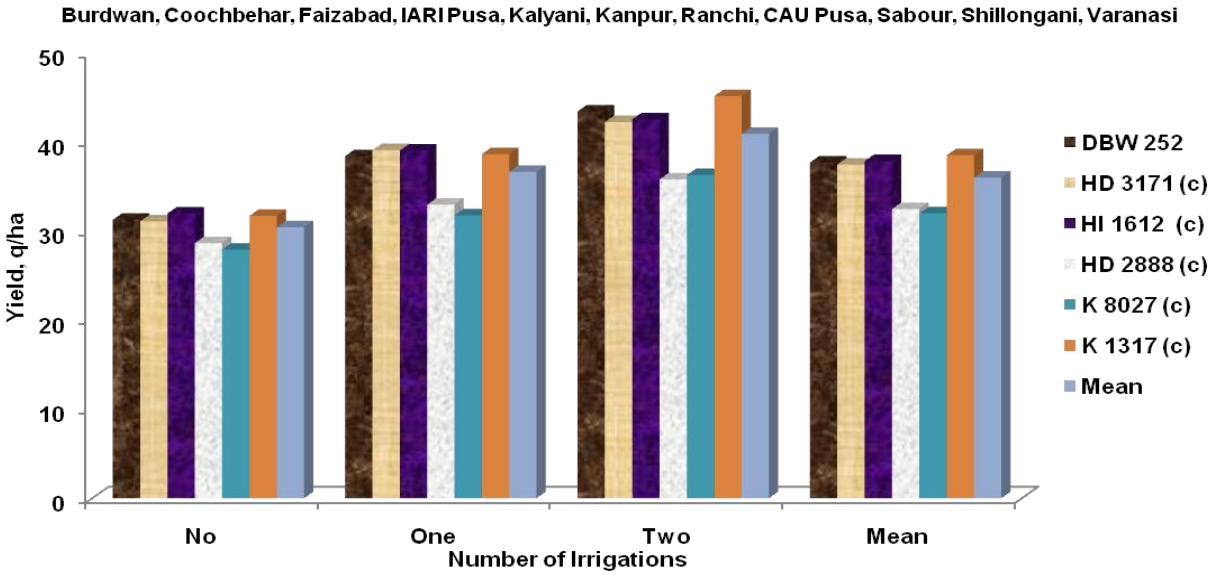

Figure 5. Genotypes under restricted irrigations in North Eastern Plains Zone

CENTRAL ZONE

In this trial, two durum test entries {UAS 466 (d) and DDW 47(d)} were evaluated against three checks { DBW 110(c), HI 8627 (d)(c) and MP 3288(c)} under timely sown restricted irrigated conditions. The trial was conducted at eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Udaipur and Vijapur). The data from three centres were rejected due to low yield or improper data reporting. The perusal of data presented in Figure 6 revealed that the durum wheat test entries UAS 466 (d) and DDW 47(d) were not superior in grain yield when compared to the best check entry HI 8627 (dc) identified during the previous year and aestivum wheat check DBW 110 (c). On an average basis there was significant (71.77 %) increase in yield from 23.77 q/ha to 40.83 q/ha when number of irrigation increased from no irrigation to two irrigations.

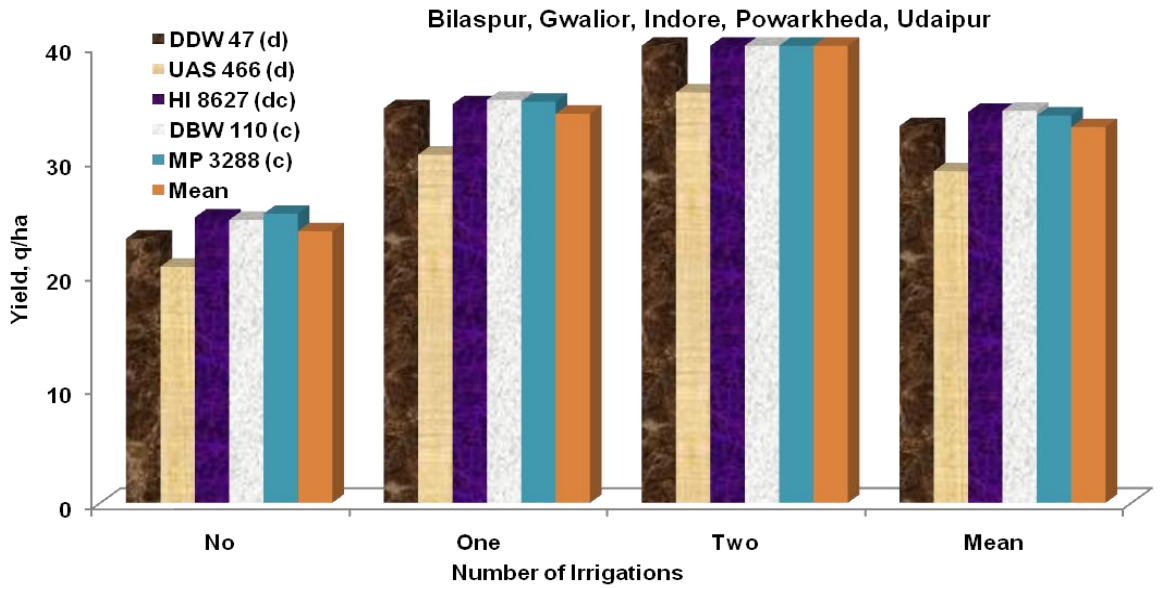

Figure 6. Genotypes under restricted irrigations in Central Zone

PENINSULAR ZONE

In restricted irrigation trial seven test entries comprising three aestivum namely MACS 6695, MACS 6696 and NIAW 3170 and four durum entries namely MACS 4058, GW 1346, HI 8802 and HI 8805 were evaluated against four checks viz DBW 93, HI 1605, AKDW 2997-16 (d) and UAS (d) at three locations (Dharwad, Niphad and Pune). The data from Niphad centre was rejected due to high CV and low yield levels. The perusal of pooled data for Dharwad and Pune indicated that increasing irrigation frequency significantly increased the grain yield (Figure 7). Maximum grain yield (37.24 q/ha) was produced under two irrigations which were imposed at CRI and boot leaf stage followed by one irrigation (29.18 q/ha) and no irrigation (25.27 q/ha) levels. Among genotypes, maximum grain yield was produced by test entry MACS 6695 (35.24 q/ha) followed by test entries MACS 6696 (34.35 q/ha) and NIAW 3170 (33.02 q/ ha) and the MACS entries were significantly superior to the best check. Among durum entries, HI 8805 and MACS 4058 were significantly superior to best durum check AKDW 2997-16 but poorer than best aestivum check.

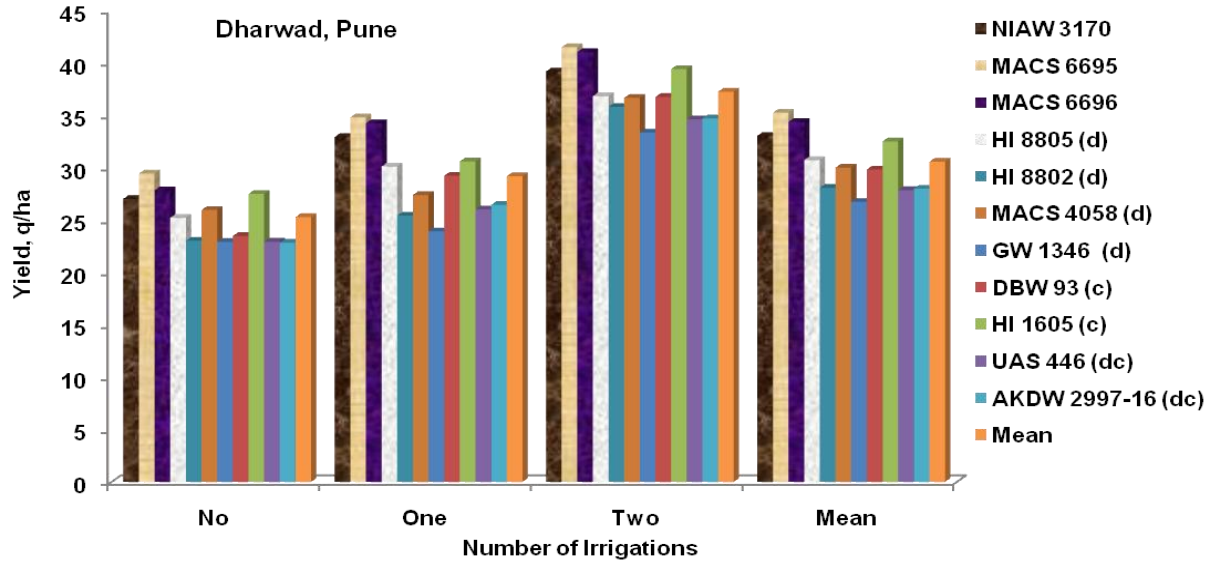

Figure 7. Genotypes under restricted irrigations in Peninsular Zone

PRODUCTION TECHNOLOGIES

Various special coordinated trials on optimising phosphorus usage, Enhancing Zn content in wheat grain, identifying optimum spacing and seed rate for dicoccum, precision nitrogen management using NDVI sensor, quantifying the yield losses due to delayed sowing, and validation of nutrient expert in wheat were conducted to address the various issues in different wheat growing zone.

SPL-2: Optimising phosphorus usage in wheat

Phosphorus is a major nutrient element, which plays a key role in realizing crop yield potential. Phosphorus solubilising bacteria makes phosphorus available for crop from the fixed reservoir in the soil and therefore enhancing in the phosphorus use efficiency. For exploring the role of phosphorus solubilising bacteria in improving phosphorus usage in wheat under wheat based cropping systems field trials were conducted across the wheat growing zones.

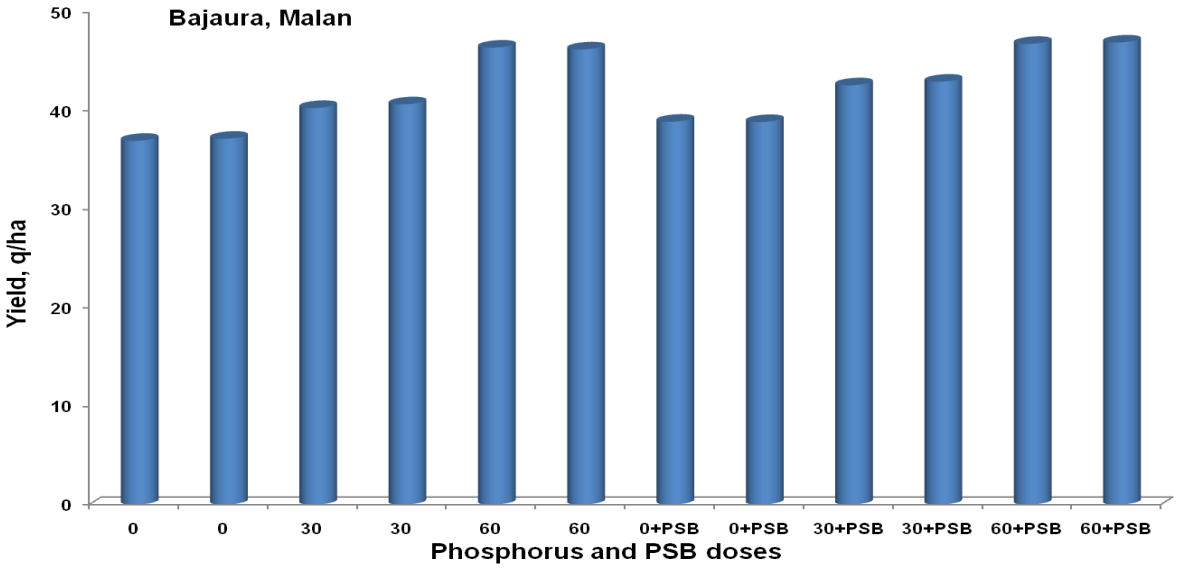

Figure 8. Role of PSB in phosphorus management in wheat-NHZ

In Northern Hill Zone, this trial was conducted at Bajaura and Malan centres. The data is presented in Figure 8 revealed significant effect of phosphorus solubilising bacteria with phosphorus fertilizer at 30 and 60 kg/ha . The highest yield was obtained in 60 kg/ha phosphorus + PSB treatment.

In NWPZ, the trial was conducted at Ludhiana and Karnal. The data presented in Figure 9 revealed that maximum wheat grain yield (60.0 q/ha) was obtained at recommended dose of P application. Additional application of PSB did not increase any yield across the P (0, 30 60) levels.

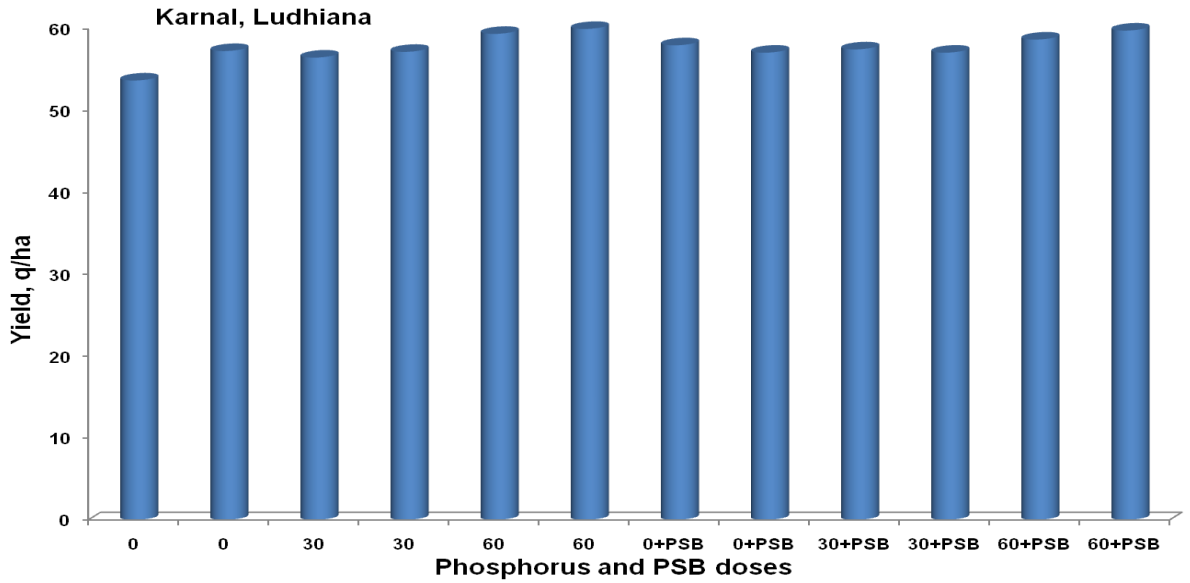

Figure 9. Role of PSB in phosphorus management in wheat-NWPZ

In NEPZ, this experiment was conducted at Shillongani only. The perusal of data presented in Figure 10 revealed that maximum wheat grain yield (47.66 q/ha) was obtained at recommended dose of P application (60 kg/ha) without PSB inoculation. The addition of PSB significantly increased the yield in comparison to treatments where no P or 30 kg P_2O_5/ha was applied.

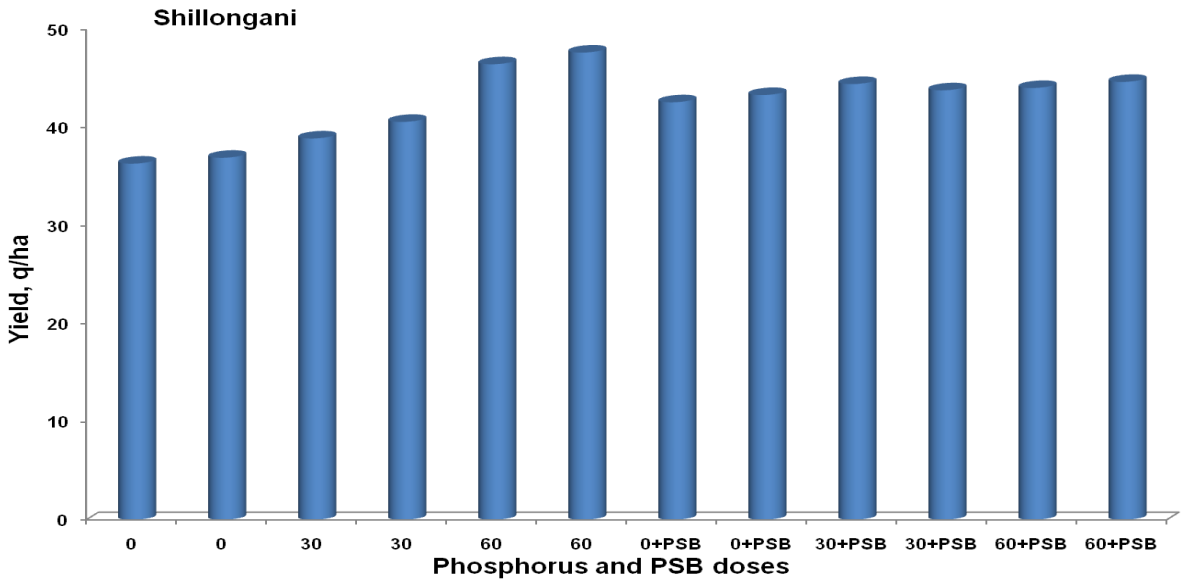

Figure 10. Role of PSB in phosphorus management in wheat-NEPZ

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 lowest wheat productivity was recorded when no zinc was applied which was significantly lower than all the zinc application treatments except where only foliar spray of 0.5% hepta hydrate zinc was done twice (Figure 11). The highest yield was obtained in Zn application in soil (37.5 kg $ZnSO_4$/ha) + Foliar Zn application (0.5% $ZnSO_4$ heptahydrate) at heading and early milk stage (47.24 q/ha) followed by Zn application in soil (25 kg Zinc sulphate/ha) + Foliar Zn application (0.5% $ZnSO_4$ heptahydrate) at heading and early milk stage (45.79 q/ha).

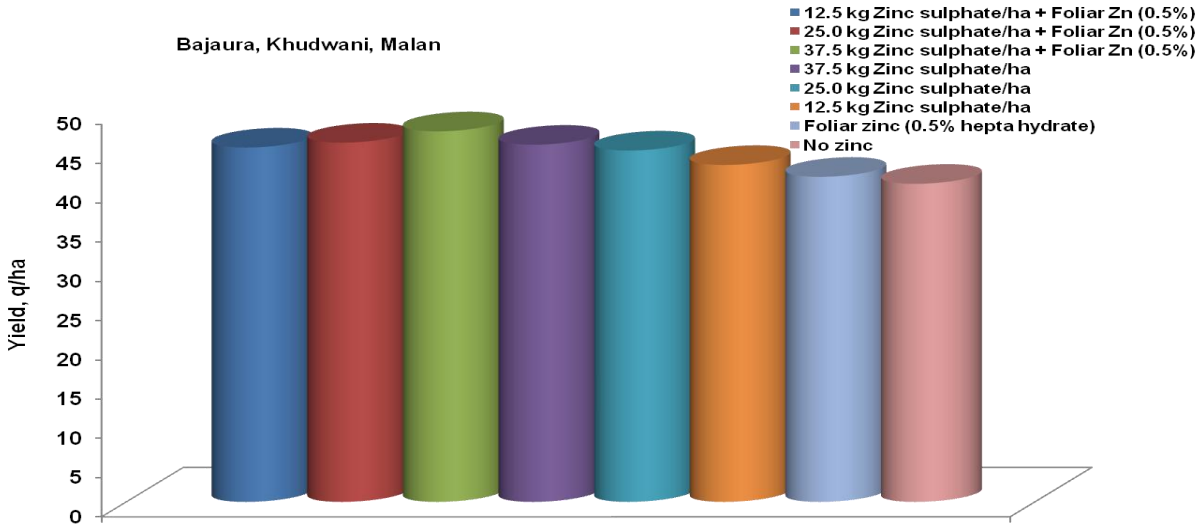

Figure 11. Zinc management in wheat in Northern Hills Zone

SPL-4: Yield maximization in *dicoccum* wheat through spacing and seed rates

This trial was conducted at three locations in PZ (Dharwad, Niphad and Pune) to evaluate the effect of spacing and seed rates on productivity of *dicoccum* wheat. The results revealed that among various seed rates there were no significant differences in yield, whereas, significant differences were observed only for line spacing treatments. The highest yield (Figure 12) was obtained in line sowing at 20 cm with seed rate of 125 kg/ha (45.38 q/ha) followed by 20 cm line spacing with seed rate of 100 kg/ha (44.35 q/ha) and these were at par.

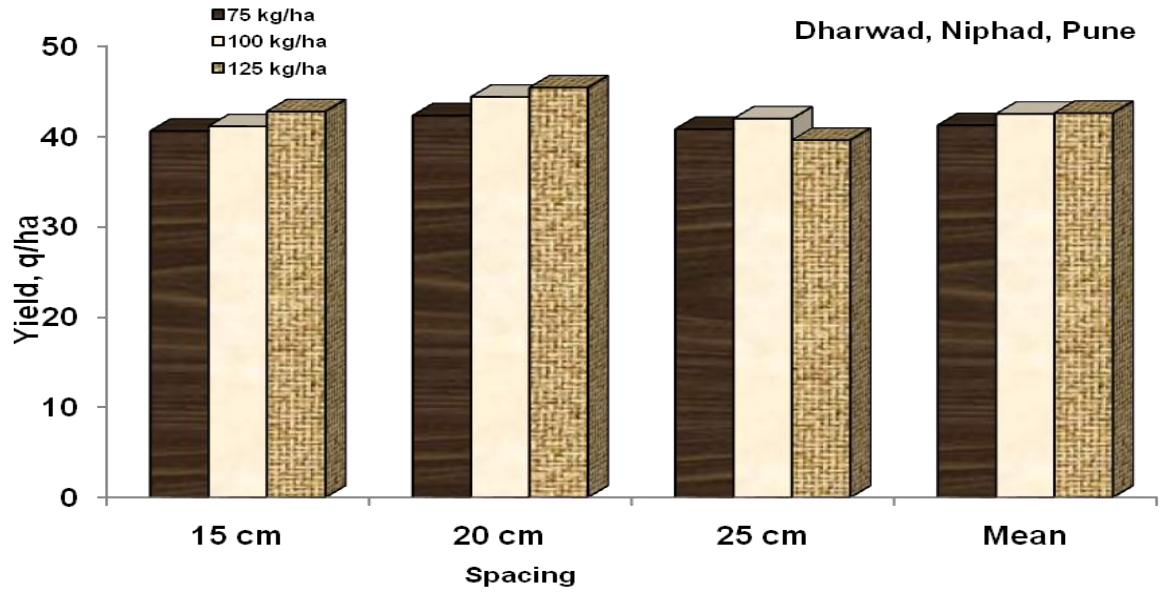

Figure 12. Seed rate and spacing in *dicoccum* wheat -Peninsular Zone

SPL-5: 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 (51.98 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 13) followed by treatment where 75 kg N basal +37.5 kg N/ha at CRI and 37.5 kg N/ha at tillering stage (48.68 q/ha) and Rich Plot-90 kg N/ha basal+90 at CRI (48.35 q/ha) and these treatments were statistically at par.

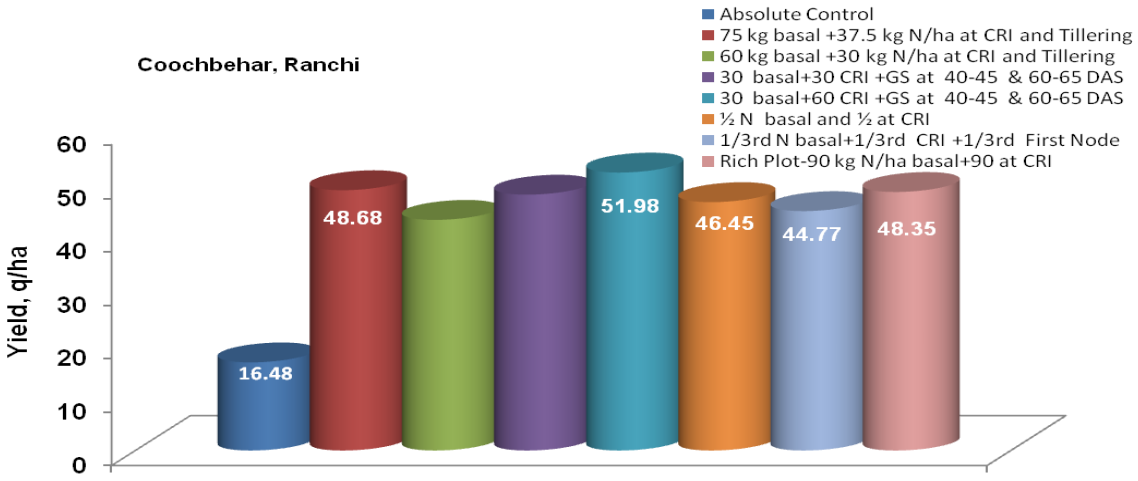

Figure 13. Precision nitrogen management in wheat using GreenSeeker -NEPZ

In Peninsular zone also this trial was conducted at two locations (Dharwad and Pune). The results revealed that there was significant difference in grain yield (Figure 14) due to different N application treatments. The maximum grain yield was recorded for the treatment Rich Plot-90 kg N/ha basal+90 at CRI (56.02 q/ha) followed by 75 kg basal +37.5 kg N/ha at CRI and tillering (55.22 q/ha) and these treatments were statistically at par.

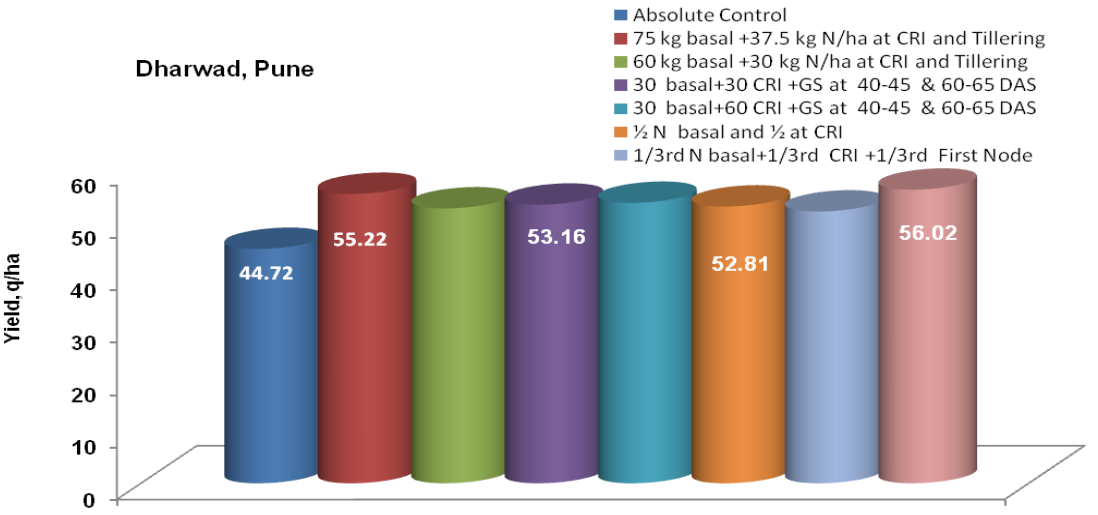

Figure 14. Precision nitrogen management in wheat using GreenSeeker -PZ

SPL-6: 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.

In NHZ, the trial was conducted at two centres (Bajaura and Malan). The results revealed that 5th November sown wheat produced the maximum (46.89 q/ha) and significantly higher yield (Figure 15) as compared to other dates of sowing. The delay in wheat sowing from 5th November to 05th January decreased grain yield significantly from 46.89 q/ha to 28.32 q/ha with the reduction of 39.6%. On mean basis across sowing time, variety HS 562 produced the maximum and significantly higher yield (44.62 q/ha) followed by MACS 6222 (40.54 q/ha) and HD 3086 (38.98 q/ha). The genotypes HD 3086 and MACS 6222 were at par.

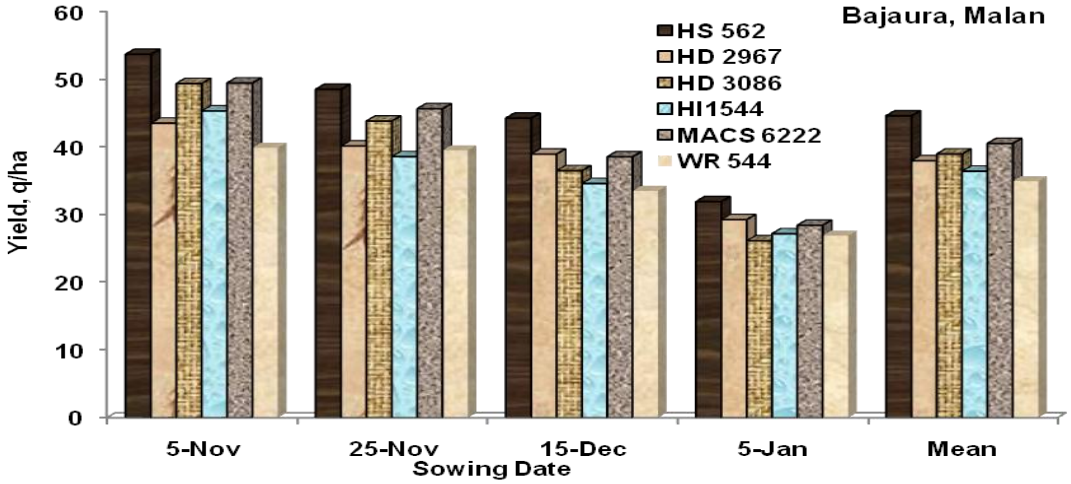

Figure 15. Wheat varieties under different sowing dates -NHZ

In NWPZ, this trial was conducted at 7 locations (Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar). The results showed that 5th November sowing recorded significantly higher grain yield (59.37 q/ha) than all other dates (Figure 16). There was significant successive reduction of 11.1, 28.6, 62.7% by delaying the sowing to 25th November, 15th December and 5th January, respectively. Variety HS 562 produced the maximum grain yield (50.43 q/ha) followed by HD 3086 (49.82 q/ha) and lowest was by WR 544 (42.32 q/ha).

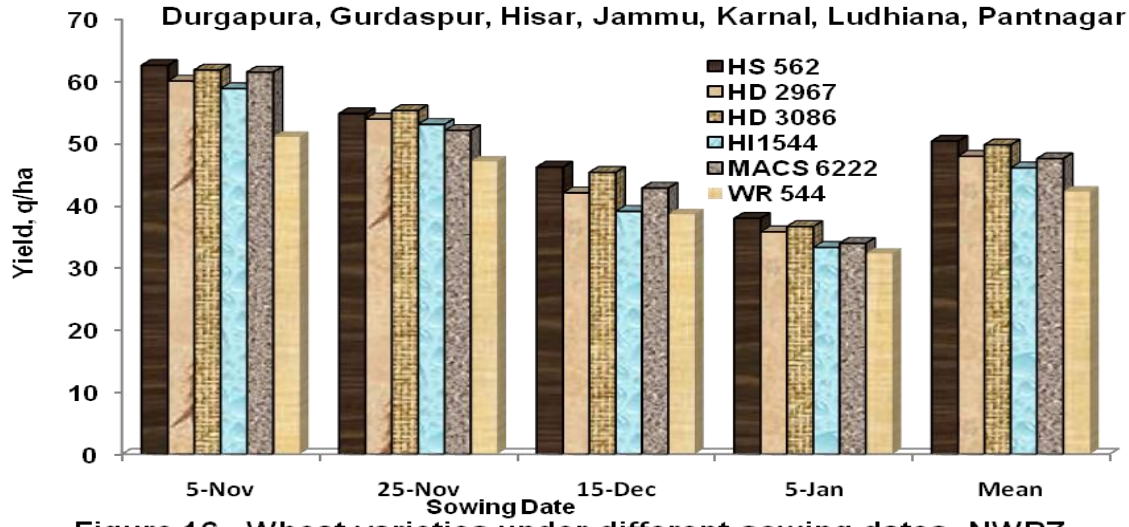

Figure 16. Wheat varieties under different sowing dates -NWPZ

In NEPZ, this trial was conducted at eight centres (Burdwan, Coochbehar, Faizabad, Kalyani, Ranchi, Sabour, Shillongani and Varanasi). The results showed that 25th November sown wheat produced the maximum yield (45.63 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 42.76 percent, whereas the reduction in yield was 16.63 percent in 15th December. On mean basis across sowing time (Figure 17), variety MACS 6222 produced the maximum and significantly higher yield (39.97 q/ha) which was at par with HD 2967 (39.48 q/ha) and HD 3086 (39.68 q/ha).

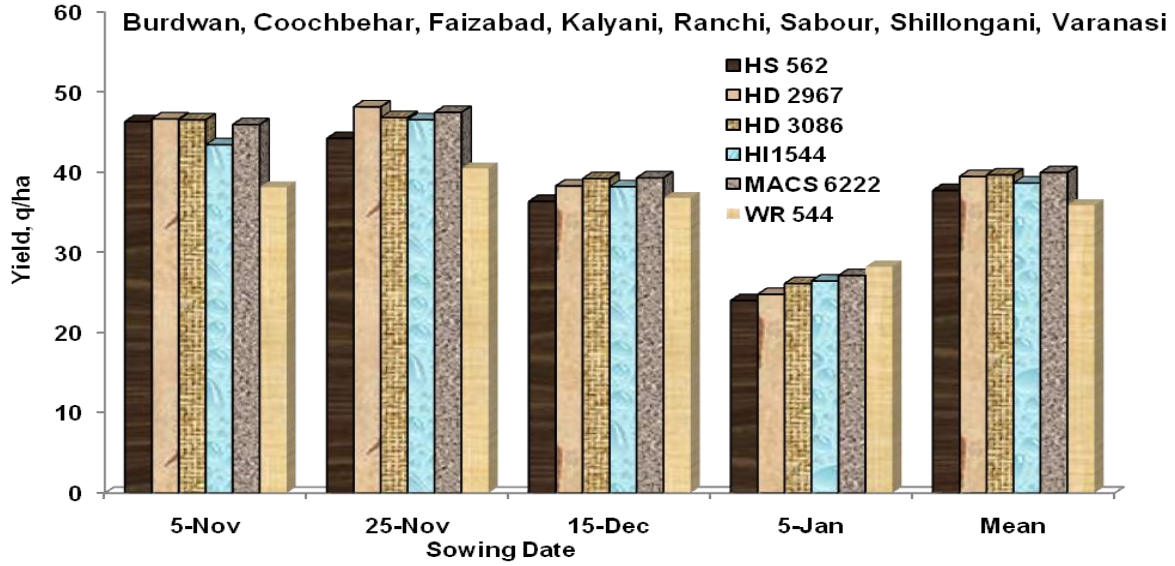

Figure 17. Wheat varieties under different sowing dates -NEPZ

In Central Zone, this trial was conducted at six locations (Bilaspur, Gwalior, Indore, Jabalpur, Powarkheda and Udaipur). The results showed (Figure 18) that 5th November sowing produced maximum (49.68 q/ha) and significantly higher grain yield than all other sowing dates. There was significant successive reduction of 4.51, 18.67 and 33.57% by delaying the sowing to 25th November, 15th December and 5th January, respectively, as compared to 5th November sowing. Variety HI 1544 produced maximum grain yield (46.68 q/ha) followed by MACS 6222 (44.88 q/ha) and the lowest by WR 544 (39.00 q/ha).

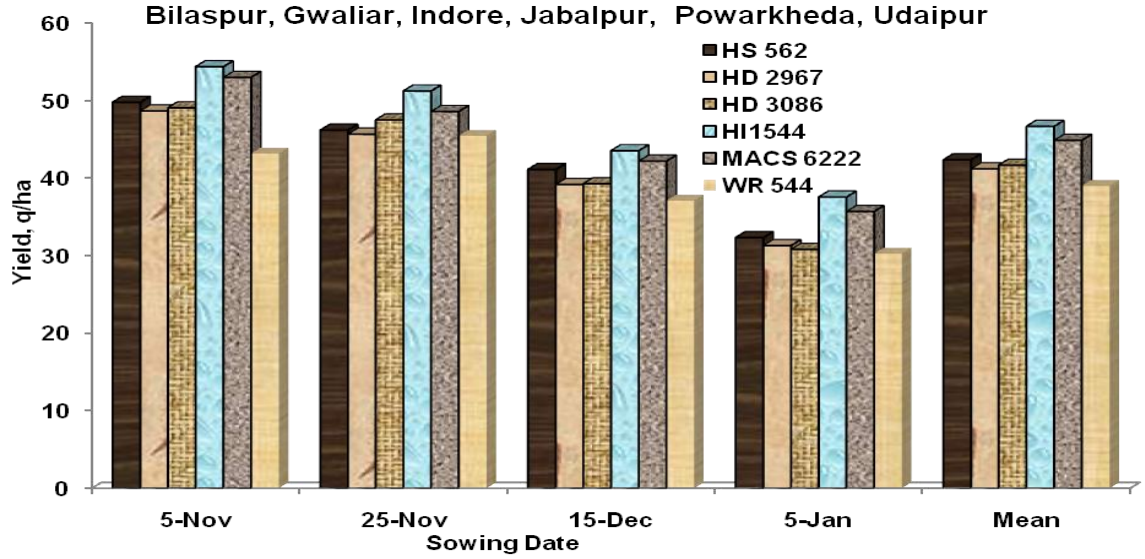

Figure 18. Wheat varieties under different sowing dates -CZ

In Peninsular Zone, the trial was conducted at three centres (Dharwad, Niphad, Pune). The results presented in Figure 19 revealed that there was significant difference in grain yield among varieties, sowing time and their interactions. The highest yield was obtained in the 5th Nov sowing time and yield declined with delay in sowing. Among varieties, the top yielder was HI 1544 with an average yield of 36.68 q/ha followed by HS 562 (35.23 q/ha) and MACS 6222 (35.18 q/ha).

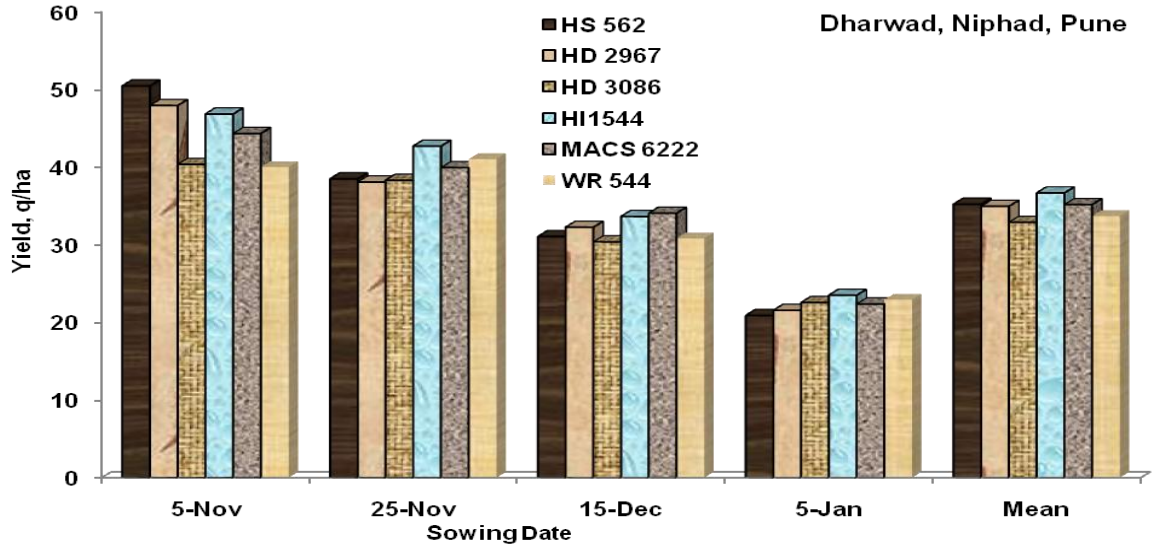

Figure 19. Wheat varieties under different sowing dates -PZ

SPL-7: 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 four locations (Almora, Bajaura, Khudwani 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 (44.74 q/ha) which was followed by Nutrient expert treatment (44.25 q/ha) and both the treatments were found at par (Figure 20). The 150% RDF application produced almost 11.82% higher grain yield than recommended dose of fertilizer (RDF) application. The 150% PK application produced 20.53 q/ha yield indicating that

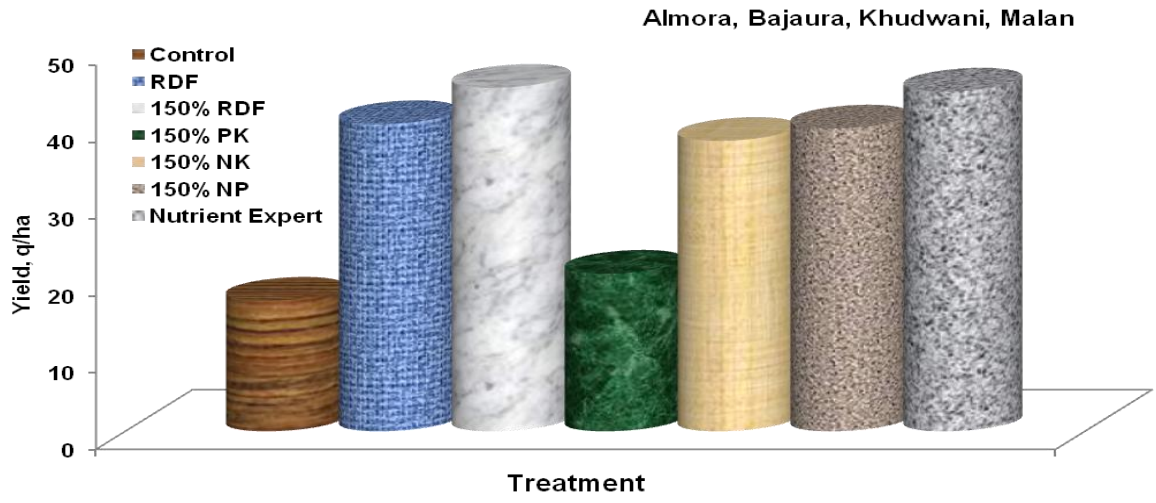

Figure 20. Validation of Nutrient expert in wheat-NHZ

the omission of only nitrogen drastically reduced the productivity but omission of phosphorous and potash had marginal effect.

In NWPZ, the results presented in Figure 21 revealed that 150% RDF recorded the highest grain yield (60.7 q/ha) and was significantly higher than recommended fertilizer but was at par with nutrient expert treatments. The 150% RDF application produced 8.98% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was recorded in control treatment (26.1 q/ha).

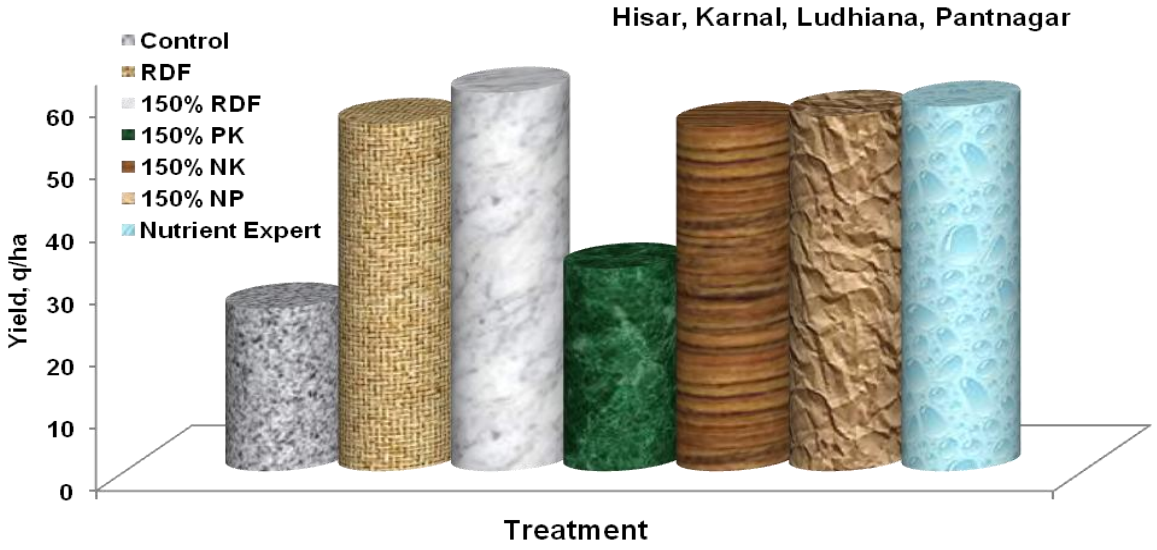

Figure 21. Validation of Nutrient expert in wheat-NWPZ

In NEPZ, the data presented in Figure 22 revealed that nutrient expert recorded maximum and significantly higher grain yield (55.32 q/ha). This was followed by 150% RDF, 150 % NP and NK applications. Application of 150% RDF produced almost 15.4% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was recorded in control plots and over control, the 150% PK application produced yield increase of about 10 q/ha.

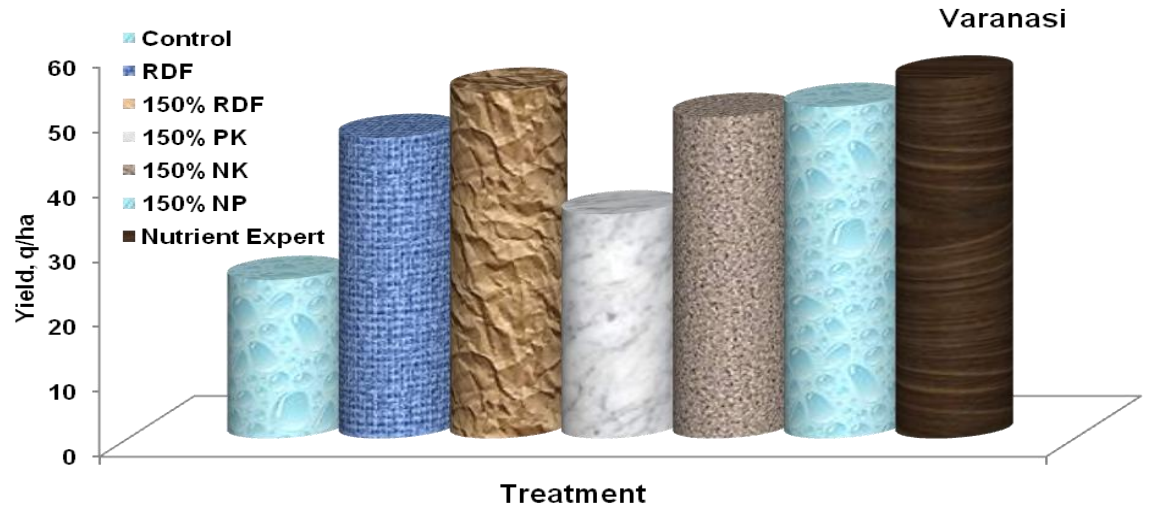

Figure 22. Validation of Nutrient expert in wheat-NEPZ

In Central Zone, the highest yield of 53.72 q/ha (Figure 23) was obtained in treatment where fertiliser application was done using Nutrient expert closely followed by 150% RDF (52.02 q/ha). The fertiliser application using nutrient expert was 170.65 nitrogen, 89.76 kg/ha phosphorus and 76.04 kg/ha potash. The yield gain in nutrient expert was 15.83% as compared to recommended fertiliser application.

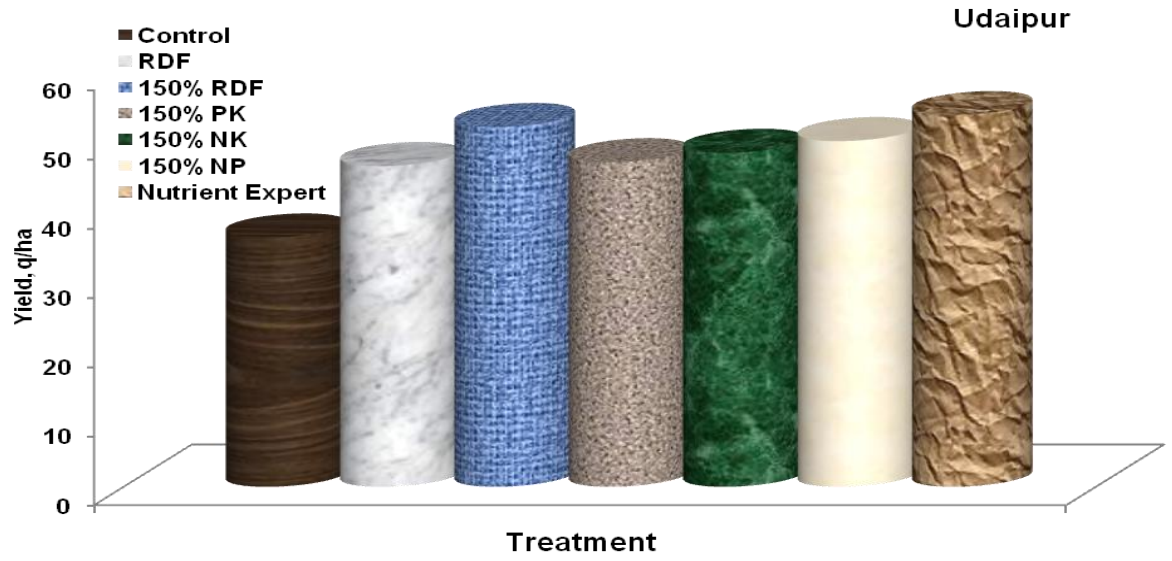

Figure 23. Validation of Nutrient expert in wheat-CZ

At Dharwad centre in Peninsular Zone, the highest yield (Figure 24) was obtained under 150% RDF with a yield level of 45.91 q/ha followed by Nutrient Expert treatment (43.85 q/ha) and recommended dose of NPK (42.38 q/ha) and all these treatments were statistically at par. The yield obtained in nutrient expert treatment was much below the targeted yield of 6 t/ha.

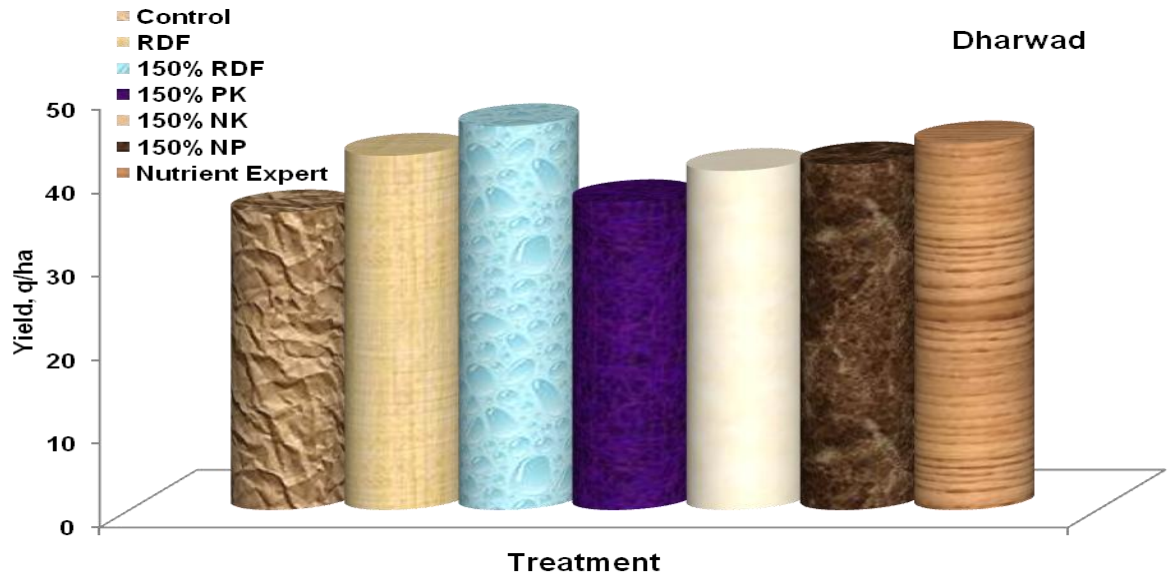

Figure 24. Validation of Nutrient expert in wheat-PZ

Northern Hills Zone

The Northern Hills Zone represents Himachal Pradesh, parts of Jammu & Kashmir, Uttrakhand and North Eastern Hills. The four centres namely Almora, Bajaura, Khudwani and Malan are actively engaged in wheat research under All India Coordinated Wheat and Barley Improvement Project. The data on meteorological parameters received from centres has been reported in Annexure II. The rainfall was well distributed at all the locations, the highest rainfall of 496.7 mm was recorded at Bajaura during the crop growing period followed by 414.04 mm at Khudwani, 394.9 mm at Malan and 288.8 mm at Almora from October 2018 to May 2019. The minimum and maximum temperatures were -0.1 ºC and 33.5 ºC at Almora, -3.5 ºC and 30.7 ºC at Bajaura, -7.6 ºC and 23.6 ºC at Khudwani, 5.5 ºC and 33.5 ºC at Malan, respectively.

The soil data received from four centres (Almora, Bajaura, Malan and Khudwani) are presented in Annexure III. The texture of soil at all the four centres varied from silty loam to silty clay loam. The organic carbon content of Almora, Bajaura, Malan and Khudwani centres was 1.02, 0.6, 0.9 and 0.75 per cent, respectively with low to medium in nitrogen, medium to high in phosphorus and potash contents.

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, four special coordinated trials on optimization of phosphorus application, Zn fortification, dates of sowing and yield maximization using nutrient expert were conducted to address various management issues in this zone. The results of various experiments on updating the package of practices are presented 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 and Jammu area of J&K. 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 soil and various meteorological parameters for various centres are given in Annexure-II and Annexure-III, respectively. Soils of this zone are sandy loam to clay loam. The soil organic carbon at various locations varied from 0.23% 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. The maximum rainfall was received at Gurdaspur (395.9 mm), followed by Jammu (330.4 mm), Ludhiana (223.2 mm), Delhi (139.9 mm), Karnal (95.2 mm), Pantnagar (75.8 mm), Sriganganagar (67.4 mm), Agra (49.5 mm), Durgapura (30.4 mm) and the lowest amount of rain (29.5 mm) during the wheat crop season 2018-19 was received at Hisar. The maximum and minimum temperatures at different locations were 42.1ºC and 2.8ºC at Agra, 36.5ºC and 3.0ºC at Gurdaspur, 41.2ºC and 1.9ºC at Hisar, 40.7ºC and 5.8ºC at Durgapura, 37.1ºC and 1.7ºC at Jammu, 39.2ºC and 3.2ºC at Karnal, 39.4ºC and 2.8ºC at Ludhiana, 42.2ºC and 2.0ºC at Delhi, 38.7ºC and 2.7ºC at Pantnagar, 41.1ºC and 4.9ºC at Sriganganagar, respectively. In this zone two coordinated trials were conducted to evaluate second year AVT genotypes for different growing conditions at various locations.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

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

Irrigated Timely, Late and Very Late Sown Conditions

The performance of five *aestivum* test entries DBW 221, DBW 222, PBW 771, HD 3271 and HI 1621 against seven checks (HD 3086, HD 3226, HD 3059, DBW 173, PBW 752, DBW 71 and PBW 757) 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 centres data were considered and there was no rejection. 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.

Table 2.1: North Western Plains Zone **IR-TAS-DOS** **Pooled** **2018-19**

	Date of sowing							
Genotype	Timely	Rk	Late	Rk	Very late	Rk	Mean	Rk
				Yield, q/ha				
DBW 221	61.49	2	47.28	7	37.56	11	48.78	5
DBW 222	61.53	1	50.19	1	40.71	1	50.81	1
HD 3086 (c)	59.33	6	46.60	11	37.46	12	47.79	10
HD 3226 (I)	60.11	5	47.26	8	37.92	8	48.43	8
PBW 771	60.55	4	50.00	2	39.86	3	50.14	2
HD 3059 (c)	58.87	8	48.23	6	38.77	6	48.62	7
DBW 173 (c)	58.17	10	47.20	9	39.22	5	48.20	9
PBW 752 (I)	58.78	9	48.43	5	40.15	2	49.12	4
HD 3271	61.34	3	49.04	3	39.49	4	49.96	3
HI 1621	57.65	11	45.47	12	37.58	10	46.90	12
PBW 757 (I)	59.00	7	48.46	4	38.54	7	48.66	6
DBW 71 (c)	56.83	12	47.16	10	37.86	9	47.28	11
MEAN	59.47		47.94		38.76		48.72	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.66		0.74		1.27		1.38	
				Earhead/sqm				
DBW 221	422	4	390	2	358	1	390	1
DBW 222	425	3	371	9	327	11	374	7
HD 3086 (c)	415	8	384	5	344	2	381	4
HD 3226 (I)	426	2	389	3	344	3	387	2
PBW 771	426	1	388	4	341	4	385	3
HD 3059 (c)	416	7	363	11	330	9	370	10
DBW 173 (c)	397	12	369	10	332	7	366	11
PBW 752 (I)	406	11	373	8	334	6	371	8
HD 3271	411	9	392	1	340	5	381	5
HI 1621	417	6	380	6	330	8	376	6
PBW 757 (I)	409	10	373	7	330	10	371	9
DBW 71 (c)	417	5	351	12	321	12	363	12
MEAN	416		377		336		376	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	6.36		8.42		14.59		15.32	
				Grains/Earhead				
DBW 221	36.99	2	35.08	11	34.70	12	35.59	6
DBW 222	35.83	3	37.78	1	37.93	2	37.18	2
HD 3086 (c)	33.67	11	35.77	6	35.16	8	34.86	10
HD 3226 (I)	34.23	8	36.48	5	35.05	9	35.25	8
PBW 771	35.32	6	35.19	10	34.95	10	35.15	9
HD 3059 (c)	35.34	5	36.80	4	37.56	4	36.57	3
DBW 173 (c)	35.68	4	35.47	8	35.65	7	35.60	5
PBW 752 (I)	34.88	7	35.48	7	35.71	6	35.36	7
HD 3271	33.74	9	35.43	9	34.73	11	34.63	12
HI 1621	33.39	12	34.97	12	35.88	5	34.74	11
PBW 757 (I)	37.75	1	36.88	3	38.25	1	37.63	1
DBW 71 (c)	33.73	10	37.52	2	37.91	3	36.39	4
MEAN	35.05		36.07		36.12		35.75	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	NS		1.34		NS		NS	
				1000 Grains Weight, g				
DBW 221	41.26	11	36.64	10	31.87	12	36.59	11
DBW 222	41.82	9	38.13	5	34.71	4	38.22	5
HD 3086 (c)	45.29	2	36.49	11	32.41	10	38.07	7
HD 3226 (I)	42.89	6	36.41	12	32.75	9	37.35	10
PBW 771	43.83	3	38.81	2	34.93	3	39.19	3
HD 3059 (c)	41.49	10	38.76	3	33.53	7	37.93	8
DBW 173 (c)	42.79	7	37.68	6	34.38	5	38.28	4
PBW 752 (I)	43.68	4	39.10	1	35.70	1	39.49	2
HD 3271	45.83	1	38.64	4	35.28	2	39.92	1
HI 1621	43.56	5	36.97	8	33.84	6	38.13	6
PBW 757 (I)	39.94	12	36.70	9	32.15	11	36.26	12
DBW 71 (c)	42.13	8	37.41	7	32.90	8	37.48	9
MEAN	42.88		37.65		33.71		38.08	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.50		0.95		1.64		1.65	

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

The perusal of pooled data in Table 2.1 revealed that there was a significant decline in yield from timely (59.47 q/ha) to late (47.94 q/ha) and very late (38.76 q/ha) sown condition. This yield reduction was due to significant reduction in earheads/m^2 and thousand grain weight in successive delay in sowing dates. Yield decline in late and very late sown condition was 19.38 and 34.82 %, respectively as compared to timely sown condition.

On average basis, test entry DBW 222 ranked 1st in all sowing conditions with mean yield of 50.81 q/ha and produced significantly higher grain yield in timely (61.53 q/ha), late 50.19 q/ha) and very late (40.71 q/ha) sown condition as compared with their respective check genotype HD 3086 and HD 3226. Similarly late sown test entry PBW 771 recorded significantly higher grain yield (50.14 q/ha) than their respective check genotype HD 3059, DBW 173 and PBW 752 on mean basis. Very late sown test entry HD 3271 produced significantly higher grain yield (49.96 q/ha) and thousand grain weight (39.92 g) than their respective check genotype PBW 757 and DBW 71 on mean basis. 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 three *aestivum* test entries namely BRW 3806, HI 1628 and NIAW 3170 against six checks (WH 1080, HD 3043, HI 1620, HD 3237, WH 1142 and PBW 644) 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 indicates that increasing the irrigation level significantly increased the grain yield, earheads/m^2, grains/earhead and thousand grain weight. Maximum and significantly higher grain yield (51.19 q/ha) was obtained with two irrigations as compared with no and one irrigations levels. Increasing irrigation level enhanced the grain yield mainly due to significant increase in earheads/m^2, grains/earhead and thousand grain weight. The test entry BRW 3806 produced significantly higher grain yield (48.43 q/ha) as compared to other entries and checks on mean basis except HI1620, which was at par. The second test entry NIAW 3170 ranked 3rd in grain yield (47.0 q/ha). Another test entry HI 1628

ranked 7th and produced significantly lower grain yield (45.50 q/ha) than other two test entries. There was irrigation level and genotype interaction significant for grain yield. Test entry NIAW 3170 ranked first at no irrigation level whereas BRW 3806 ranked first at two irrigation level for grain yield. The centre wise data are presented in Tables 2.2.1 to 2.2.10 in Annexure-I.

Table 2.2: North Western Plains Zone **RIR-TS-TAS** **Pooled** **2018-19**

	Irrigation level							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
				Yield, q/ha				
BRW 3806	41.85	2	49.06	2	54.39	1	48.43	1
HI 1628	40.51	4	46.98	6	49.02	9	45.50	7
NIAW 3170	42.16	1	47.50	5	51.35	4	47.00	3
HI 1620 (I)	41.05	3	49.08	1	53.37	2	47.83	2
HD 3237 (I)	39.97	6	47.98	4	51.33	5	46.43	5
WH 1142 (c)	40.46	5	48.20	3	52.10	3	46.92	4
WH 1080 (c)	39.06	7	46.66	7	50.82	6	45.51	6
PBW 644 (c)	38.72	8	45.81	8	49.09	8	44.54	8
HD 3043 (c)	37.32	9	44.01	9	49.25	7	43.53	9
MEAN	40.12		47.25		51.19		46.19	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.99		0.86		1.49		1.72	
				Earhead/sqm				
BRW 3806	330	9	379	6	400	2	370	5
HI 1628	334	7	364	9	369	9	356	9
NIAW 3170	350	2	384	2	392	5	375	4
HI 1620 (I)	333	8	364	8	381	7	360	8
HD 3237 (I)	356	1	381	5	403	1	380	1
WH 1142 (c)	350	3	384	3	398	3	377	2
WH 1080 (c)	340	5	392	1	397	4	376	3
PBW 644 (c)	337	6	383	4	387	6	369	6
HD 3043 (c)	343	4	375	7	380	8	366	7
MEAN	341		379		390		370	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	9.08		7.80		13.50		15.6	
				Grains/Earhead				
BRW 3806	31.70	2	32.24	2	32.80	5	32.25	3
HI 1628	31.24	3	31.52	5	32.25	7	31.67	6
NIAW 3170	30.51	7	29.96	9	31.86	9	30.78	9
HI 1620 (I)	30.82	6	31.62	4	33.21	3	31.88	4
HD 3237 (I)	30.08	9	32.07	3	31.91	8	31.35	7
WH 1142 (c)	31.74	1	33.74	1	34.95	2	33.48	1
PBW 644 (c)	31.17	4	31.20	7	32.90	4	31.76	5
WH 1080 (c)	30.46	8	30.38	8	32.74	6	31.19	8
HD 3043 (c)	31.09	5	31.27	6	36.34	1	32.90	2
MEAN	30.98		31.55		33.22		31.92	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	1.05		1.08		1.86		2.04	
				1000 Grain Weight, g				
BRW 3806	41.26	2	41.76	4	43.46	2	42.16	2
HI 1628	40.56	4	42.10	2	43.24	4	41.97	4
NIAW 3170	41.16	3	41.88	3	43.35	3	42.13	3
HI 1620 (I)	41.27	1	43.81	1	43.90	1	42.99	1
HD 3237 (I)	39.49	5	40.98	5	41.71	5	40.73	5
WH 1142 (c)	36.77	8	37.97	9	39.02	8	37.92	8
WH 1080 (c)	39.07	6	40.83	6	41.28	6	40.40	6
PBW 644 (c)	38.41	7	39.92	7	40.72	7	39.69	7
HD 3043 (c)	35.98	9	38.73	8	37.67	9	37.46	9
MEAN	39.33		40.89		41.59		40.60	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.48		0.71		NS		NS	

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

High Yield Trial

This experiment was conducted to maximise wheat yield with target yield of 8 t/ha by using higher level of inorganic and organic fertiliser. Spraying of growth retardant was done to control of lodging at higher fertility. Experiment consisted of three fertility treatments viz. RDF, RDF +15 t FYM/ha and 150 % RDF +15 t FYM/ha + two sprays as tank mix-Chlormequat chloride (Lihocin) @ 0.2%+tebuconazole (Folicur 430 SC) @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application) stage in main plots. Sub plots consist of 15 high yielding wheat genotypes. The trial was conducted in split plot design with three replications at five centres namely at Gurdaspur, Hisar, Karnal, Ludhiana and Pantnagar. 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.

The pooled analysis showed significant effect of fertiliser application and growth regulators on grain yield and yield attributes (Table 2.3 and 2.3a).The grain yield enhanced significantly with increasing fertiliser doses. Addition of 15 t FYM/ha +150 % RDF significantly increased the grain yield (70.47 q/ha) as compared to RDF (68.38 q/ha). Also, 150 % RDF and two sprays of growth retardants increased the grain yield (75.01 q/ha) significantly as compared to other two nutrient management practices. This increase was to the tune of 9.6 % as compared with RDF. This showed that growth retardant in combination with fungicide tebuconazole is more effective for control of lodging and enhancing the grain yield. Application of growth retardant had significantly increased the earhead/m^2 and biomass but reduced the plant height as compared to either recommended fertiliser application or RDF +15 t FYM/ha application. This confirms hypothesis that growth retardant reduced the height and at the same time produced more tillers and biomass that resulted in increased grain yield. Genotype DBW 187 ranked first under all nutrient management condition with mean yield of 77.52 q/ha which was significantly higher than other genotypes. This genotype yielded 82.23 q/ha under 150 % RDF + 15 t FYM/ha + two sprays as tank mix-Chlormequat chloride (Lihocin) @ 0.2%+tebuconazole (Folicur 430 SC) @ 0.1% of commercial product dose at First Node and Flag leaf (Tank mix application) stage which was higher than other genotypes. High yield in DBW 187 was probably due to its highest biomass at all the three nutrients level as well as on mean (200.49 q/ha) basis. The second and third ranked yielding genotype was UP 3043 (74.79 q/ha) and DBW 303 (74.66 q/ha), respectively on mean basis. The lowest yielding genotype was DBW 301 at all the three nutrient levels and on mean (65.19 q/ha) basis. Centre wise data are presented in Annexure-I in Table 2.3.1 to Table 2.3.5. The data from Gurdaspur showed that maximum grain yield produced up to 10 t/ha at NM3 level by genotype DBW 187.

Table 2.3. North Western Plains Zone IR-ES-HYT Pooled 2018-19

Genotype	Nutrient management: RDF	Rk	150 % RDF+ FYM	Rk	150 %RDF+FYM+GR	Rk	Mean	Rk
			Yield, q/ha					
HD 3317	65.97	11	68.78	10	70.86	12	68.53	12
WH 1254	72.20	2	73.41	4	76.40	7	74.00	4
DBW 301	62.33	15	64.07	15	69.16	15	65.19	15
WH 1270	71.42	3	72.93	5	75.78	9	73.38	5
PBW 824	69.70	7	72.01	7	77.61	4	73.11	7
UP 3043	71.33	4	73.63	3	79.42	2	74.79	2
DBW 187	73.04	1	77.29	1	82.23	1	77.52	1
DBW 303	71.29	5	74.63	2	78.05	3	74.66	3
DBW 304	64.25	14	66.34	13	70.40	13	67.00	14
UP 3042	69.10	8	71.85	8	75.95	8	72.30	8
DBW 302	66.66	10	65.50	14	70.26	14	67.47	13
PBW 825	65.62	12	67.50	11	73.82	10	68.98	10
HD 3347	67.58	9	67.23	12	71.44	11	68.75	11
HD 2967 (c)	64.72	13	69.17	9	77.33	5	70.41	9
HD 3086 (c)	70.51	6	72.78	6	76.50	6	73.27	6
MEAN	68.38		70.47		75.01		71.29	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	1.41		1.73		NS		NS	
			Earhead/sqm					
HD 3317	369	13	386	13	413	12	389	13
WH 1254	424	3	442	1	467	1	444	1
DBW 301	426	1	435	2	455	2	439	2
WH 1270	425	2	416	5	441	6	427	4
PBW 824	381	10	389	12	410	13	393	12
UP 3043	347	14	356	15	380	15	361	15
DBW 187	394	8	410	6	450	3	418	6
DBW 303	380	11	403	8	432	8	405	9
DBW 304	398	6	396	10	448	4	414	7
UP 3042	374	12	395	11	417	11	395	11
DBW 302	403	5	421	4	441	7	422	5
PBW 825	343	15	364	14	396	14	367	14
HD 3347	385	9	398	9	421	10	401	10
HD 2967 (c)	395	7	409	7	430	9	411	8
HD 3086 (c)	416	4	430	3	448	5	431	3
MEAN	391		403		430		408	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	4.84		13.31		NS		NS	
			Grains/Earhead					
HD 3317	36.18	13	36.45	12	35.73	13	36.12	14
WH 1254	41.29	2	40.34	2	42.36	1	41.33	1
DBW 301	38.35	9	38.14	6	40.52	5	39.00	7
WH 1270	36.00	14	36.85	9	37.28	11	36.71	13
PBW 824	39.35	7	39.07	5	41.90	2	40.11	4
UP 3043	40.75	3	40.20	3	41.21	3	40.72	3
DBW 187	39.69	5	39.37	4	38.80	9	39.29	5
DBW 303	41.69	1	40.53	1	40.92	4	41.05	2
DBW 304	35.22	15	35.17	15	34.08	15	34.83	15
UP 3042	37.60	10	36.60	10	37.18	12	37.13	11
DBW 302	39.22	8	36.50	11	40.19	6	38.64	8
PBW 825	40.08	4	37.60	7	39.54	7	39.07	6
HD 3347	39.37	6	37.17	8	35.37	14	37.31	10
HD 2967 (c)	36.90	12	36.26	13	39.47	8	37.54	9
HD 3086 (c)	36.98	11	35.87	14	37.58	10	36.81	12
MEAN	38.58		37.74		38.81		38.38	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	NS		1.61		NS		NS	

Table 2.3a. North Western Plains Zone IR-ES-HYT Pooled 2018-19

Genotype	Nutrient management: RDF	Rk	150 % RDF+ FYM	Rk	150 %RDF+FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	50.40	2	49.50	4	48.64	4	49.51	3
WH 1254	42.12	14	42.14	14	40.24	14	41.50	14
DBW 301	39.11	15	39.64	15	39.74	15	39.50	15
WH 1270	47.47	6	48.28	6	47.09	7	47.61	6
PBW 824	47.09	7	48.13	8	45.88	12	47.03	8
UP 3043	50.78	1	52.04	1	51.59	1	51.47	1
DBW 187	47.60	5	49.07	5	48.15	6	48.27	5
DBW 303	46.67	9	47.01	11	46.40	10	46.70	10
DBW 304	46.78	8	48.22	7	46.85	8	47.28	7
UP 3042	49.99	3	50.56	2	49.44	2	50.00	2
DBW 302	43.65	13	43.34	13	41.13	13	42.71	13
PBW 825	48.53	4	50.07	3	49.21	3	49.27	4
HD 3347	45.01	11	46.16	12	48.61	5	46.59	11
HD 2967 (c)	44.52	12	47.30	10	46.51	9	46.11	12
HD 3086 (c)	46.50	10	48.03	9	46.23	11	46.92	9
MEAN	46.42		47.30		46.38		46.70	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.71		0.82		1.43		NS	
Biomass, q/ha								
HD 3317	181.93	8	193.43	2	189.74	11	188.37	9
WH 1254	184.13	7	190.75	6	197.92	5	190.93	4
DBW 301	165.76	15	171.28	15	179.10	15	172.05	15
WH 1270	187.05	4	189.71	7	189.63	12	188.80	8
PBW 824	179.29	12	187.61	11	195.00	7	187.30	10
UP 3043	181.46	9	187.75	10	199.48	3	189.56	7
DBW 187	197.83	1	197.10	1	206.55	1	200.49	1
DBW 303	180.40	11	189.15	8	191.19	10	186.91	11
DBW 304	189.93	2	191.55	4	193.81	8	191.76	3
UP 3042	184.48	6	192.09	3	195.99	6	190.86	5
DBW 302	189.82	3	190.78	5	203.25	2	194.62	2
PBW 825	172.36	14	174.76	14	184.58	14	177.23	14
HD 3347	184.79	5	183.93	13	187.72	13	185.48	13
HD 2967 (c)	181.26	10	188.95	9	199.19	4	189.80	6
HD 3086 (c)	177.86	13	187.27	12	191.93	9	185.69	12
MEAN	182.56		187.74		193.67		187.99	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	4.58		3.91		6.77		NS	
Plant height, cm								
HD 3317	109.31	1	111.47	1	99.18	1	106.65	1
WH 1254	100.49	11	102.76	11	92.59	9	98.62	11
DBW 301	92.77	15	93.86	15	89.04	14	91.89	15
WH 1270	97.34	14	99.35	14	90.48	12	95.72	14
PBW 824	103.64	7	106.71	2	97.29	4	102.55	4
UP 3043	105.25	3	106.16	6	97.79	3	103.07	3
DBW 187	105.36	2	106.19	5	92.01	10	101.19	9
DBW 303	105.15	5	105.45	8	93.80	8	101.47	7
DBW 304	99.41	12	100.94	13	90.85	11	97.07	12
UP 3042	103.36	8	105.60	7	96.62	6	101.86	6
DBW 302	105.17	4	106.29	4	98.87	2	103.44	2
PBW 825	102.79	9	104.47	10	97.07	5	101.44	8
HD 3347	101.47	10	104.62	9	90.28	13	98.79	10
HD 2967 (c)	104.50	6	106.57	3	95.11	7	102.06	5
HD 3086 (c)	98.81	13	102.45	12	87.30	15	96.19	13
MEAN	102.32		104.19		93.88		100.13	
	Nutrient (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.91		1.31		2.28		NS	

Centres: Gurdaspur, Hisar, Karnal, Ludhiana, Pantnagar

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. In all 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. Soils of this zone are sandy loam to clay loam having organic carbon contents varying from 0.40 per cent at Ranchi to 1.16 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. The temperature is an important factor affecting the wheat productivity. Rainfall received varied from 13.9 mm at Pusa Bihar to 104.1mm at Coochbehar during the wheat season starting from November 2018 to March, 2019. The rainfall received in decreasing order during the period 104.1 mm at Coochbehar, 89.2 mm at Shillongani, 64.8 mm at Ranchi, 54.5 mm at Faizabad, 51.1 mm at Sabour, 42.8 mm at Kanpur, 29.4 mm at Varanasi, 27.8 mm at Pusa Bihar, 19.1 mm Kalyanai, and 13.9 mm at Pusa Bihar. The maximum and minimum temperatures at different locations were 34.9 ºC and 9.3 ºC at Burdwan, 31.4ºC and 7.4ºC at Coochbehar, 34.1ºC and 3.6ºC at Faizabad, 32.6 ºC and 6.0 ºC at IARI Pusa, 34.3ºC and 8.3ºC at Kalyani, 32.1ºC and 6.0ºC at Kanpur, 36.8ºC and 2.2ºC at Ranchi, 33.8 ºC and 5.8 ºC at RAU Pusa, 32.7ºC and 4.2ºC at Sabour, 30.3ºC and 7.4ºC at Shillongani and 34.1ºC and 3.9ºC at Varanasi, respectively.

EVALUATION UNDER DIFFERENT SOWING CONDITIONS

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

Irrigated Timely, Late and Very Late Sown Conditions

The three test genotypes, HD 3249, HD 3271 and HI 1621 were evaluated against six checks (HD 2733, PBW 757, DBW 71, DBW 39, DBW 187, HD 2967) at eleven centres *i.e.* Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RPCAU Pusa, Sabour, Shillongani and Varanasi under Timely, Late and Very late sown conditions. The timely sowing was from 5th to 11th November, late sowing was 10th to 16th December and the very late sowing was from 1st January to 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 (150 kg/ha) 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 (60 kg P_2O_5/ha) and potash (40 kg K_2O/ha) were applied as basal.

The pooled analysis of data from eleven centres is presented in Table 3.1 and the centre wise data are reported in Annexure-I as Table 3.1.1 to 3.1.11. The perusal of data indicates that there was a significant decline in yield from 47.63 q/ha to 30.85 q/ha when sowing was delayed from timely to very late sown conditions because of significant reduction in number of earheads/m^2, and 1000 grains weight. The average yield decline due to delayed sowing was 12.4 per cent when sown in December and to 40.2 per cent, when sown in first week of January. On an average, the test genotype HD 3249 (42.49 q/ha) yielded the maximum and significantly higher to the best check DBW 187 (40.94 q/ha). The checks HD 2733 and DBW 39 yielded similar to best check DBW 187. The highest earheads/m^2, grains/earhead and 1000 grains weight were observed in HD 2733 (c), DBW 39 (c) and HD 3249, respectively. Interaction between genotype and sowing time was significant for yield and yield attributes. Among the timely and late sown entries and checks, the timely sown test entry HD 3249 was the best even under late and very late sown conditions. The centre wise data on yield and yield attributes are presented in Tables 3.1.1 to 3.1.11 in Annexure-I.

Restricted Irrigation

In this trial, one test entry DBW 252 and five checks (HD 3171, HI 1612, HD 2888, K 8027, and K 1317) were evaluated at no irrigation, one irrigation (CRI stage) and two irrigations (CRI and boot stage) in split plot design and replicated thrice. Main plots comprised of irrigation levels and the genotypes were in the sub-plots. The trial was conducted at eleven locations (Burdman, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, CAU Pusa, Sabour, Shillongani and Varanasi). Full dose NPK (90:60:40) was applied as basal in no irrigation treatment and 1/3rd nitrogen, full phosphorus (60 kg P_2O_5/ha) and potash (40 kg K_2O/ha) were applied at the time of sowing and remaining N was top dressed at 1st irrigation stage in other two main plots. Weed control measures were followed as per the recommended practice. The normalized seed rate used was 100 kg/ha (considering the 1000 grains weight of 38 g). Centre wise data are given in Annexure I as Tables 3.2.1 to 3.2.11.

Table 3.1. North Eastern Plains Zone IR-TAS-DOS Pooled 2018-19

Genotype	Sowing time: Timely	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 3249	49.66	2	45.02	1	32.78	1	42.49	1
DBW 187 (I)	48.51	4	43.20	2	31.11	3	40.94	2
HD 2733 (c)	48.90	3	41.38	5	31.19	2	40.49	3
HD 2967 (c)	50.00	1	40.69	8	27.99	9	39.56	5
DBW 39 (c)	48.42	5	41.82	3	30.90	7	40.38	4
HI 1621	45.08	9	41.43	4	30.94	5	39.15	8
HD 3271	46.31	7	40.77	7	30.83	8	39.31	7
PBW 757 (I)	45.21	8	39.91	9	30.99	4	38.70	9
DBW 71 (c)	46.59	6	41.12	6	30.91	6	39.54	6
MEAN	47.63		41.71		30.85		40.06	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.83		0.82		1.41		1.57	
			Earheads/sqm					
HD 3249	333	4	330	3	275	8	313	4
DBW 187 (I)	342	3	317	7	277	7	312	6
HD 2733 (c)	347	1	344	1	289	2	327	1
HD 2967 (c)	344	2	335	2	277	5	319	2
DBW 39 (c)	328	6	313	8	267	9	303	8
HI 1621	324	8	328	4	290	1	314	3
HD 3271	333	5	322	6	277	6	311	7
PBW 757 (I)	321	9	308	9	279	4	303	9
DBW 71 (c)	327	7	324	5	285	3	312	5
MEAN	333		325		280		312	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	6.43		7.48		12.96		13.78	
			Grains/Earhead					
HD 3249	35.06	5	34.61	4	33.08	1	34.25	3
DBW 187 (I)	32.67	9	34.73	3	32.43	3	33.28	6
HD 2733 (c)	33.37	8	30.96	9	30.41	9	31.58	9
HD 2967 (c)	37.53	1	33.88	6	30.82	8	34.08	5
DBW 39 (c)	35.87	3	34.86	2	32.73	2	34.48	1
HI 1621	34.06	6	33.25	7	31.04	7	32.79	7
HD 3271	33.46	7	32.55	8	32.34	4	32.79	8
PBW 757 (I)	35.49	4	35.01	1	32.29	5	34.26	2
DBW 71 (c)	36.31	2	34.40	5	31.80	6	34.17	4
MEAN	34.87		33.81		31.88		33.52	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.87		1.19		2.07		2.13	
			1000 Grains Weight, g					
HD 3249	44.32	2	41.19	1	36.96	1	40.82	1
DBW 187 (I)	44.57	1	40.39	3	35.89	5	40.28	3
HD 2733 (c)	43.92	3	40.86	2	36.54	2	40.44	2
HD 2967 (c)	40.68	9	37.86	9	33.80	9	37.45	9
DBW 39 (c)	42.96	6	39.99	5	36.19	3	39.71	4
HI 1621	43.02	5	39.70	6	35.45	7	39.39	6
HD 3271	43.06	4	40.19	4	34.94	8	39.39	5
PBW 757 (I)	41.44	7	38.34	7	35.92	4	38.57	7
DBW 71 (c)	40.77	8	38.26	8	35.84	6	38.29	8
MEAN	42.75		39.64		35.73		39.37	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.43		0.65		1.12		1.14	

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

The pooled analysis presented in Table 3.2 showed that increasing number of irrigations successively gave significantly higher grain yield. One and two irrigation application gave

20.44% and 34.44% higher grain yield, respectively than no irrigation. All the yield attributing parameters were significantly increased as level of irrigation enhanced. So, the yield increase was due to cumulative effect of all the yield attributing parameters. The check genotype K 1317 (38.50 q/ha) ranked 1st and produced significantly higher grain yield (38.50 q/ha) than new test entry DBW 252 (37.69 q/ha) and all the other check genotypes except HI 1612 (37.85 q/ha). Check genotypes HI1612 and K 1317 (c) ranked first in number of earhead/m^2 (316). The boldest grains were of the check genotype K 1317 (c) having thousand grain weight of 43.1 g and was significantly better to rest of checks as well as test entry DBW 252.

Table 3.2. North Eastern Plains Zone RIR-TS-TAS Pooled 2018-19

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
DBW 252	31.25	3	38.40	4	43.42	2	37.69	3
HD 3171 (c)	31.08	4	39.08	1	42.23	4	37.46	4
HI 1612 (c)	31.97	1	39.03	2	42.54	3	37.85	2
HD 2888 (c)	28.64	5	32.96	5	35.80	6	32.47	5
K 8027 (c)	27.91	6	31.76	6	36.28	5	31.98	6
K 1317 (c)	31.70	2	38.63	3	45.15	1	38.50	1
MEAN	30.42		36.64		40.90		35.99	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.90		0.88		1.52		1.65	
			Earheads/sqm					
DBW 252	274	5	317	3	331	5	307	5
HD 3171 (c)	283	4	319	2	337	3	313	3
HI 1612 (c)	285	3	327	1	337	2	316	1
HD 2888 (c)	287	2	314	5	333	4	311	4
K 8027 (c)	271	6	306	6	321	6	299	6
K 1317 (c)	288	1	316	4	343	1	316	2
Mean	281		316		334		310	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	5.32		5.98		NS		NS	
			Grains/Earhead					
DBW 252	29.64	1	30.54	2	32.23	1	30.80	1
HD 3171 (c)	28.12	3	30.43	3	30.49	4	29.68	3
HI 1612 (c)	29.31	2	30.64	1	31.42	2	30.45	2
HD 2888 (c)	26.23	6	27.24	5	27.50	5	26.99	5
K 8027 (c)	26.52	5	25.98	6	27.07	6	26.53	6
K 1317 (c)	27.26	4	29.39	4	31.25	3	29.30	4
Mean	27.84		29.04		29.99		28.96	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.87		1.00		NS		NS	
			1000 Grains Weight, g					
DBW 252	40.63	3	41.37	3	42.35	4	41.45	3
HD 3171 (c)	40.30	4	41.27	4	42.72	3	41.43	4
HI 1612 (c)	39.90	5	40.81	6	41.85	5	40.85	5
HD 2888 (c)	39.68	6	40.93	5	41.68	6	40.77	6
K 8027 (c)	40.76	2	42.37	2	44.00	2	42.38	2
K 1317 (c)	42.08	1	43.00	1	44.23	1	43.10	1
Mean	40.56		41.62		42.81		41.66	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.46		0.58		NS		NS	

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

Central Zone

In the Central zone, eight centres, viz. Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Udaipur and Vijapur are actively involved in the coordinated wheat programme of Resource Management during the year 2018-19. The data on soil and various meteorological parameters have been reported under Annexure II and Annexure III, respectively. Vertisols are primarily found in this zone and these soils vary between sandy loam, sandy clay loam to clay loam in texture.

In this zone there was one second year advanced varietal trial for agronomic evaluation of the genotypes under restricted irrigation conditions conducted at all the eight locations. Besides this, one production technology trial was done at six locations namely Bilaspur, Gwalior, Indore, Jabalpur, Powarkheda and Udaipur under various growing conditions and one more production technology trial on nutrient expert system was conducted at Udaipur. The data on climatic and soil parameters at various locations are given in Annexure II and Annexure III, respectively. The soils at most of the centres are sandy clay loam to clay, neutral to slightly alkaline in reaction (pH: 7.2 to 7.8) except Vijapur where the soils are sandy loam. All the centres were low to medium in organic carbon (0.34-0.69 per cent) status. The available nitrogen status was low to medium (162-287 kg/ha), phosphorus medium to high (12.50-60.79 kg/ha) and potassium was in high (200.0-423.5 kg/ha) at most of the locations. The maximum rainfall in this zone during the wheat growing season 2018-19 was recorded at Bilaspur (88.2 mm), followed by Powarkheda (60.8mm), Gwalior (30.6 mm), Jabalpur (16.9 mm), Udaipur (7.0 mm), Vijapur (5.0 mm) , Junagarh (0.0 mm) and Indore (0.0 mm). The average maximum and minimum temperatures were 34.8ºC and 6.7ºC at Bilaspur, 40.7ºC and 0.6ºC at Gwalior, 41.8ºC and 7.4ºC at Indore, 39.9ºC and 3.1ºC at Jabalpur, 40.8ºC and 10.8ºC at Junagarh, 34.0ºC and 11.5ºC at Powarkheda, 39.8ºC and 4.1ºC at Udaipur, and 36.6ºC and 6.5ºC at Vijapur, respectively.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

A coordinated trial for evaluation of new genotypes under restricted irrigation and timely sown was conducted in this zone with two durum entries, one durum check and two aestivum checks.

Restricted Irrigation

In this trial, two durum test entries {UAS 466 (d) and DDW 47(d)} were evaluated against three checks { DBW 110(c), HI 8627 (d)(c) and MP 3288(c)} under timely sowing with restricted irrigated conditions. The trial was conducted at eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Udaipur and Vijapur) in split plot design with number of irrigations in main plots and genotypes in sub plots. 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 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.

For pooled analysis out of the eight centres viz. Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Udaipur and Vijapur; only five centres were considered since the yield levels at Junagarh and Vijapur centres were very low and at Jabalpur centre the trial was rejected due to improper data reporting of earhead density. The pooled analysis of five centres (Bilaspur, Gwalior, Indore, Powarkheda and Udaipur), is presented in Table 4.1. The centre wise data have presented in Annexure-I in Tables 4.1.1 to 4.1.8. The pooled data presented in Table 4.1 revealed that the durum wheat test entries UAS 466 (d) and DDW 47(d) were not superior in grain yield when compared to the best check entry HI 8627 (dc) identified previous year and aestivum wheat entry DBW 110 (c). On an average basis there was significant (71.77 %) increase in yield from 23.77 q/ha to 40.83 q/ha when number of irrigation increased from no irrigation to two irrigations because of significant increase in yield attributing characters viz. number of earheads/m^2, grains per earhead and 1000 Grain weight. Interaction between irrigations and genotypes was found significant for all the yield attributing characters.

Table 4.1 Central Zone RIR-TS-TAD Pooled 2018-19

	Irrigation levels							
Genotypes	No	Rk	One CRI	Rk	Two CRI&LT	Rk	Mean	Rk
			Yield, q/ha					
DDW 47 (d)	23.13	4	34.53	4	41.25	4	32.97	4
UAS 466 (d)	20.67	5	30.48	5	35.93	5	29.03	5
HI 8627 (dc)	24.98	2	34.89	3	42.76	2	34.21	2
DBW 110 (c)	24.76	3	35.26	1	42.90	1	34.31	1
MP 3288 (c)	25.30	1	35.10	2	41.31	3	33.90	3
MEAN	23.77		34.05		40.83		32.88	
CD (0.05)	Irrigation (A)		Genotypes (B)		B within A		A within B	
	1.66		1.20		NS		NS	
			Earhead/sq.m.					
DDW 47 (d)	241	5	296	3	335	2	291	3
UAS 466 (d)	244	4	284	4	308	5	278	5
HI 8627 (dc)	251	3	282	5	310	4	281	4
DBW 110 (c)	255	2	301	2	323	3	293	2
MP 3288 (c)	266	1	305	1	353	1	308	1
MEAN	251		293		326		290	
CD (0.05)	Irrigation (A)		Genotypes (B)		B within A		A within B	
	4.33		7.51		13.01		12.39	
			Grains/Earhead					
DDW 47 (d)	22.99	5	26.61	5	26.14	5	25.25	5
UAS 466 (d)	22.99	4	29.13	3	29.91	3	27.34	4
HI 8627 (dc)	24.48	3	28.76	4	30.15	2	27.80	3
DBW 110 (c)	24.75	2	29.34	2	33.44	1	29.18	1
MP 3288 (c)	26.46	1	31.22	1	28.97	4	28.88	2
MEAN	24.33		29.01		29.72		27.69	
CD (0.05)	Irrigation (A)		Genotypes (B)		B within A		A within B	
	1.69		1.07		1.85		2.36	
			1000 Grains Weight, g					
DDW 47 (d)	43.61	1	45.28	1	48.81	1	45.90	1
UAS 466 (d)	38.23	4	38.25	4	40.73	5	39.07	4
HI 8627 (dc)	42.01	2	44.43	2	47.46	2	44.63	2
DBW 110 (c)	39.62	3	41.14	3	40.84	4	40.53	3
MP 3288 (c)	36.63	5	38.06	5	41.02	3	38.57	5
MEAN	40.02		41.43		43.77		41.74	
CD (0.05)	Irrigation (A)		Genotypes (B)		B within A		A within B	
	0.74		0.54		0.93		1.11	

Centres: Bilaspur, Gwalior, Indore, Powarkheda, Udaipur

Peninsular Zone

In Peninsular zone, three centres (Dharwad, Niphad and Pune) were actively engaged in research activities of coordinated wheat agronomy programme. The data on weather and soil parameters are reported in Annexure II and Annexure III, respectively. The soils of this zone fall under the order vertisols and predominantly are clayey in nature with low to high organic carbon ranging between 0.32-1.18 per cent. The available soil nitrogen is low to medium in content ranging between (112 to 272 kg N/ha); while the content of phosphorus is generally high (<42) except in few cases where it falls under low and medium categories. The potash content in soil is very high (357 to 810 kg/ha) and the soils of this region are predominantly alkaline in reaction. Majority of rainfall received was in the months of October-November except a few showers which were received during later stages in the crop season. The maximum rainfall received was 203.7 mm at Dharwad, followed by 80.2 mm at Pune and 15 mm at Niphad. The average maximum and minimum temperatures were 32.6°C and 14.7°C at Pune, 32.9°C and 12.7°C at Niphad and 32.5°C and 16.4°C at Dharwad.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

Restricted Irrigation

In this trial seven test entries comprising three aestivum namely MACS 6695, MACS 6696 and NIAW 3170 and four durum entries namely MACS 4058, GW 1346, HI 8802 and HI 8805 were evaluated against four checks viz DBW 93, HI 1605, AKDW 2997-16 (d) and UAS (d) . The trial was conducted to evaluate the performance of timely sown genotypes at three levels of irrigation *i.e.* at no irrigation, one irrigation at CRI and two irrigations at CRI and boot leaf at three locations (Dharwad, Niphad and Pune) in split plot design with irrigation levels in main and genotypes in sub plots with three replications. Sowing was done using the normalized (adjusted considering 1000 grains weight as 38g) seed rate of 100 kg/ha. NPK fertilizers @ 90:60:40 were applied as full basal in I_1 treatment *i.e.* no irrigation, whereas 1/3 N, full P and K as basal application at sowing and the remaining 2/3 N at first irrigation *i.e.* at 20-25 days after sowing in I_2 and I_3.

The pooled analysis and the centre wise data have been presented in Table 5.1 and as Annexure-I (Tables 5.1.1 to 5.1.3), respectively. The data from Niphad centre was rejected due to high CV and low yield levels. The perusal of pooled data for Dharwad and Pune indicated that increasing the irrigation frequency significantly increased the grain yield. Maximum grain yield (37.24 q/ha) was produced under two irrigations which were imposed at CRI and boot leaf stage followed by one irrigation (29.18 q/ha) and no irrigation (25.27

q/ha) levels. Increased irrigation level enhanced the grain yield mainly due to significant increase in earheads/sqm and grains/earhead. Among genotypes, maximum grain yield was produced by test entry MACS 6695 (35.24 q/ha) followed by test entries MACS 6696 (34.35 q/ha) and NIAW 3170 (33.02 q/ ha).

Table 5.1. Peninsular Zone **RIR-TS-TAS** **Pooled** **2018-19**

	Irrigation level							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
				Yield, q/ha				
NIAW 3170	27.01	4	32.91	3	39.16	4	33.02	3
MACS 6695	29.43	1	34.79	1	41.49	1	35.24	1
MACS 6696	27.82	2	34.22	2	41.01	2	34.35	2
HI 8805 (d)	25.20	6	30.10	5	36.81	5	30.71	5
HI 8802 (d)	23.01	8	25.41	10	35.79	8	28.07	8
MACS 4058 (d)	25.95	5	27.38	7	36.65	7	29.99	6
GW 1346 (d)	22.90	10	23.90	11	33.34	11	26.72	11
DBW 93 (c)	23.47	7	29.22	6	36.74	6	29.81	7
HI 1605 (c)	27.49	3	30.59	4	39.40	3	32.49	4
UAS 446 (dc)	22.93	9	26.00	9	34.60	10	27.85	10
AKDW 2997-16 (dc)	22.82	11	26.43	8	34.69	9	27.98	9
MEAN	25.27		29.18		37.24		30.56	
	Irrigation (A)		Genotype(B)		B within A		A within B	
CD (0.05)	1.09		1.51		NS		NS	
				Earheads/sqm				
NIAW 3170	255	3	288	2	290	3	277	3
MACS 6695	260	1	285	3	328	1	291	1
MACS 6696	231	8	307	1	300	2	279	2
HI 8805 (d)	255	2	231	9	263	8	250	6
HI 8802 (d)	241	5	223	11	233	11	232	10
MACS 4058 (d)	209	11	234	7	235	10	226	11
GW 1346 (d)	250	4	232	8	257	9	246	7
DBW 93 (c)	230	9	235	6	266	7	244	9
HI 1605 (c)	237	6	261	4	274	6	257	4
UAS 446 (dc)	225	10	250	5	287	4	254	5
AKDW 2997-16 (dc)	236	7	226	10	274	5	246	8
MEAN	239		252		273		255	
	Irrigation (A)		Genotype(B)		B within A		A within B	
CD (0.05)	5.98		8.11		14.04		14.55	
				Grains/Earhead				
NIAW 3170	25.55	6	27.52	7	30.19	8	27.75	8
MACS 6695	29.15	2	31.40	2	30.54	7	30.37	4
MACS 6696	31.19	1	28.59	6	32.04	5	30.61	3
HI 8805 (d)	22.45	9	29.70	5	29.60	9	27.25	9
HI 8802 (d)	22.10	11	27.14	8	35.09	1	28.11	6
MACS 4058 (d)	28.05	4	26.75	10	33.09	4	29.30	5
GW 1346 (d)	22.28	10	25.37	11	31.05	6	26.24	11
DBW 93 (c)	25.42	7	34.60	1	34.09	3	31.37	2
HI 1605 (c)	28.88	3	30.61	3	34.62	2	31.37	1
UAS 446 (dc)	25.74	5	26.80	9	28.98	11	27.18	10
AKDW 2997-16 (dc)	24.11	8	29.74	4	29.53	10	27.79	7
MEAN	25.90		28.93		31.71		28.85	
	Irrigation (A)		Genotype(B)		B within A		A within B	
CD (0.05)	0.88		1.84		3.18		3.15	
				1000 Grains Weight, g				
NIAW 3170	41.45	4	41.56	4	44.61	3	42.54	4
MACS 6695	39.01	11	39.23	8	42.43	7	40.22	8
MACS 6696	39.04	10	39.40	7	42.49	6	40.31	7
HI 8805 (d)	43.43	2	43.41	2	46.48	2	44.44	2
HI 8802 (d)	42.47	3	42.08	3	43.39	4	42.65	3
MACS 4058 (d)	44.25	1	43.93	1	46.69	1	44.96	1
GW 1346 (d)	40.77	5	40.91	5	41.59	8	41.09	5
DBW 93 (c)	40.46	6	37.08	11	40.43	11	39.32	11
HI 1605 (c)	40.28	7	38.59	10	41.41	9	40.09	9
UAS 446 (dc)	39.15	9	38.85	9	41.33	10	39.77	10
AKDW 2997-16 (dc)	40.15	8	39.49	6	42.71	5	40.78	6
MEAN	40.95		40.41		43.05		41.47	
	Irrigation (A)		Genotype(B)		B within A		A within B	
CD (0.05)	1.04		1.08		NS		NS	

Centres: Dharwad, Pune

PRODUCTION TECHNOLOGIES

In this section, the results of various experiments on updating the package of practices of various wheat growing zones are presented. Various special coordinated trials on optimising phosphorus usage, Enhancing Zn content in wheat grain, identifying optimum spacing and seed rate for dicoccum, precision nitrogen management using NDVI sensor, quantifying the yield losses due to delayed sowing, and validation of nutrient expert in wheat were conducted to address the various issues in different wheat growing zone.

SPL-2: Optimising phosphorus usage in wheat

Phosphorus is a major nutrient element, which plays a key role in realizing crop yield potential. Phosphorus solubilising bacteria makes phosphorus available for crop from the fixed reservoir in the soil and therefore enhancing in the phosphorus use efficiency. For exploring the role of phosphorus solubilising bacteria in improving phosphorus usage in wheat under wheat based cropping systems field trials were conducted across the wheat growing zones.

In Northern Hill Zone, this trial was conducted at Bajaura and Malan centres. The experiment was conducted in randomized complete block design with twelve combinations of phosphorus and PSB under wheat and wheat based cropping systems. Recommended nitrogen and potassium were applied as per standard protocol *i.e.* 1/3rd nitrogen, full potash as basal dose and the remaining 2/3rd nitrogen was applied at first irrigation and second irrigation with equal splits. The phosphorus and PSB were imposed as per treatments. 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 concerned zone. Centre wise data are given in Annexure- I as Tables 6.1.1 and 6.1.2.

The pooled analysis of data is presented in Table 6.1 revealed significant effect of phosphorus solubilising bacteria with phosphorus fertilizer at 30 and 60 kg/ha . On mean data basis, the highest yield was obtained in 60 kg/ha phosphorus + PSB treatment + 30 kg/ha phosphorus in *kharif* season crop (46.95 q/ha) followed by 60 kg/ha phosphorus + PSB treatment in wheat (46.81 q/ha). However, higher number of grains per earhead was recorded in treatment phosphorus 60 kg/ha.

Table 6.1. Northern Hill Zone		SPL-2				Pooled		2018-19	
Wheat, P_2O_5, kg/ha	Rice/Maize, P_2O_5, kg/ha	Earheads/ sqm	Rk	1000 Grains Weight, g	Rk	Grains/ earhead	Rk	Yield, q/ha	Rk
0	0	288	12	40.26	11	31.70	5	36.96	12
0	30	297	10	40.19	12	31.07	7	37.17	11
30	0	317	7	42.38	6	29.81	12	40.30	8
30	30	312	8	42.04	9	30.77	9	40.67	7
60	0	334	3	42.98	2	32.57	4	46.43	3
60	30	331	5	42.38	6	33.20	1	46.25	4
0+PSB	0	296	11	41.47	10	31.54	6	38.90	9
0+PSB	30	298	9	42.12	8	30.93	8	38.87	10
30+PSB	0	327	6	42.87	3	30.27	11	42.60	6
30+PSB	30	332	4	42.62	5	30.27	10	42.97	5
60+PSB	0	339	1	42.68	4	32.70	2	46.81	2
60+PSB	30	336	2	43.13	1	32.63	3	46.95	1
CD(0.05)		20.64		1.35		2.19		2.67	
Centres: Bajaura, Malan									

In NWPZ, this experiment was planned to reduce the P requirement under rice-wheat system. Experiment consists of 12 treatments namely 0, 30, 60, Kg P_2O_5/ha and each along with PSB was tried in wheat. In rice each treatment was tested at 0 and 30 kg P_2O_5/ha. This experiment was conducted in randomised block design with three replications at two locations (Karnal and Ludhiana). 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.

The data revealed that maximum wheat grain yield (60.0 q/ha) was obtained at recommended dose of P application. Additional application of PSB did not increase any yield across the P (0, 30 60) levels. This showed that PSB application do not have any advantage in wheat crop. Even no application of P in wheat resulted grain yield to the tune of 53.7 to 58.0 q/ha. However, this is first year first season data and more information will be generated after taking rice crop. Centre wise data are given in Annexure- I as Tables 6.2.1 and 6.2.2.

Table 6.2. North Western Plains Zone		SPL-2				Pooled		2018-19	
Wheat, P_2O_5, kg/ha	Rice P_2O_5, kg/ha	Earheads/ sqm	Rk	1000 Grains Weight, g	Rk	Grains/ earhead	Rk	Yield, q/ha	Rk
0	0	400.8	12	37.9	11	37.2	7	53.7	12
0	30	408.1	11	38.5	9	38.0	4	57.3	7
30	0	408.3	10	38.4	10	37.5	6	56.5	11
30	30	413.8	5	39.2	6	36.8	8	57.2	8
60	0	412.9	6	38.8	8	38.9	2	59.4	3
60	30	410.0	8	39.7	3	38.4	3	60.0	1
0+PSB	0	409.8	9	37.6	12	39.4	1	58.0	5
0+PSB	30	415.0	4	38.9	7	36.7	9	57.1	9
30+PSB	0	419.2	2	40.3	2	35.0	12	57.5	6
30+PSB	30	418.5	3	39.5	4	35.4	10	57.1	10
60+PSB	0	424.8	1	40.7	1	35.2	11	58.7	4
60+PSB	30	411.0	7	39.4	5	37.7	5	59.8	2
CD(0.05)		19.9		2.2		3.7		3.1	
Centres: Karnal, Ludhiana									

In NEPZ, this experiment was conducted at Shillongani only to explore the role of phosphorus solubilising bacteria in improving phosphorus usage in wheat under wheat based cropping systems This experiment was planned to reduce the P requirement under rice-wheat system. Experiment consists of 12 treatments namely 0, 30, 60, Kg P_2O_5/ha and each along with PSB was tried in wheat. In rice each treatment was tested at 0 and 30 kg P_2O_5/ha. This experiment was conducted in randomised block design with three replications at two locations (Karnal and Ludhiana). 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.

The perusal of data presented in Table 6.3 revealed that maximum wheat grain yield (47.66 q/ha) was obtained at recommended dose of P application (60 kg/ha) without PSB inoculation. The addition of PSB significantly increased the yield in comparison to treatments where no P or 30 kg P_2O_5/ha was applied. This showed that PSB application have benefit in wheat crop. No application of P and PSB recorded minimum yield of 36.33 and 36.93 q/ha. However, to draw valid conclusions long term experimentation is required.

Table 6.3. North Eastern Plains Zone SPL-2 Shillongani 2018-19

Wheat, P_2O_5, kg/ha	Rice P_2O_5, kg/ha	Earheads/ sqm	Rk	1000 Grains Weight, g	Rk	Grains/ earhead	Rk	Yield, q/ha	Rk
0	0	241	10	43.35	11	34.83	12	36.33	12
0	30	247	9	42.83	12	35.29	11	36.93	11
30	0	253	7	43.51	10	35.38	10	38.90	10
30	30	251	8	45.16	7	36.24	6	40.59	9
60	0	227	11	45.42	5	45.11	2	46.47	2
60	30	222	12	45.34	6	47.43	1	47.66	1
0+PSB	0	257	5	46.27	4	35.88	7	42.59	8
0+PSB	30	255	6	44.21	9	38.57	3	43.33	7
30+PSB	0	262	2	44.40	8	38.28	4	44.45	4
30+PSB	30	262	2	47.72	1	35.62	9	43.81	6
60+PSB	0	260	4	47.19	2	35.87	8	44.05	5
60+PSB	30	262	1	46.69	3	36.52	5	44.67	3
CD(0.05)		24.94		4.25		5.41		2.64	
Date of Sowing:	12.11.2018		Date of Harvesting:		23.03.2019 to 28.03.2019				

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

This trial was conducted in NHZ to fortify the wheat grain with zinc content. Besides recommended dose of fertilizer application, zinc fertiliser was applied in soil as well as foliar application. Zinc fertilization was imposed in varying doses and combinations. There were eight treatment combinations tried in randomized block design with three replications at three locations (Bajaura, Khudwani and Malan). 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 concerned zone.

The pooled data is presented in Table 6.4 revealed significant effect of zinc fertilization. The results revealed that lowest wheat productivity was observed when no zinc was applied which was significantly lower than all the zinc application treatments except where only spray of 0.5% hepta hydrate zinc was done twice. The highest yield was obtained in Zn application in soil (37.5 kg ZnSO4/ha) + Foliar Zn application (0.5% ZnSO4 heptahydrate) at heading and early milk stage (47.24 q/ha) followed by Zn application in soil (25 kg Zinc sulphate/ha) + Foliar Zn application (0.5% ZnSO4 heptahydrate) at heading and early milk stage (45.79 q/ha). Center wise data are presented in Table 6.4.1 to 6.4.2 in Annexure-I.

Table 6.4. Northern Hills Zone	**SPL-3**		**Pooled**	**2018-19**
Zinc treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha
No zinc	336	39.15	30.98	40.55
12.5 kg Zinc sulphate/ha	347	40.26	30.77	42.95
25.0 kg Zinc sulphate/ha	357	39.89	31.39	44.79
37.5 kg Zinc sulphate/ha	351	41.04	31.63	45.53
Foliar zinc (0.5% hepta hydrate)	331	40.02	31.44	41.44
12.5 kg Zinc sulphate/ha + Foliar Zn (0.5%)	352	40.62	31.63	45.17
25.0 kg Zinc sulphate/ha + Foliar Zn (0.5%)	360	41.42	30.67	45.79
37.5 kg Zinc sulphate/ha + Foliar Zn (0.5%)	357	40.72	32.66	47.24
CD (0.05)	18.29	1.12	1.97	1.97
Centres: Bajaura, Khudwani, Malan				

SPL-4: Yield maximization in *dicoccum* wheat through spacing and seed rates

This trial was conducted in split plot design with an objective to maximize wheat yield through spacing and seed rates in dicoccum wheat at three locations in peninsular zone (Dharwad, Niphad and Pune). The main plots comprised three line spacing treatments (15, 20 and 25 cm) and the sub plot included three seed rate treatments (75, 100 and 125 kg/ha). NPK was applied at 120:60:40 kg/ha.

The pooled analysis data of three centres are presented in Table 6.5. 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 the seed rate of 125 kg/ha (45.38 q/ha) which may be attributed to more grains/earhead. The line spacing at 15 and 25 cm recorded lower yields as compared to 20 cm row spacing. The centre wise data have been illustrated as Annexure in Table 6.5.1- 6.5.3.

Table 6.5. Peninsular Zone	SPL-4				Pooled		2018-19	
	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
			Yield, q/ha					
75 kg/ha	40.57	3	42.29	3	40.78	2	41.21	3
100 kg/ha	41.09	2	44.35	2	41.94	1	42.46	2
125 kg/ ha	42.74	1	45.38	1	39.57	3	42.56	1
Mean	41.46		44.01		40.76		42.08	
	Spacing (A)		Seed rate(B)		B within A		A within B	
CD (0.05)	1.65		NS		NS		NS	
			Earheads/sqm					
75 kg/ha	462	1	444	1	359	3	422	2
100 kg/ha	449	3	432	2	391	2	424	1
125 kg/ ha	460	2	384	3	407	1	417	3
Mean	457		420		386		421	
	Spacing (A)		Seed rate(B)		B within A		A within B	
CD (0.05)	14.40		NS		19.20		21.13	
			Grains/Earhead					
75 kg/ha	26.04	3	29.08	2	31.23	1	28.78	2
100 kg/ha	27.43	1	28.69	3	29.98	2	28.70	3
125 kg/ ha	27.17	2	32.55	1	27.84	3	29.19	1
Mean	26.88		30.11		29.68		28.89	
	Spacing (A)		Seed rate(B)		B within A		A within B	
CD (0.05)	0.95		NS		2.04		1.91	
			1000 Grains Weight, g					
75 kg/ha	37.66	2	35.70	3	38.30	1	37.22	3
100 kg/ha	36.86	3	38.97	1	37.72	3	37.85	2
125 kg/ ha	37.99	1	38.57	2	37.72	2	38.10	1
Mean	37.50		37.75		37.91		37.72	
	Spacing (A)		Seed rate(B)		B within A		A within B	
CD (0.05)	NS		NS		1.92		1.84	

Centres: Dharwad, Niphad, Pune

SPL-5: Precision nitrogen management in irrigated wheat using NDVI sensor

This trial was conducted for improving the nitrogen use efficiency through need based application. The experiment consists of eight treatments with different N rates and timing of applications in Randomized Block Design at two locations *i.e.* Coochbehar and Ranchi in NEPZ. All agronomic practices were followed as per recommendations except N application

A perusal of the pooled analysis of data presented in table 6.6 revealed that there was significant difference in grain yield and yield attributes due to various N application treatments. The highest yield was obtained in treatment where 30 kg N/ha basal+60 kg N/ha CRI + rest using Green Seeker at 40-45 & 60-65 DAS (51.98 q/ha) was applied followed by treatment where 75 kg N basal +37.5 kg N/ha at CRI and 37.5 kg N/ha at tillering stage (48.7 q/ha). N rich plot having 90 kg N/ha basal+90 kg/ha at CRI (48.4 q/ha) produced lesser yield but was statistically at par with the Green Seeker based N applications. Unfertilized control

plot yielded significantly less (16.5 q/ha) compared to all the treatments mainly due to poor yield attributes in this treatment.

Table 6.6. North Eastern Plain Zone	**SPL-5**	**Pooled**	**2018-19**	
Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha
Absolute Control	172	32.27	30.46	16.48
75 kg basal +37.5 kg N/ha at CRI and Tillering	305	39.95	41.08	48.68
60 kg basal +30 kg N/ha at CRI and Tillering	288	39.67	39.41	43.13
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	317	40.50	38.65	47.85
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	330	42.00	38.82	51.98
½ N basal and ½ at CRI	312	40.90	38.17	46.45
1/3rd N basal+1/3rd CRI +1/3rd First Node	305	39.53	38.06	44.77
Rich Plot-90 kg N/ha basal+90 at CRI	313	41.62	38.82	48.35
CD (0.05)	34.94	1.73	4.62	3.98
Centres: Coochbehar, Ranchi				

This experiment was conducted to improve nitrogen use efficiency in wheat by need based application at Dharwad and Pune in PZ. The experiment was conducted in randomized block design consisting of eight treatments *viz.* Absolute Control, 75 kg basal +37.5 kg N/ha at CRI and tillering, 60 kg N/ha basal +30 kg N/ha at CRI and tillering, 30 kg N/ha basal+30 kg N/ha CRI +and rest using Green Seeker at 40-45 & 60-65 DAS, 30 kg N/ha basal+60 kg N/ha at CRI and rest using Green Seeker at 40-45 & 60-65 DAS, ½ N as basal and ½ at CRI, 1/3rd N as basal+1/3rd at CRI +1/3rd at first node (around 45 days after seeding) and Rich Plot-90 kg N/ha basal+90 at CRI; replicated thrice.

In Peninsular Zone, the pooled analysis of the data from two locations revealed significant effect of precision nutrient management on grain yield (Table 6.7). The maximum grain yield was recorded for the treatment Rich Plot-90 kg N/ha basal+90 at CRI (56.02 q/ha) followed by 75 kg basal +37.5 kg N/ha at CRI and tillering (55.22 q/ha). Both the treatments remained statistically at par. The centre wise data are presented in Annexure-I from Table 6.7.1- 6.7.2.

Table 6.7. Peninsular Zone	**SPL-5**	**Pooled**		**2018-19**
Treatments	Earheads/ sqm	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha
Absolute Control	294	41.64	36.07	44.72
75 kg basal +37.5 kg N/ha at CRI and Tillering	347	42.53	37.98	55.22
60 kg basal +30 kg N/ha at CRI and Tillering	331	41.63	38.70	52.45
30 kg basal+30 kg CRI +GS at 40-45 & 60-65 DAS	304	43.96	39.61	53.16
30 kg basal+60 kg CRI +GS at 40-45 & 60-65 DAS	343	41.85	38.23	53.51
½ N basal and ½ at CRI	333	41.39	38.45	52.81
1/3rd N basal+1/3rd CRI +1/3rd First Node	308	42.03	40.12	51.86
Rich Plot-90 kg N/ha basal+90 at CRI	382	42.66	36.00	56.02
CD(0.05)	34.40	1.69	3.61	3.44
Centres: Dharwad, Pune				

SPL-6: Varieties at different dates of sowing under changing climate

A field experiment was conducted to evaluate the performance of diverse genotypes at different dates of sowing under changing climate with dates of sowing in main plots and genotypes in sub plots with three replications. The sowing was done using the normalized seed rate @ 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Nutrient, irrigation and weed control measures were followed as per recommended package of practices for the concerned zone.

Table 6.8. Northern Hill Zone SPL-6 Pooled 2018-19

	Sowing time									
Genotypes	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	53.72	1	48.55	1	44.28	1	31.95	1	44.62	1
HD 2967	43.54	5	40.16	4	38.97	2	29.28	2	37.99	4
HD 3086	49.40	3	43.85	3	36.51	4	26.14	6	38.98	3
HI1544	45.33	4	38.59	6	34.61	5	27.19	4	36.43	5
MACS 6222	49.47	2	45.66	2	38.56	3	28.45	3	40.54	2
WR 544	39.90	6	39.52	5	33.52	6	26.91	5	34.96	6
Mean	46.89		42.72		37.74		28.32		38.92	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.42		1.72		3.44		3.43			
					Grains/Earhead					
HS 562	33.32	1	32.86	1	32.02	1	27.01	6	31.30	1
HD 2967	28.19	6	27.76	5	29.85	2	30.38	1	29.04	4
HD 3086	30.25	3	31.55	3	27.07	6	27.93	4	29.20	3
HI1544	29.61	4	27.22	6	27.44	5	29.89	2	28.54	6
MACS 6222	31.94	2	32.64	2	29.39	3	29.09	3	30.77	2
WR 544	28.72	5	30.35	4	28.40	4	27.59	5	28.76	5
Mean	30.34		30.40		29.03		28.65		29.60	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.03		1.39		2.79		2.74			
					Earheads/sqm					
HS 562	354	1	337	1	331	1	291	1	328	1
HD 2967	334	4	323	3	321	2	258	2	309	3
HD 3086	346	2	314	5	309	4	234	6	301	4
HI1544	329	5	315	4	303	5	243	5	298	5
MACS 6222	336	3	330	2	320	3	254	3	310	2
WR 544	317	6	301	6	303	6	253	4	294	6
Mean	336		320		315		256		307	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	14.14		11.38		NS		NS			
					1000 Grains Weight, g					
HS 562	46.62	5	45.52	4	42.63	3	41.50	2	44.07	3
HD 2967	47.18	2	46.69	1	42.02	5	39.59	5	43.87	4
HD 3086	47.85	1	45.64	3	44.98	1	42.49	1	45.24	1
HI1544	47.09	3	46.27	2	43.62	2	40.99	4	44.49	2
MACS 6222	46.98	4	45.15	5	42.42	4	39.28	6	43.46	5
WR 544	45.36	6	44.66	6	40.92	6	41.02	3	42.99	6
Mean	46.84		45.65		42.76		40.81		44.02	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.70		1.11		NS		NS			

Centres: Bajaura, Malan

In Northern Hill Zone the trial was conducted at two centres (Bajaura and Malan) and the wheat data is presented in Table 6.8. As perusal of pooled data showed that the genotype

HS 562 produced maximum and significantly higher yield (44.62 q/ha) followed by MACS 6222 (40.54 q/ha). Among dates of sowing the early sown crop (05th November) produced maximum and significantly higher yield over all other dates of sowing. Gain in yield was due to significantly higher number of earhead/sq m and grains/earhead. The center wise data are mentioned in Annexure-I as Tables 6.8.1 to 6.8.2.

Table 6.9. North Western Plains Zone SPL-6 Pooled 2018-19

	Date of sowing									
Genotype	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	62.64	1	54.87	2	46.25	1	37.98	1	50.43	1
HD 2967	60.11	4	54.00	3	42.10	4	35.81	3	48.00	3
HD 3086	61.89	2	55.35	1	45.40	2	36.66	2	49.82	2
HI 1544	58.90	5	53.12	4	39.12	5	33.30	5	46.11	5
MACS 6222	61.54	3	52.15	5	42.86	3	33.96	4	47.62	4
WR 544	51.12	6	47.16	6	38.65	6	32.34	6	42.32	6
MEAN	59.37		52.77		42.39		35.01		47.39	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.10		1.00		2.01		NS			
					Earhead/sqm					
HS 562	429.36	2	417.18	1	385.50	3	347.73	3	394.94	3
HD 2967	427.49	3	411.15	3	387.20	2	363.87	2	397.43	2
HD 3086	434.88	1	415.54	2	403.99	1	366.96	1	405.34	1
HI 1544	424.04	4	405.50	4	383.74	4	346.82	4	390.02	4
MACS 6222	400.33	6	383.90	6	365.93	6	330.92	6	370.27	6
WR 544	408.44	5	394.23	5	366.25	5	338.65	5	376.89	5
MEAN	420.76		404.58		382.10		349.16		389.15	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	9.12		8.59		NS		NS			
					Grains/Earhead					
HS 562	34.97	2	33.70	3	33.49	1	33.70	1	33.97	1
HD 2967	33.80	3	32.95	5	29.77	5	30.12	3	31.66	4
HD 3086	33.66	4	33.90	2	30.81	3	29.73	4	32.03	3
HI 1544	33.02	5	33.32	4	29.02	6	29.43	5	31.20	5
MACS 6222	36.09	1	34.26	1	31.46	2	30.54	2	33.09	2
WR 544	31.28	6	31.84	6	29.87	4	27.62	6	30.15	6
MEAN	33.80		33.33		30.74		30.19		32.01	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.28		1.07		NS		NS			
					1000 Grains Weight, g					
HS 562	42.38	4	40.12	5	36.96	4	32.99	4	38.11	3
HD 2967	42.21	5	40.42	1	36.97	3	32.62	6	38.05	4
HD 3086	43.42	1	40.32	2	37.79	1	33.91	2	38.86	1
HI 1544	42.78	3	40.17	4	36.02	6	32.82	5	37.95	6
MACS 6222	43.16	2	40.25	3	37.21	2	33.15	3	38.44	2
WR 544	41.46	6	39.67	6	36.92	5	34.16	1	38.05	5
MEAN	42.57		40.16		36.98		33.27		38.24	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.71		NS		NS		NS			

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

In NWPZ, this experiment was done by testing six genotypes namely HS 562, HD 2967, HD 3086, HI 1544, MACS 6222 and WR 544 at four dates of sowing (5th Nov, 25th Nov, 15th Dec and 5th Jan) at 7 locations (Gurdaspur, Hisar, Durgapura, Jammu, Karnal, Ludhiana,

Pantnagar). This trial was conducted in split plot design with 3 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. Centre-wise data are presented in Annexure-I as Tables 6.9.1 to 6.9.7. The pooled analysis showed that 5th November sowing produced maximum and significantly higher grain yield (59.37 q/ha) than all other sowing dates (Table 6.9). There was significant successive reduction in grain yield with each 20 days delay in sowing. This yield reduction was 11.1, 28.6, 62.7% 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 thousand grain weight and grains /earhead with successive delay in sowing time. Genotype HS 562 produced significantly higher grain yield (50.43 q/ha) as compared to other genotypes except HD 3086 which was ranked second (49.82 q/ha). HD 3086 ranked first in thousand grain weight and earhead/m^2 whereas HS 562 ranked first in grains/earhead.

In NEPZ, the trial was conducted at eight centres (Burdwan, Coochbehar, Faizabad, Kalyani, Ranchi, Sabour, Shillongani, Varanasi) and the pooled analysis data are presented in Table 6.10. A perusal of data revealed that there was significant difference in grain yield and yield attributes among the genotypes, sowing time and their interactions. The highest yield was obtained in the 25th Nov sowing time and yield declined with delay in sowing after November. The yield decline was due to reduction in the yield attributes. The minimum yield was recorded in 5th January sowing. Among genotypes, the top yielder was MACS 6222 with an average yield of 39.97 q/ha and it followed by HD 3086 (39.68 q/ha) and HD 2967 (39.48 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 6.10.1- 6.10.8.

In CZ, this experiment was carried out by testing six genotypes namely HS 562, HD 2967, HD 3086, HI 1544, MACS 6222 and WR 544 at four dates of sowing (5th Nov, 25th Nov, 15th Dec and 5th Jan) at six locations (Bilaspur, Gwalior, Indore, Jabalpur, Powarkheda, and Udaipur) with the objective of quantifying the yield losses due to delayed sowing. This trial was conducted in split plot design with 3 replications. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Fertilizers, irrigation and weed control measures were followed as per recommended package of practices of the zone.

Table 6.10. North Eastern Plains Zone					SPL-6		Pooled		2018-19	
	Sowing time									
Genotype	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	46.34	3	44.24	5	36.38	6	24.01	6	37.74	5
HD 2967	46.67	1	48.17	1	38.30	3	24.78	5	39.48	3
HD 3086	46.55	2	46.83	3	39.22	2	26.12	4	39.68	2
HI1544	43.44	5	46.56	4	38.21	4	26.45	3	38.67	4
MACS 6222	45.96	4	47.48	2	39.31	1	27.13	2	39.97	1
WR 544	38.13	6	40.49	6	36.80	5	28.24	1	35.91	6
Mean	44.52		45.63		38.04		26.12		38.58	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.84		0.84		1.68		1.74			
Earheads/sqm										
HS 562	309	3	325	5	280	6	237	6	288	5
HD 2967	320	1	342	1	289	4	243	3	299	1
HD 3086	315	2	329	2	298	1	241	4	296	3
HI1544	308	4	329	3	297	2	250	1	296	2
MACS 6222	297	6	326	4	293	3	241	5	289	4
WR 544	301	5	305	6	288	5	248	2	286	6
Mean	308		326		291		243		292	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	7.33		6.42		12.83		13.80			
Grains/Earhead										
HS 562	38.17	2	35.95	3	36.40	1	32.12	4	35.66	2
HD 2967	36.00	4	35.78	4	36.02	2	30.46	6	34.56	4
HD 3086	37.05	3	36.66	2	35.24	3	32.41	3	35.34	3
HI1544	34.76	5	34.47	5	32.72	6	30.84	5	33.20	5
MACS 6222	38.36	1	36.93	1	35.11	4	33.95	1	36.09	1
WR 544	31.70	6	32.93	6	32.87	5	32.41	2	32.48	6
Mean	36.00		35.46		34.73		32.03		34.55	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.39		1.17		2.34		2.54			
1000 Grains Weight, g										
HS 562	40.61	6	39.25	6	37.29	6	32.46	6	37.40	6
HD 2967	41.37	2	40.24	3	37.71	5	33.85	3	38.29	5
HD 3086	41.51	1	39.82	5	38.66	4	33.83	4	38.45	3
HI1544	40.94	5	41.79	1	39.98	2	34.93	2	39.41	2
MACS 6222	41.21	4	40.16	4	38.79	3	33.45	5	38.40	4
WR 544	41.28	3	41.44	2	40.47	1	36.16	1	39.84	1
Mean	41.15		40.45		38.82		34.11		38.63	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.59		0.46		0.93		1.03			
Centres: Burdwan, Coochbehar, Faizabad, Kalyani, Ranchi, Sabour, Shillongani, Varanasi										

Pooled analysis presented in Table 6.11 showed that 5th November sowing produced maximum and significantly higher grain yield (49.68 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 4.51, 18.67 and 33.57% 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. Earhead/m^2 was started declining significantly from 25th November on ward sowing. Genotype HI 1544 produced maximum grain yield

(46.68 q/ha) followed by MACS 6222 (44.88 q/ha) and the lowest by WR 544 (39.00 q/ha). The centre wise data are presented in Annexure-I from Table 6.11.1 to Table 6.11.6.

Table 6.11. Central Zone					**SPL-6**		**Pooled**			**2018-19**
Treatment	Sowing Dates									
Genotype	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	49.79	3	46.19	4	41.12	3	32.33	3	42.36	3
HD 2967	48.67	5	45.67	5	39.18	5	31.30	4	41.20	5
HD 3086	49.08	4	47.51	3	39.28	4	30.81	5	41.67	4
HI 1544	54.38	1	51.24	1	43.54	1	37.56	1	46.68	1
MACS 6222	53.00	2	48.60	2	42.20	2	35.70	2	44.88	2
WR 544	43.18	6	45.46	6	37.10	6	30.27	6	39.00	6
Mean	49.68		47.44		40.40		33.00		42.63	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.59		0.85		1.70		1.66			
Earhead/sq.m										
HS 562	384	3	370	3	348	3	292	2	349	2
HD 2967	386	2	363	4	357	1	270	5	344	3
HD 3086	373	4	372	2	346	4	269	6	340	4
HI 1544	399	1	391	1	356	2	299	1	361	1
MACS 6222	360	6	348	5	333	5	273	3	329	6
WR 544	369	5	348	6	326	6	271	4	329	5
Mean	379		365		344		279		342	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	3.90		5.91		11.82		11.46			
Grains/Earhead										
HS 562	32.58	2	36.06	1	35.44	1	36.71	3	35.20	2
HD 2967	31.40	3	32.35	5	32.51	3	35.17	4	32.86	4
HD 3086	31.17	5	32.79	3	32.03	4	34.83	5	32.70	5
HI 1544	31.30	4	32.67	4	31.45	5	37.30	2	33.18	3
MACS 6222	35.67	1	36.05	2	33.73	2	37.60	1	35.76	1
WR 544	28.40	6	32.23	6	29.79	6	34.54	6	31.24	6
Mean	31.75		33.69		32.49		36.03		33.49	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.65		0.81		1.62		1.62			
1000 grains weight, g										
HS 562	40.70	6	36.07	6	34.11	6	31.00	6	35.47	6
HD 2967	41.30	5	40.26	3	34.93	5	33.08	5	37.39	5
HD 3086	44.23	2	39.76	4	35.94	4	33.21	4	38.28	4
HI 1544	44.47	1	41.50	1	39.53	1	34.58	2	40.02	1
MACS 6222	42.18	4	39.49	5	37.92	3	34.94	1	38.63	3
WR 544	42.97	3	41.11	2	38.54	2	33.34	3	38.99	2
Mean	42.64		39.70		36.83		33.36		38.13	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.56		0.60		1.20		1.23			
Centres: Bilaspur, Gwaliar, Indore, Jabalpur, Powarkheda, Udaipur										

In PZ, under this trial, six genotypes (HS 562, HD 2967, HD 3086, HI1544, MACS 6222 and WR 544) were evaluated at different sowing dates from 05th November to 05th January in split plot design having three replications. Main plots comprised the different sowing dates and sub plots comprised the diverse genotypes. The trial was conducted at three centres (Dharwad, Niphad and Pune).

Table 6.12. Peninsular Zone					**SPL-6**		**Pooled**		**2018-19**	
	Sowing time									
Genotype	5-Nov	Rk	25-Nov	Rk	15-Dec	Rk	5-Jan	Rk	Mean	Rk
					Yield, q/ha					
HS 562	50.47	1	38.50	4	31.06	4	20.89	6	35.23	2
HD 2967	47.94	2	38.09	6	32.26	3	21.56	5	34.96	4
HD 3086	40.36	5	38.31	5	30.38	6	22.56	3	32.90	6
HI1544	46.85	3	42.71	1	33.65	2	23.50	1	36.68	1
MACS 6222	44.34	4	39.94	3	34.07	1	22.37	4	35.18	3
WR 544	40.01	6	41.04	2	30.82	5	22.93	2	33.70	5
Mean	45.00		39.76		32.04		22.30		34.78	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.98		1.52		3.04		2.94			
					Earheads/sqm					
HS 562	315	2	286	4	279	5	243	6	281	4
HD 2967	294	5	256	6	280	4	245	5	269	6
HD 3086	302	3	289	3	306	1	268	4	291	3
HI1544	317	1	334	1	281	3	272	3	301	1
MACS 6222	288	6	283	5	269	6	274	2	279	5
WR 544	299	4	318	2	289	2	285	1	298	2
Mean	303		295		284		264		286	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	4.87		8.84		17.68		16.84			
					Grains/Earhead					
HS 562	39.78	2	38.83	2	31.20	5	24.78	2	33.65	2
HD 2967	41.88	1	45.96	1	33.32	3	25.93	1	36.77	1
HD 3086	32.77	5	35.81	4	29.26	6	22.80	4	30.16	6
HI1544	35.44	4	34.21	5	36.51	1	23.30	3	32.36	4
MACS 6222	36.83	3	37.63	3	35.36	2	21.59	6	32.85	3
WR 544	32.77	6	33.14	6	33.17	4	22.71	5	30.45	5
Mean	36.58		37.60		33.14		23.52		32.71	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	1.21		1.58		3.16		3.12			
					1000 Grains Weight, g					
HS 562	40.60	5	36.14	5	36.15	2	34.63	5	36.88	5
HD 2967	39.09	6	35.01	6	35.41	3	34.05	6	35.89	6
HD 3086	41.80	2	38.07	4	35.25	4	36.14	4	37.81	3
HI1544	41.62	3	38.34	3	34.56	5	37.88	1	38.10	2
MACS 6222	42.15	1	38.38	2	36.93	1	37.28	2	38.69	1
WR 544	41.21	4	39.46	1	33.49	6	36.87	3	37.75	4
Mean	41.08		37.57		35.30		36.14		37.52	
	Sowing (A)		Genotype (B)		B within A		A within B			
CD (0.05)	0.87		0.97		1.93		1.96			
Centres: Dharwad, Niphad, Pune										

The centre wise data have been given in Annexure I as Tables 6.12.1 to 6.12.3. Perusal of data shows that there is significant difference in grain yield and yield attributes among the genotypes, sowing time and their interactions. The pooled analysis (Table 6.12) revealed that 5th November sown wheat produced maximum (45.00 q/ha) yield as compared to other dates of sowing. The yield increment may be due to more earheads/sq. m. and higher 1000 grains weight. The delay in wheat sowing from 5th November to 05th January decreased grain yield significantly. The percent decline in wheat yield is to the tune of 50.4% as compared to 5th November sowing. On mean basis across sowing time, genotype HI 1544

produced the maximum yield (36.68 q/ha) followed by HS 562 (35.23 q/ha) and MACS 6222 (35.18 q/ha). The genotypes HD 3086 and MACS 6222 were found at par.

SPL-7: Precision nutrient management and validation of Nutrient Expert in wheat

This experiment was conducted with combination of seven fertilizer doses *viz.* absolute control, RDF, 150% RDF, 150% PK, 150% NK, 150% NP and nutrient expert in RBD at four centres (Almora, Bajaura, Khudwani and Malan) in NHZ. Field experiment was conducted in RBD and replicated thrice. The sowing was done using normalized seed rate @ 100 kg/ha (adjusted considering 1000 grain weight as 38 g). Weed control and irrigation measures were followed as per recommended package of practices for the zone.

The data revealed that 150% RDF produced maximum grain yield (44.74 q/ha) followed by nutrient expert treatment (44.25 q/ha) and both the treatments remained statistically at par but significantly higher than all other treatments (Table 6.13). The treatment 150% PK application produced ranked 6th with yield of 20.53 q/ha which was much lesser than RDF (40.01 q/ha). Therefore, it could be inferred that response was due to nitrogen application only. The data is presented in Annexure I as Tables 6.13.1 to 6.13.4.

Table 6.13. Northern Hill Zone **SPL-7** **Pooled** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
Absolute Control	257	7	38.01	7	17.74	7	17.01	7
Rec. NPK	371	4	40.78	4	27.15	4	40.01	3
150 % RDF	398	2	42.02	2	27.67	2	44.74	1
150 % PK	294	6	39.35	6	18.73	6	20.53	6
150 % NK	349	5	40.58	5	27.80	1	37.83	5
150 % NP	387	3	40.98	3	25.64	5	39.44	4
Nutrient expert	399	1	42.18	1	27.29	3	44.25	2
CD(0.05)	15.32		1.00		1.48		2.40	

Centres: Almora, Bajaura, Khudwani, Malan

In NWPZ, this experiment was conducted at four locations namely Hisar, Karnal, Ludhiana and Pantnagar. There were seven treatments namely control, RDF, 150 % RDF, 150 % PK, 150 %NK, 150 % NP and nutrient expert in randomised block design with three replications. The pooled analysis data showed that 150 % RDF recorded significantly higher grain yield (60.7 q/ha) than other treatments except nutrient expert which was at par (Table 6.14). The 150% RDF application produced almost 9.5% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was recorded in control plot (26.1 q/ha) and 150 % PK application (32.5 q/ha). Therefore, it could be said that major response was due to N

application only. The centre wise performance is presented from Table 6.14.1 to 6.14.4 in Annexure I.

Table 6.14. North Western Plains Zone SPL-7 Pooled 2018-19

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
Absolute Control	301.9	7	39.2	7	23.4	7	26.1	7
Rec. NPK	424.6	3	41.5	1	33.0	5	55.7	4
150 % RDF	455.6	1	40.6	4	34.3	2	60.7	1
150 % PK	328.5	6	41.1	3	26.4	6	32.5	6
150 % NK	422.1	4	40.2	5	33.7	4	55.2	5
150 % NP	430.0	2	40.0	6	34.2	3	57.0	3
Nutrient expert	408.8	5	41.3	2	35.6	1	58.5	2
CD(0.05)	15		1.90		2.20		2.50	
Centres: Hisar, Karnal, Ludhiana, Pantnagar					Nutrient Expert: 166:70:83			

In NEPZ, this experiment was conducted at Varanasi centre only. The data revealed that nutrient expert (NE) recorded the maximum and significantly higher grain yield (55.32 q/ha) as compared to other treatments (Table 6.15). This was followed by 150% RDF, 150 % NP and NK applications. Application of 150% RDF produced almost 15.4% higher grain yield than recommended dose of fertiliser (RDF) application. The lowest yield was recorded in control plots and over control, the 150% PK application produced yield increase of about 10 q/ha. Application of 150% PK produced significantly less yield as compared to where N was included in the treatment. Therefore, it could be said that major response was due to N application only. The yield obtained in nutrient expert treatment was the highest but was below the targeted yield of 6 t/ha.

Table 6.15. North Eastern Plains Zone SPL-7 Varanasi 2018-19

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
Absolute Control	252	7	41.49	2	23.54	3	24.44	7
Rec. NPK	363	4	39.98	4	31.96	5	46.33	5
150 % RDF	349	5	39.57	5	38.75	6	53.45	2
150 % PK	270	6	41.22	3	31.03	7	34.54	6
150 % NK	441	1	39.15	6	28.87	2	49.55	4
150 % NP	413	2	38.93	7	31.83	1	51.10	3
Nutrient expert	373	3	41.81	1	35.51	4	55.32	1
CD(0.05)	15.89		2.89		6.37		1.73	
Date of Sowing:	16.11.2018		Date of Harvesting:16.04.2019		Nutrient Expert: 175:45:60			

In CZ, to optimize nutrient use and maximize wheat yield, a special coordinated trial was conducted in CZ at Udaipur in RBD. The seven fertilizer treatments were absolute control, recommended fertilizer use (RDF), 150% RDF, 150% PK, 150% NK, 150% PK and nutrient expert. Sowing was done using normalized seed rate @ 100kg/ha and fertilizer was applied as per recommendation (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 in the ratio of 120:60:40. The doses of

fertilizer nutrients used in nutrient expert treatment were calculated as170 kg N, 65.89 kg P_2O_5 and 76.04 kg K_2O/ha.

In Udaipur centre of CZ, the highest yield was obtained under treatment nutrient expert reaching almost 53.72 q/ha (Table 6.16) followed by 150% RDF (52.02 q/ha) application. Almost all yield attributing factors contributed to increase the wheat grain yield. Nutrient expert also recorded the highest earhead density and 1000 grains weight.

Table 6.16. Central Zone **SPL-7** **Udaipur** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
Absolute Control	390	7	39.53	7	23.68	7	36.04	7
Rec. NPK	448	4	42.63	5	24.45	6	46.38	6
150 % RDF	456	2	44.34	2	25.94	1	52.02	2
150 % PK	447	5	42.58	6	24.96	4	46.92	5
150 % NK	452	3	43.63	4	24.93	5	48.28	4
150 % NP	446	6	44.00	3	25.90	2	49.98	3
Nutrient expert	463	1	45.38	1	25.76	3	53.72	1
CD(0.05)	NS		NS		NS		12.86	
Date of Sowing: 17.11.2018		Date of Harvesting: 03.04.2019			Nutrient Expert: 170:65.89:76.04			

In PZ, this experiment was conducted in RBD at only one centre *i.e.* Dharwad with seven different fertilizer treatments *viz.* absolute control, RDF, 150 % RDF, 150% PK, 150% NK, 150% NP and Nutrient Expert (NE) in RBD and replicated thrice. The recommended fertilizer dose for NHZ is 120:60:40 kg N:P_2O_5:K_2O per hectare. NPK was applied as 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 treatment 150% RDF recorded maximum grain yield (45.91 q/ha) followed by Nutrient expert treatment (43.85 q/ha); but both the treatments were found at par (Table 6.17). 150% RDF application produced almost 8.3% higher grain yield than recommended dose of fertilizer (RDF) application. Interestingly, 150% PK application produced 36.82 q/ha yield which was less than RDF (42.38 q/ha). Omission of nitrogen had more effect on productivity as compared to phosphorous and potash omission.

Table 6.17. Peninsular Zone **SPL-7** **Dharwad** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
Absolute Control	240	7	41.32	7	35.90	2	35.60	7
Rec. NPK	282	3	42.41	3	35.51	3	42.38	3
150 % RDF	302	1	43.86	1	34.67	6	45.91	1
150 % PK	252	6	41.92	5	34.87	5	36.82	6
150 % NK	264	5	41.54	6	37.02	1	40.56	5
150 % NP	280	4	42.29	4	34.93	4	41.34	4
Nutrient expert	295	2	43.09	2	34.55	7	43.85	2
CD(0.05)	6.70		2.20		NS		4.34	
Date of Sowing: 04.11.2018		Date of Harvesting: 02.03.2019			Nutrient Expert: 140:65:59			

CENTRE-WISE DATA

Table 2.1.1. North Western Plains Zone **IR-TAS-DOS** **Agra** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	52.00	11	40.77	10	27.55	11	40.11	11
HD 3271	58.68	1	48.82	2	34.96	2	47.49	2
DBW 221	57.83	4	47.57	3	33.52	3	46.31	3
DBW 173 (c)	56.16	7	42.84	8	29.97	8	42.99	8
PBW 757 (I)	49.49	12	37.54	12	26.40	12	37.81	12
PBW 771	56.08	8	43.52	7	31.80	6	43.80	7
HD 3086 (c)	54.78	9	42.52	9	27.77	9	41.69	9
PBW 752 (I)	57.57	5	45.10	6	31.40	7	44.69	6
DBW 71 (c)	57.21	6	45.75	5	32.81	5	45.26	5
HD 3059 (c)	58.27	3	46.42	4	32.82	4	45.84	4
DBW 222	58.54	2	49.99	1	36.42	1	48.32	1
HI 1621	54.53	10	39.65	11	27.57	10	40.58	10
MEAN	55.93		44.21		31.08		43.74	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.30		1.18		4.11	
Genotype (B)	**		0.65		1.83		4.44	
B within A	NS		1.12		3.17			
A within B			1.11		3.27			
			Earhead/sqm					
HD 3226 (I)	249	9	241	10	238	11	243	10
HD 3271	250	2	242	4	240	3	244	2
DBW 221	250	1	242	5	241	2	244	3
DBW 173 (c)	250	6	241	7	239	7	243	7
PBW 757 (I)	248	12	240	12	238	12	242	12
PBW 771	249	10	241	9	239	9	243	9
HD 3086 (c)	249	8	241	8	239	8	243	8
PBW 752 (I)	250	4	242	6	240	6	244	6
DBW 71 (c)	250	5	243	2	240	5	244	5
HD 3059 (c)	250	7	242	3	240	4	244	4
DBW 222	250	3	244	1	241	1	245	1
HI 1621	249	11	240	11	238	10	242	11
MEAN	249		242		239		243	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.07		0.27		0.17	
Genotype (B)	NS		0.66		1.87		0.82	
B within A	NS		1.15		3.24			
A within B			1.10		3.23			
			Grains/earhead					
HD 3226 (I)	51.88	6	45.10	8	39.18	6	45.39	7
HD 3271	50.83	10	47.28	2	40.09	4	46.07	4
DBW 221	50.70	11	44.58	10	38.54	9	44.61	11
DBW 173 (c)	52.78	3	44.82	9	37.02	12	44.87	10
PBW 757 (I)	51.81	7	44.40	11	42.80	2	46.34	3
PBW 771	53.19	2	46.46	3	39.83	5	46.49	2
HD 3086 (c)	52.57	5	45.48	5	38.06	10	45.37	8
PBW 752 (I)	52.71	4	47.74	1	37.65	11	46.03	5
DBW 71 (c)	51.73	8	46.43	4	38.75	7	45.63	6
HD 3059 (c)	51.69	9	45.30	6	38.67	8	45.22	9
DBW 222	50.18	12	42.90	12	40.25	3	44.44	12
HI 1621	55.65	1	45.14	7	43.18	1	47.99	1
MEAN	52.14		45.47		39.50		45.70	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.70		2.75		9.18	
Genotype (B)	NS		0.89		2.51		5.82	
B within A	NS		1.54		4.34			
A within B			1.63		4.78			
			1000 Grains Weight, g					
HD 3226 (I)	40.30	10	37.58	10	29.48	10	35.79	10
HD 3271	46.13	2	42.65	3	36.26	2	41.68	3
DBW 221	45.62	3	44.11	2	36.16	3	41.96	2
DBW 173 (c)	42.78	7	39.61	6	33.87	7	38.75	7
PBW 757 (I)	38.56	12	35.22	12	25.91	12	33.23	12
PBW 771	42.41	8	38.99	8	33.66	8	38.35	8
HD 3086 (c)	41.88	9	38.83	9	30.81	9	37.17	9
PBW 752 (I)	43.72	6	39.10	7	34.82	6	39.21	6
DBW 71 (c)	44.33	5	40.65	5	35.40	4	40.13	5
HD 3059 (c)	45.19	4	42.39	4	35.32	5	40.97	4
DBW 222	46.72	1	48.27	1	37.55	1	44.18	1
HI 1621	39.63	11	36.65	11	26.80	11	34.36	11
MEAN	43.11		40.34		33.00		38.82	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.41		1.63		6.41	
Genotype (B)	**		0.70		1.98		5.41	
B within A	NS		1.21		3.42			
A within B			1.23		3.61			
Date of Sowing:	05.11.2018		10.12.2018		05.01.2019			
Date of Harvesting:	23.03.2019		05.04.2019		18.04.2019			

Table 2.1.2. North Western Plains Zone **IR-TAS-DOS** **Delhi** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	55.16	1	50.40	1	37.70	1	47.75	1
HD 3271	50.00	7	48.41	5	35.91	6	44.78	5
DBW 221	51.59	3	49.01	2	36.11	5	45.57	3
DBW 173 (c)	51.98	2	48.41	4	37.02	2	45.81	2
PBW 757 (I)	50.99	5	46.83	8	35.12	8	44.31	7
PBW 771	49.80	9	46.43	10	35.52	7	43.92	10
HD 3086 (c)	49.80	9	46.03	12	34.52	11	43.45	11
PBW 752 (I)	49.21	11	46.43	10	36.31	4	43.98	9
DBW 71 (c)	51.39	4	48.81	3	36.31	3	45.50	4
HD 3059 (c)	50.60	6	47.82	6	35.12	10	44.51	6
DBW 222	49.80	8	47.42	7	35.12	8	44.11	8
HI 1621	48.21	12	46.63	9	33.93	12	42.92	12
MEAN	50.71		47.72		35.72		44.72	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.44		1.73		5.92	
Genotype (B)	**		0.41		1.15		2.73	
B within A	NS		0.70		1.99			
A within B			0.81		2.36			
			Earhead/sqm					
HD 3226 (I)	511	2	513	1	350	1	458	1
HD 3271	359	12	463	2	290	5	371	4
DBW 221	381	10	401	4	312	3	365	5
DBW 173 (c)	436	8	322	10	233	10	330	11
PBW 757 (I)	449	6	340	8	235	9	341	9
PBW 771	523	1	397	5	305	4	408	2
HD 3086 (c)	405	9	418	3	322	2	382	3
PBW 752 (I)	365	11	347	7	247	7	319	12
DBW 71 (c)	510	3	302	11	215	11	342	8
HD 3059 (c)	495	4	298	12	202	12	332	10
DBW 222	471	5	325	9	237	8	344	7
HI 1621	441	7	355	6	255	6	350	6
MEAN	446		373		267		362	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		17.93		70.38		29.72	
Genotype (B)	**		18.33		51.79		15.19	
B within A	**		31.74		89.70			
A within B			35.29		103.50			
			Grains/earhead					
HD 3226 (I)	26.53	7	25.58	12	32.14	11	28.08	11
HD 3271	32.10	1	28.09	10	36.97	8	32.39	7
DBW 221	27.51	6	27.38	11	29.38	12	28.09	10
DBW 173 (c)	28.58	4	39.06	3	49.52	3	39.05	3
PBW 757 (I)	28.45	5	37.51	5	48.02	5	38.00	4
PBW 771	21.42	12	28.24	9	32.78	10	27.48	12
HD 3086 (c)	29.91	2	28.88	8	33.48	9	30.76	8
PBW 752 (I)	29.38	3	31.61	6	40.45	6	33.82	6
DBW 71 (c)	24.66	9	42.01	2	52.40	2	39.69	2
HD 3059 (c)	25.10	8	43.03	1	55.79	1	41.31	1
DBW 222	24.63	10	38.49	4	48.75	4	37.29	5
HI 1621	22.81	11	30.55	7	36.99	7	30.12	9
MEAN	26.76		33.37		41.39		33.84	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		3.25		12.76		57.65	
Genotype (B)	**		2.11		5.96		18.71	
B within A	*		3.66		10.33			
A within B			4.78		14.01			
			1000 Grains Weight, g					
HD 3226 (I)	41.91	8	38.58	9	33.67	7	38.05	8
HD 3271	43.79	5	40.10	5	35.14	5	39.68	5
DBW 221	49.52	1	45.04	1	39.91	1	44.82	1
DBW 173 (c)	42.57	7	38.62	7	33.39	8	38.19	7
PBW 757 (I)	39.98	12	37.09	12	32.34	12	36.47	12
PBW 771	44.48	4	41.60	4	36.66	4	40.91	4
HD 3086 (c)	41.14	10	38.29	10	33.14	10	37.52	10
PBW 752 (I)	46.16	3	42.62	3	37.69	3	42.16	3
DBW 71 (c)	41.53	9	38.60	8	33.17	9	37.76	9
HD 3059 (c)	41.08	11	38.15	11	32.87	11	37.36	11
DBW 222	43.02	6	39.61	6	34.68	6	39.10	6
HI 1621	48.33	2	44.73	2	39.66	2	44.24	2
MEAN	43.63		40.25		35.19		39.69	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.24		0.93		3.57	
Genotype (B)	**		0.20		0.55		1.48	
B within A	NS		0.34		0.96			
A within B			0.40		1.18			
Date of Sowing:	11.11.2018		15.12.2018		04.01.2019			
Date of Harvesting	22.04.2019		26.04.2019		29.04.2019			

Table 2.1.3. North Western Plains Zone **IR-TAS-DOS** **Durgapura** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	57.04	1	44.68	1	25.88	7	42.53	1
HD 3271	54.60	2	40.83	2	26.96	6	40.80	3
DBW 221	51.72	6	40.74	3	24.50	9	38.99	6
DBW 173 (c)	48.01	10	39.45	7	23.95	10	37.14	10
PBW 757 (I)	51.95	5	40.69	4	27.19	5	39.94	4
PBW 771	48.17	9	38.89	9	24.64	8	37.23	9
HD 3086 (c)	48.76	8	36.83	11	27.28	4	37.62	8
PBW 752 (I)	44.63	12	34.97	12	23.10	12	34.23	12
DBW 71 (c)	47.65	11	39.62	6	23.67	11	36.98	11
HD 3059 (c)	51.99	4	39.17	8	27.37	2	39.51	5
DBW 222	49.54	7	38.78	10	27.33	3	38.55	7
HI 1621	52.86	3	40.61	5	30.32	1	41.27	2
MEAN	50.58		39.61		26.02		38.73	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.53		2.07		8.18	
Genotype (B)	**		0.77		2.18		5.97	
B within A	*		1.34		3.77			
A within B			1.38		4.06			
			Earhead/sqm					
HD 3226 (I)	402	1	216	12	170	7	263	5
HD 3271	380	2	269	1	178	3	276	1
DBW 221	365	4	264	4	168	9	266	4
DBW 173 (c)	320	10	255	5	163	11	246	9
PBW 757 (I)	365	5	265	3	183	2	271	3
PBW 771	310	11	249	7	168	10	242	11
HD 3086 (c)	328	8	235	10	188	1	250	8
PBW 752 (I)	290	12	219	11	169	8	226	12
DBW 71 (c)	324	9	245	9	160	12	243	10
HD 3059 (c)	364	6	247	8	173	6	261	6
DBW 222	352	7	252	6	178	4	260	7
HI 1621	371	3	269	2	178	5	272	2
MEAN	348		249		173		256	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		4.01		15.75		9.39	
Genotype (B)	**		6.76		19.11		7.91	
B within A	**		11.71		33.09			
A within B			11.91		34.93			
			Grains/earhead					
HD 3226 (I)	30.85	12	70.06	1	49.99	5	50.30	1
HD 3271	32.95	11	57.84	2	52.54	3	47.78	4
DBW 221	34.80	9	45.67	10	52.06	4	44.18	10
DBW 173 (c)	40.63	5	46.02	9	43.44	9	43.37	11
PBW 757 (I)	34.79	10	36.83	12	57.17	1	42.93	12
PBW 771	49.70	1	38.18	11	46.34	8	44.74	8
HD 3086 (c)	39.63	8	52.75	3	42.05	11	44.81	7
PBW 752 (I)	48.78	2	50.84	6	47.18	6	48.93	2
DBW 71 (c)	40.31	6	49.29	7	56.20	2	48.60	3
HD 3059 (c)	40.81	4	46.60	8	46.67	7	44.69	9
DBW 222	44.65	3	52.05	5	41.16	12	45.95	5
HI 1621	40.11	7	52.37	4	42.44	10	44.98	6
MEAN	39.83		49.88		48.10		45.94	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		1.41		5.54		18.44	
Genotype (B)	NS		2.82		7.97		18.42	
B within A	**		4.89		13.81			
A within B			4.89		14.33			
			1000 Grains Weight, g					
HD 3226 (I)	46.04	1	31.11	9	31.67	7	36.27	1
HD 3271	43.59	2	26.47	12	29.07	9	33.05	10
DBW 221	40.71	4	33.88	5	28.16	10	34.25	9
DBW 173 (c)	37.01	6	35.75	3	34.45	4	35.74	3
PBW 757 (I)	40.94	3	41.75	1	26.02	12	36.24	2
PBW 771	31.32	12	41.64	2	31.80	6	34.92	5
HD 3086 (c)	37.75	5	30.37	10	35.73	3	34.62	6
PBW 752 (I)	31.67	11	31.46	8	31.11	8	31.41	12
DBW 71 (c)	36.65	7	32.85	6	26.47	11	31.99	11
HD 3059 (c)	35.00	9	34.57	4	34.15	5	34.57	7
DBW 222	31.80	10	31.81	7	39.30	2	34.30	8
HI 1621	35.73	8	29.13	11	41.75	1	35.54	4
MEAN	37.35		33.40		32.47		34.41	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		0.68		2.65		11.79	
Genotype (B)	NS		1.27		3.60		11.09	
B within A	**		2.20		6.23			
A within B			2.22		6.50			
Date of Sowing:	05.11.2018		15.12.2018		05.01.2019			
Date of Harvesting	15.03.2019		26.03.2019		03.04.2019			

Table 2.1.4. North Western Plains Zone **IR-TAS-DOS** **Gurdaspur** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	69.28	5	52.03	8	48.37	6	56.56	8
HD 3271	69.36	4	54.54	6	47.08	8	56.99	5
DBW 221	67.29	8	50.23	10	43.64	11	53.72	10
DBW 173 (c)	58.83	12	50.89	9	46.37	9	52.03	11
PBW 757 (I)	67.41	7	57.41	4	46.07	10	56.97	6
PBW 771	70.93	3	57.02	5	47.76	7	58.57	4
HD 3086 (c)	67.60	6	53.07	7	49.20	5	56.62	7
PBW 752 (I)	75.87	1	58.72	2	54.87	2	63.15	2
DBW 71 (c)	61.54	11	48.21	12	42.67	12	50.81	12
HD 3059 (c)	67.15	9	58.04	3	51.20	3	58.80	3
DBW 222	74.65	2	61.73	1	55.10	1	63.83	1
HI 1621	64.76	10	48.82	11	50.48	4	54.69	9
MEAN	67.89		54.23		48.57		56.89	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		1.18		4.65		12.50	
Genotype (B)	**		1.01		2.85		5.32	
B within A	*		1.75		4.94			
A within B			2.05		6.02			
			Earhead/sqm					
HD 3226 (I)	474	2	466	2	367	10	436	1
HD 3271	447	8	408	11	370	8	408	10
DBW 221	423	10	435	8	424	1	427	6
DBW 173 (c)	417	11	423	9	401	2	413	9
PBW 757 (I)	397	12	441	6	385	5	408	11
PBW 771	424	9	390	12	346	12	387	12
HD 3086 (c)	466	4	435	7	397	3	433	2
PBW 752 (I)	475	1	447	4	371	7	431	4
DBW 71 (c)	453	7	474	1	368	9	432	3
HD 3059 (c)	469	3	448	3	365	11	427	7
DBW 222	464	5	446	5	376	6	429	5
HI 1621	462	6	423	10	389	4	424	8
MEAN	448		436		380		421	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		3.12		12.25		4.44	
Genotype (B)	**		3.94		11.12		2.80	
B within A	**		6.82		19.26			
A within B			7.23		21.22			
			Grains/earhead					
HD 3226 (I)	36.70	6	33.17	9	45.14	3	38.34	6
HD 3271	34.46	9	35.16	6	38.63	8	36.08	8
DBW 221	43.06	2	37.14	5	38.34	10	39.51	5
DBW 173 (c)	35.05	7	35.11	7	37.31	11	35.82	10
PBW 757 (I)	46.52	1	37.35	4	38.39	9	40.75	2
PBW 771	38.94	3	39.62	1	41.71	6	40.09	4
HD 3086 (c)	33.65	11	34.90	8	42.53	4	37.03	7
PBW 752 (I)	34.45	10	32.77	10	40.62	7	35.95	9
DBW 71 (c)	34.96	8	27.39	12	37.12	12	33.16	12
HD 3059 (c)	37.21	5	38.46	3	45.21	1	40.30	3
DBW 222	38.62	4	39.14	2	45.18	2	40.98	1
HI 1621	31.57	12	32.47	11	41.94	5	35.33	11
MEAN	37.10		35.22		41.01		37.78	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		1.01		3.96		16.04	
Genotype (B)	**		0.89		2.52		7.07	
B within A	**		1.54		4.36			
A within B			1.79		5.25			
			1000 Grains Weight, g					
HD 3226 (I)	39.89	8	33.69	11	29.34	10	34.31	10
HD 3271	45.03	2	38.09	2	32.89	3	38.67	2
DBW 221	37.04	11	31.13	12	27.00	12	31.72	12
DBW 173 (c)	40.28	7	34.25	9	31.02	8	35.18	8
PBW 757 (I)	36.58	12	34.88	8	31.16	7	34.21	11
PBW 771	43.04	5	36.99	4	33.12	2	37.72	3
HD 3086 (c)	43.13	4	34.93	7	29.17	11	35.75	7
PBW 752 (I)	46.34	1	40.26	1	36.46	1	41.02	1
DBW 71 (c)	38.85	9	37.15	3	31.36	5	35.79	6
HD 3059 (c)	38.57	10	33.70	10	31.16	6	34.47	9
DBW 222	41.68	6	35.56	6	32.49	4	36.58	5
HI 1621	44.39	3	35.70	5	31.00	9	37.03	4
MEAN	41.24		35.53		31.35		36.04	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.27		1.06		4.48	
Genotype (B)	**		0.37		1.05		3.09	
B within A	**		0.64		1.82			
A within B			0.67		1.97			
Date of Sowing:	06.11.2018		15.12.2018		02.01.2019			
Date of Harvesting	08.05.2019		10.05.2019		13.05.2019			

Table 2.1.5. North Western Plains Zone **IR-TAS-DOS** **Hisar** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	59.09	12	47.90	12	39.25	12	48.74	12
HD 3271	66.59	5	49.96	9	39.60	11	52.05	9
DBW 221	62.14	10	51.83	7	42.30	8	52.09	8
DBW 173 (c)	66.07	6	52.50	5	45.16	5	54.58	5
PBW 757 (I)	65.75	7	52.06	6	42.02	9	53.28	6
PBW 771	72.22	2	56.75	1	47.26	3	58.74	2
HD 3086 (c)	69.92	3	54.80	3	45.28	4	56.67	3
PBW 752 (I)	64.44	8	53.69	4	49.44	1	55.86	4
DBW 71 (c)	61.35	11	50.28	8	43.06	7	51.56	10
HD 3059 (c)	62.30	9	48.02	11	44.13	6	51.48	11
DBW 222	73.77	1	55.24	2	48.37	2	59.13	1
HI 1621	67.62	4	49.13	10	41.27	10	52.67	7
MEAN	65.94		51.85		43.93		53.90	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.68		2.69		7.62	
Genotype (B)	**		0.86		2.44		4.81	
B within A	*		1.50		4.23			
A within B			1.59		4.66			
			Earhead/sqm					
HD 3226 (I)	413	9	400	7	368	9	394	8
HD 3271	402	10	382	12	362	12	382	12
DBW 221	415	7	398	8	388	6	401	7
DBW 173 (c)	398	11	390	10	382	7	390	10
PBW 757 (I)	420	5	417	5	380	8	406	6
PBW 771	448	2	430	1	395	3	424	3
HD 3086 (c)	445	3	428	2	393	4	422	4
PBW 752 (I)	437	4	425	4	418	1	427	1
DBW 71 (c)	415	7	413	6	392	5	407	5
HD 3059 (c)	398	11	383	11	365	11	382	11
DBW 222	450	1	427	3	400	2	426	2
HI 1621	420	5	392	9	368	9	393	9
MEAN	422		407		384		404	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		4.95		19.44		7.35	
Genotype (B)	**		8.71		24.61		6.46	
B within A	NS		15.09		42.63			
A within B			15.27		44.79			
			Grains/earhead					
HD 3226 (I)	33.09	8	32.04	7	30.28	11	31.81	9
HD 3271	33.40	7	32.53	6	30.94	9	32.29	8
DBW 221	36.09	5	34.28	2	32.91	3	34.43	3
DBW 173 (c)	38.81	2	35.30	1	32.17	5	35.43	2
PBW 757 (I)	39.24	1	33.65	3	33.63	1	35.51	1
PBW 771	32.18	12	31.86	8	30.20	12	31.41	11
HD 3086 (c)	33.02	9	31.62	10	32.43	4	32.36	7
PBW 752 (I)	32.96	10	30.65	12	30.42	10	31.34	12
DBW 71 (c)	34.61	6	33.04	4	31.63	6	33.09	6
HD 3059 (c)	36.78	4	33.01	5	32.97	2	34.25	4
DBW 222	37.66	3	31.65	9	31.22	8	33.51	5
HI 1621	32.49	11	31.04	11	31.62	7	31.72	10
MEAN	35.03		32.56		31.70		33.09	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		0.68		2.66		12.28	
Genotype (B)	**		0.85		2.41		7.73	
B within A	NS		1.48		4.17			
A within B			1.57		4.60			
			1000 Grains Weight, g					
HD 3226 (I)	43.25	7	37.47	10	35.16	9	38.62	9
HD 3271	49.74	2	40.42	6	35.44	8	41.87	3
DBW 221	41.58	11	38.01	9	33.16	12	37.58	11
DBW 173 (c)	42.89	8	38.14	8	36.84	4	39.29	7
PBW 757 (I)	40.24	12	37.16	11	33.28	11	36.89	12
PBW 771	50.10	1	41.59	1	39.86	1	43.85	1
HD 3086 (c)	47.78	4	40.61	4	35.70	6	41.36	5
PBW 752 (I)	45.00	5	41.25	2	39.02	2	41.76	4
DBW 71 (c)	42.74	10	36.85	12	34.79	10	38.13	10
HD 3059 (c)	42.76	9	38.26	7	36.76	5	39.26	8
DBW 222	43.62	6	40.93	3	38.86	3	41.14	6
HI 1621	49.68	3	40.51	5	35.56	7	41.91	2
MEAN	44.95		39.27		36.20		40.14	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.29		1.13		4.31	
Genotype (B)	**		0.46		1.29		3.42	
B within A	**		0.79		2.24			
A within B			0.81		2.38			
Date of Sowing:	06.11.2018		16.12.2018		07.01.2019			
Date of Harvesting	17.04.2019		22.04.2019		28.04.2019			

Table 2.1.6. North Western Plains Zone **IR-TAS-DOS** **Jammu** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	45.53	3	43.26	3	44.00	1	44.26	2
HD 3271	44.58	4	42.31	4	40.16	7	42.35	5
DBW 221	46.65	1	44.38	1	42.81	2	44.61	1
DBW 173 (c)	42.88	7	40.61	7	38.24	10	40.58	8
PBW 757 (I)	45.72	2	43.46	2	40.36	6	43.18	3
PBW 771	44.50	5	42.24	5	41.08	4	42.61	4
HD 3086 (c)	40.41	11	38.15	11	39.36	8	39.31	9
PBW 752 (I)	42.76	8	40.50	8	40.80	5	41.35	6
DBW 71 (c)	38.34	12	36.08	12	41.46	3	38.63	12
HD 3059 (c)	40.80	10	38.54	10	37.76	11	39.04	11
DBW 222	43.26	6	41.00	6	38.73	9	41.00	7
HI 1621	41.46	9	39.20	9	36.70	12	39.12	10
MEAN	43.07		40.81		40.12		41.34	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.34		1.34		4.96	
Genotype (B)	**		0.56		1.57		4.03	
B within A	*		0.96		2.72			
A within B			0.98		2.88			
			Earhead/sqm					
HD 3226 (I)	392	6	390	6	387	6	390	6
HD 3271	371	10	368	11	367	10	368	10
DBW 221	425	4	423	4	421	4	423	4
DBW 173 (c)	385	7	382	7	380	7	382	7
PBW 757 (I)	377	8	375	8	373	8	375	8
PBW 771	433	1	431	1	430	1	431	1
HD 3086 (c)	375	9	373	9	371	9	373	9
PBW 752 (I)	430	2	427	2	424	3	427	2
DBW 71 (c)	352	12	350	12	348	12	350	12
HD 3059 (c)	428	3	427	3	425	2	427	3
DBW 222	404	5	401	5	400	5	402	5
HI 1621	370	11	369	10	366	11	368	10
MEAN	395		393		391		393	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	NS		4.20		16.49		6.41	
Genotype (B)	**		6.59		18.63		5.03	
B within A	NS		11.42		32.27			
A within B			11.71		34.35			
			Grains/earhead					
HD 3226 (I)	29.90	4	28.59	5	29.68	4	29.39	5
HD 3271	32.36	2	30.83	2	29.69	3	30.96	2
DBW 221	28.78	8	27.46	8	26.91	9	27.72	9
DBW 173 (c)	29.89	5	29.05	4	27.89	7	28.94	6
PBW 757 (I)	32.88	1	32.01	1	30.32	2	31.74	1
PBW 771	27.80	10	27.03	9	26.70	10	27.18	10
HD 3086 (c)	28.23	9	26.82	10	28.38	6	27.81	8
PBW 752 (I)	26.48	11	25.38	11	26.11	11	25.99	11
DBW 71 (c)	28.91	7	28.13	7	32.96	1	30.00	3
HD 3059 (c)	26.33	12	24.76	12	24.66	12	25.25	12
DBW 222	29.38	6	28.14	6	26.98	8	28.17	7
HI 1621	31.00	3	30.06	3	28.80	5	29.95	4
MEAN	29.33		28.19		28.26		28.59	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		0.37		1.43		7.67	
Genotype (B)	**		0.74		2.08		7.73	
B within A	NS		1.28		3.61			
A within B			1.28		3.74			
			1000 Grains Weight, g					
HD 3226 (I)	39.08	1	38.90	1	38.43	1	38.80	1
HD 3271	37.27	7	37.43	4	36.96	4	37.22	5
DBW 221	38.15	3	38.25	3	37.78	3	38.06	3
DBW 173 (c)	37.28	6	36.62	7	36.14	7	36.68	7
PBW 757 (I)	36.93	9	36.23	11	35.76	11	36.31	10
PBW 771	36.95	8	36.27	10	35.79	10	36.34	8
HD 3086 (c)	38.72	2	38.55	2	38.08	2	38.45	2
PBW 752 (I)	37.63	5	37.35	5	36.88	5	37.29	4
DBW 71 (c)	38.00	4	36.85	6	36.38	6	37.08	6
HD 3059 (c)	36.29	11	36.57	8	36.10	8	36.32	9
DBW 222	36.44	10	36.40	9	35.93	9	36.26	11
HI 1621	36.23	12	35.33	12	34.86	12	35.48	12
MEAN	37.41		37.06		36.59		37.02	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.07		0.26		1.07	
Genotype (B)	**		0.49		1.40		4.01	
B within A	NS		0.86		2.42			
A within B			0.82		2.41			
Date of Sowing:	08.11.2018		15.12.2018		05.01.2019			
Date of Harvesting	23.04.2019		03.05.2019		12.05.2019			

Table 2.1.7. North Western Plains Zone **IR-TAS-DOS** **Karnal** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	64.35	7	59.34	10	51.74	8	58.47	9
HD 3271	70.46	2	59.79	7	55.88	5	62.05	4
DBW 221	67.64	4	57.53	11	48.64	11	57.94	10
DBW 173 (c)	65.46	6	59.56	8	59.90	1	61.64	5
PBW 757 (I)	65.48	5	65.12	3	57.23	3	62.61	3
PBW 771	71.65	1	65.33	2	51.61	9	62.86	2
HD 3086 (c)	61.32	11	59.44	9	47.39	12	56.05	11
PBW 752 (I)	62.94	10	61.78	6	52.14	7	58.95	8
DBW 71 (c)	63.54	9	61.89	5	56.05	4	60.49	7
HD 3059 (c)	64.11	8	62.08	4	57.62	2	61.27	6
DBW 222	68.28	3	66.63	1	54.76	6	63.22	1
HI 1621	58.87	12	53.45	12	51.12	10	54.48	12
MEAN	65.34		61.00		53.67		60.00	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.32		1.27		3.23	
Genotype (B)	**		0.93		2.64		4.67	
B within A	**		1.62		4.57			
A within B			1.58		4.64			
			Earhead/sqm					
HD 3226 (I)	440	9	498	7	460	9	466	8
HD 3271	493	1	524	3	481	5	499	2
DBW 221	473	3	508	5	469	6	483	5
DBW 173 (c)	418	12	478	10	464	7	453	12
PBW 757 (I)	429	10	498	6	448	12	458	11
PBW 771	450	6	522	4	453	11	475	7
HD 3086 (c)	422	11	538	2	498	2	486	3
PBW 752 (I)	449	7	493	8	512	1	485	4
DBW 71 (c)	492	2	470	11	486	3	483	6
HD 3059 (c)	462	4	463	12	462	8	462	9
DBW 222	445	8	488	9	454	10	462	9
HI 1621	462	4	553	1	486	3	500	1
MEAN	453		503		473		476	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		6.19		24.29		7.80	
Genotype (B)	*		9.36		26.45		5.90	
B within A	*		16.21		45.81			
A within B			16.71		49.01			
			Grains/earhead					
HD 3226 (I)	35.25	6	34.09	6	35.54	3	34.96	5
HD 3271	33.84	8	31.14	11	31.37	10	32.12	10
DBW 221	38.57	2	33.41	8	35.47	4	35.82	3
DBW 173 (c)	37.86	3	33.75	7	36.17	1	35.93	2
PBW 757 (I)	41.14	1	36.45	2	35.68	2	37.76	1
PBW 771	37.06	4	31.97	10	31.03	11	33.35	7
HD 3086 (c)	33.92	7	34.10	5	31.97	9	33.33	8
PBW 752 (I)	30.43	11	33.01	9	27.30	12	30.25	12
DBW 71 (c)	30.98	10	35.00	4	33.20	6	33.06	9
HD 3059 (c)	32.42	9	35.85	3	34.89	5	34.39	6
DBW 222	36.04	5	37.17	1	32.83	8	35.35	4
HI 1621	30.24	12	28.26	12	32.97	7	30.49	11
MEAN	34.81		33.68		33.20		33.90	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	NS		0.54		2.11		9.50	
Genotype (B)	**		0.88		2.48		7.77	
B within A	*		1.52		4.30			
A within B			1.55		4.55			
			1000 Grains Weight, g					
HD 3226 (I)	41.61	10	35.01	9	31.81	10	36.14	10
HD 3271	42.34	6	36.70	7	37.17	2	38.74	3
DBW 221	37.10	12	34.04	11	29.30	12	33.48	12
DBW 173 (c)	41.76	9	37.03	5	35.79	6	38.19	7
PBW 757 (I)	37.13	11	35.91	8	35.88	5	36.30	8
PBW 771	43.15	2	39.20	1	36.87	3	39.74	2
HD 3086 (c)	42.97	3	32.55	12	29.78	11	35.10	11
PBW 752 (I)	46.11	1	38.35	2	37.39	1	40.62	1
DBW 71 (c)	41.82	8	37.77	3	35.02	8	38.20	6
HD 3059 (c)	42.96	4	37.47	4	35.75	7	38.73	5
DBW 222	42.59	5	36.84	6	36.77	4	38.73	4
HI 1621	42.18	7	34.25	10	32.00	9	36.14	9
MEAN	41.81		36.26		34.46		37.51	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.23		0.92		3.74	
Genotype (B)	**		0.34		0.96		2.73	
B within A	**		0.59		1.67			
A within B			0.61		1.79			
Date of Sowing:	13.11.2018		17.12.2018		07.01.2019			
Date of Harvesting	24.04.2019		28.04.2019		04.05.2019			

Table 2.1.8. North Western Plains Zone **IR-TAS-DOS** **Ludhiana** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	71.59	2	39.92	11	38.07	4	49.86	5
HD 3271	69.79	4	44.35	6	39.40	3	51.18	3
DBW 221	74.92	1	43.59	7	36.95	5	51.82	1
DBW 173 (c)	66.74	7	41.35	10	36.79	6	48.30	7
PBW 757 (I)	69.92	3	38.07	12	32.99	11	47.00	11
PBW 771	61.69	12	47.92	1	40.76	2	50.12	4
HD 3086 (c)	64.64	8	43.39	8	35.84	9	47.95	9
PBW 752 (I)	67.60	6	45.18	3	42.68	1	51.82	2
DBW 71 (c)	67.66	5	45.00	4	36.28	8	49.64	6
HD 3059 (c)	62.11	11	44.93	5	36.33	7	47.79	10
DBW 222	62.40	10	43.13	9	32.50	12	46.01	12
HI 1621	63.83	9	46.17	2	34.82	10	48.27	8
MEAN	66.91		43.58		36.95		49.15	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		1.25		4.91		15.28	
Genotype (B)	**		0.80		2.25		4.85	
B within A	**		1.38		3.89			
A within B			1.82		5.33			
			Earhead/sqm					
HD 3226 (I)	387	11	313	6	312	4	337	5
HD 3271	395	8	332	4	337	2	354	3
DBW 221	408	5	350	2	359	1	372	1
DBW 173 (c)	384	12	368	1	325	3	359	2
PBW 757 (I)	388	10	280	12	288	5	319	11
PBW 771	402	7	340	3	285	6	342	4
HD 3086 (c)	417	3	301	7	285	7	334	6
PBW 752 (I)	393	9	297	10	250	11	313	12
DBW 71 (c)	415	4	298	9	275	8	329	7
HD 3059 (c)	405	6	300	8	267	9	324	10
DBW 222	441	1	286	11	259	10	329	9
HI 1621	422	2	320	5	245	12	329	8
MEAN	405		315		291		337	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		6.13		24.07		10.92	
Genotype (B)	**		8.14		23.00		7.25	
B within A	**		14.10		39.84			
A within B			14.83		43.49			
			Grains/earhead					
HD 3226 (I)	36.40	4	34.84	8	36.69	8	35.98	7
HD 3271	29.28	10	33.87	10	30.04	12	31.06	11
DBW 221	41.07	1	34.61	9	35.45	9	37.05	6
DBW 173 (c)	32.37	6	28.11	12	31.88	11	30.79	12
PBW 757 (I)	38.95	2	39.70	3	33.26	10	37.30	4
PBW 771	27.28	11	35.71	7	42.96	4	35.31	8
HD 3086 (c)	23.70	12	36.75	6	41.08	7	33.84	10
PBW 752 (I)	36.67	3	36.75	5	50.41	1	41.28	1
DBW 71 (c)	31.19	8	39.99	2	42.72	5	37.97	3
HD 3059 (c)	31.87	7	29.99	11	41.40	6	34.42	9
DBW 222	33.01	5	40.68	1	44.59	3	39.43	2
HI 1621	29.70	9	37.14	4	44.97	2	37.27	5
MEAN	32.62		35.68		39.62		35.97	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		1.18		4.65		19.76	
Genotype (B)	*		2.07		5.84		17.22	
B within A	*		3.58		10.11			
A within B			3.62		10.63			
			1000 Grains Weight, g					
HD 3226 (I)	51.65	6	36.81	11	33.40	6	40.62	8
HD 3271	61.17	3	39.95	4	41.50	1	47.54	1
DBW 221	45.07	11	37.10	10	30.00	11	37.39	11
DBW 173 (c)	54.73	4	39.94	5	35.83	2	43.50	5
PBW 757 (I)	46.83	10	35.53	12	35.55	3	39.31	10
PBW 771	62.91	2	40.15	3	34.13	4	45.73	3
HD 3086 (c)	70.02	1	39.87	6	30.94	10	46.94	2
PBW 752 (I)	47.28	9	42.04	2	34.01	5	41.11	7
DBW 71 (c)	52.27	5	37.90	8	31.36	9	40.51	9
HD 3059 (c)	48.23	8	54.35	1	32.87	8	45.15	4
DBW 222	43.00	12	37.27	9	28.22	12	36.16	12
HI 1621	51.31	7	38.99	7	33.26	7	41.19	6
MEAN	52.87		39.99		33.42		42.10	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		1.25		4.90		17.78	
Genotype (B)	NS		2.75		7.76		19.57	
B within A	NS		4.76		13.44			
A within B			4.72		13.85			
Date of Sowing:	05.11.2018		07.12.2018		05.01.2019			
Date of Harvesting	20.04.2019		24.04.2019		30.04.2019			

Table 2.1.9. North Western Plains Zone **IR-TAS-DOS** **Pantnagar** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	56.75	7	51.83	6	46.02	9	51.53	8
HD 3271	62.29	3	52.49	3	47.95	7	54.25	2
DBW 221	63.12	2	48.72	11	46.72	8	52.85	4
DBW 173 (c)	53.14	10	52.23	5	48.88	5	51.42	9
PBW 757 (I)	50.99	11	53.05	2	51.06	3	51.70	7
PBW 771	59.48	4	52.31	4	53.50	1	55.09	1
HD 3086 (c)	65.44	1	47.79	12	44.05	11	52.43	5
PBW 752 (I)	57.19	6	50.74	9	48.72	6	52.22	6
DBW 71 (c)	53.35	9	51.32	8	45.91	10	50.19	10
HD 3059 (c)	57.53	5	51.71	7	38.62	12	49.29	12
DBW 222	56.46	8	53.67	1	52.46	2	54.20	3
HI 1621	50.55	12	49.45	10	49.74	4	49.92	11
MEAN	57.19		51.28		47.80		52.09	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		1.07		4.20		12.34	
Genotype (B)	**		0.99		2.79		5.69	
B within A	**		1.71		4.83			
A within B			1.96		5.74			
			Earhead/sqm					
HD 3226 (I)	529	8	529	8	488	6	515	8
HD 3271	558	6	592	1	485	8	545	5
DBW 221	634	1	553	5	530	2	572	2
DBW 173 (c)	531	7	499	10	452	12	494	10
PBW 757 (I)	593	4	553	6	498	5	548	4
PBW 771	607	3	581	2	534	1	574	1
HD 3086 (c)	612	2	555	4	508	4	558	3
PBW 752 (I)	564	5	530	7	479	9	525	7
DBW 71 (c)	505	11	425	12	461	10	464	12
HD 3059 (c)	455	12	489	11	488	6	477	11
DBW 222	508	10	525	9	455	11	496	9
HI 1621	518	9	573	3	522	3	538	6
MEAN	551		534		492		525	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		5.04		19.80		5.76	
Genotype (B)	**		14.76		41.70		8.43	
B within A	NS		25.56		72.23			
A within B			24.99		73.29			
			Grains/earhead					
HD 3226 (I)	23.93	4	26.03	3	30.97	3	26.98	3
HD 3271	24.46	2	19.57	12	29.75	4	24.59	8
DBW 221	23.46	6	25.37	4	28.69	8	25.84	6
DBW 173 (c)	22.30	7	24.55	6	31.90	2	26.25	5
PBW 757 (I)	20.93	11	23.94	8	28.14	9	24.34	10
PBW 771	21.84	8	24.09	7	28.99	6	24.98	7
HD 3086 (c)	21.79	9	22.44	10	26.57	10	23.60	11
PBW 752 (I)	20.84	12	23.46	9	28.79	7	24.36	9
DBW 71 (c)	23.87	5	30.62	1	29.22	5	27.91	1
HD 3059 (c)	27.48	1	26.30	2	25.38	12	26.39	4
DBW 222	23.95	3	25.16	5	34.18	1	27.76	2
HI 1621	20.94	10	20.60	11	26.36	11	22.63	12
MEAN	22.98		24.34		29.08		25.47	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	*		0.86		3.37		20.21	
Genotype (B)	NS		1.16		3.29		13.70	
B within A	NS		2.02		5.69			
A within B			2.11		6.19			
			1000 Grains Weight, g					
HD 3226 (I)	45.00	9	38.07	10	31.86	10	38.31	11
HD 3271	45.67	6	45.86	1	33.73	8	41.75	3
DBW 221	42.77	11	34.96	12	30.82	12	36.18	12
DBW 173 (c)	45.17	7	42.73	2	34.07	7	40.66	5
PBW 757 (I)	41.71	12	40.26	7	36.71	2	39.56	8
PBW 771	45.05	8	37.52	11	34.68	4	39.08	10
HD 3086 (c)	49.28	1	39.35	9	32.67	9	40.43	6
PBW 752 (I)	48.63	2	41.27	5	35.38	3	41.76	2
DBW 71 (c)	44.68	10	39.74	8	34.65	5	39.69	7
HD 3059 (c)	46.05	5	41.14	6	31.39	11	39.53	9
DBW 222	47.09	3	41.41	4	34.15	6	40.89	4
HI 1621	46.87	4	42.10	3	37.11	1	42.03	1
MEAN	45.66		40.37		33.93		39.99	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.61		2.38		9.09	
Genotype (B)	**		0.82		2.33		6.18	
B within A	*		1.43		4.03			
A within B			1.49		4.38			
Date of Sowing:	10.11.2018		13.12.2018		03.01.2019			
Date of Harvesting	24.04.2019		28.04.2019		30.04.2019			

Table 2.1.10. North Western Plains Zone **IR-TAS-DOS** **Sriganganagar** **2018-19**

Genotype	Date of sowing: Normal	Rk	Late	Rk	Very late	Rk	Mean	Rk
			Yield,q/ha					
HD 3226 (I)	70.35	9	42.50	10	20.60	9	44.48	10
HD 3271	67.02	10	48.93	3	26.95	1	47.63	5
DBW 221	72.03	6	39.24	12	20.40	11	43.89	11
DBW 173 (c)	72.38	4	44.17	8	25.95	5	47.50	6
PBW 757 (I)	72.26	5	50.36	1	26.90	2	49.84	1
PBW 771	70.95	7	49.64	2	24.64	6	48.41	4
HD 3086 (c)	70.60	8	43.93	9	23.93	7	46.15	7
PBW 752 (I)	65.60	12	47.14	4	22.06	8	44.93	9
DBW 71 (c)	66.27	11	44.65	6	20.43	10	43.78	12
HD 3059 (c)	73.81	2	45.60	5	26.79	3	48.73	3
DBW 222	78.57	1	44.29	7	26.31	4	49.72	2
HI 1621	73.81	3	41.54	11	19.88	12	45.08	8
MEAN	71.14		45.17		23.74		46.68	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.08		0.30		0.98	
Genotype (B)	**		1.14		3.22		7.33	
B within A	**		1.98		5.58			
A within B			1.89		5.55			
			Earhead/sqm					
HD 3226 (I)	463	2	327	4	303	2	364	1
HD 3271	457	4	337	1	286	3	360	2
DBW 221	448	6	323	6	265	8	345	6
DBW 173 (c)	433	9	333	2	276	4	347	5
PBW 757 (I)	422	10	326	5	267	6	338	9
PBW 771	416	11	299	10	259	9	325	11
HD 3086 (c)	436	8	317	7	243	11	332	10
PBW 752 (I)	412	12	298	11	230	12	313	12
DBW 71 (c)	458	3	289	12	270	5	339	8
HD 3059 (c)	436	7	331	3	310	1	359	3
DBW 222	468	1	316	8	266	7	350	4
HI 1621	457	5	308	9	257	10	341	7
MEAN	442		317		269		343	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		2.17		8.54		3.80	
Genotype (B)	**		5.90		16.67		5.16	
B within A	**		10.22		28.87			
A within B			10.02		29.39			
			Grains/earhead					
HD 3226 (I)	37.78	9	35.34	12	20.84	12	31.32	12
HD 3271	33.69	12	38.01	11	27.29	10	32.99	11
DBW 221	45.85	1	40.86	9	29.22	6	38.64	6
DBW 173 (c)	38.59	8	38.91	10	29.15	7	35.55	9
PBW 757 (I)	42.81	4	46.96	2	35.07	1	41.61	1
PBW 771	43.81	2	48.69	1	29.00	8	40.50	2
HD 3086 (c)	40.26	5	43.94	4	35.02	2	39.74	3
PBW 752 (I)	36.06	11	42.63	6	28.16	9	35.62	8
DBW 71 (c)	36.07	10	43.28	5	24.91	11	34.75	10
HD 3059 (c)	43.74	3	44.68	3	29.98	4	39.47	4
DBW 222	40.13	6	42.41	7	34.14	3	38.89	5
HI 1621	39.37	7	42.06	8	29.48	5	36.97	7
MEAN	39.85		42.31		29.36		37.17	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.69		2.72		11.17	
Genotype (B)	**		1.26		3.55		10.13	
B within A	NS		2.17		6.14			
A within B			2.19		6.44			
			1000 Grains Weight, g					
HD 3226 (I)	40.20	9	36.86	3	32.71	4	36.59	4
HD 3271	43.53	2	38.73	1	34.65	1	38.97	1
DBW 221	35.08	12	29.87	12	26.41	12	30.45	12
DBW 173 (c)	43.41	3	34.07	6	32.41	5	36.63	3
PBW 757 (I)	40.51	6	32.95	8	28.90	9	34.12	8
PBW 771	38.92	10	34.16	5	32.77	3	35.28	6
HD 3086 (c)	40.26	8	31.57	10	28.10	10	33.31	10
PBW 752 (I)	44.24	1	37.29	2	34.23	2	38.59	2
DBW 71 (c)	40.44	7	35.76	4	30.40	6	35.53	5
HD 3059 (c)	38.78	11	31.00	11	28.90	8	32.89	11
DBW 222	42.28	4	33.24	7	29.16	7	34.90	7
HI 1621	41.29	5	32.32	9	26.42	11	33.34	9
MEAN	40.74		33.99		30.42		35.05	
	F Test		SEm		CD		CV (%)	
Date of sowing (A)	**		0.44		1.73		7.54	
Genotype (B)	**		0.81		2.30		6.97	
B within A	NS		1.41		3.99			
A within B			1.42		4.17			
Date of Sowing:	11.11.2018		15.12.2018		07.01.2019			
Date of Harvesting	20.04.2019		25.04.2019		01.05.2019			

Table 2.2.1. North Western Plains Zone **RIR-TS-TAS** **Agra 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	30.16	5	41.20	4	43.35	7	38.24	5
WH 1080 (c)	32.17	3	43.10	2	45.47	2	40.25	2
HD 3043 (c)	26.77	9	35.03	9	39.87	9	33.89	9
HI 1620 (I)	28.67	6	39.70	6	43.81	6	37.39	6
HD 3237 (I)	30.23	4	41.11	5	43.83	4	38.39	4
WH 1142 (c)	26.91	8	36.33	8	41.33	8	34.86	8
PBW 644 (c)	28.00	7	37.37	7	43.83	4	36.40	7
HI 1628	32.67	2	41.73	3	44.87	3	39.76	3
NIAW 3170	33.39	1	44.55	1	49.17	1	42.37	1
MEAN	29.89		40.01		43.95		37.95	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.31		1.22		4.26	
Genotype (B)	**		0.76		2.18		6.05	
B within A	NS		1.32		3.77			
A within B			1.29		3.86			
			Earhead/sqm					
BRW 3806	265	4	268	3	271	2	268	3
WH 1080 (c)	265	3	267	6	271	4	268	5
HD 3043 (c)	261	8	265	9	269	8	265	8
HI 1620 (I)	264	6	268	3	270	6	267	6
HD 3237 (I)	265	4	268	5	271	2	268	4
WH 1142 (c)	260	9	265	8	269	8	265	9
PBW 644 (c)	264	7	266	7	270	6	266	7
HI 1628	266	2	269	2	271	4	268	2
NIAW 3170	266	1	270	1	272	1	269	1
MEAN	264		267		270		267	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.64		2.50		1.24	
Genotype (B)	**		0.83		2.36		0.93	
B within A	NS		1.44		4.08			
A within B			1.50		4.48			
			Grains/Earhead					
BRW 3806	33.68	9	41.60	1	42.37	6	39.22	9
WH 1080 (c)	36.73	5	41.39	2	40.54	9	39.55	7
HD 3043 (c)	38.96	2	38.62	9	42.80	4	40.13	3
HI 1620 (I)	35.59	8	40.53	3	43.35	2	39.82	4
HD 3237 (I)	37.42	4	39.43	8	42.60	5	39.81	5
WH 1142 (c)	35.88	7	39.53	7	42.99	3	39.47	8
PBW 644 (c)	37.74	3	39.80	6	44.85	1	40.80	2
HI 1628	41.03	1	40.11	5	41.77	8	40.97	1
NIAW 3170	36.34	6	40.17	4	42.26	7	39.59	6
MEAN	37.04		40.13		42.62		39.93	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.29		1.13		3.76	
Genotype (B)	NS		1.20		3.41		9.00	
B within A	NS		2.07		5.90			
A within B			1.98		5.93			
			1000 Grains Weight, g					
BRW 3806	34.13	2	36.93	5	38.00	5	36.36	3
WH 1080 (c)	33.10	3	39.10	2	41.47	2	37.89	2
HD 3043 (c)	26.40	9	34.47	9	34.57	9	31.81	9
HI 1620 (I)	30.60	5	36.60	6	37.63	6	34.94	6
HD 3237 (I)	30.73	4	38.93	3	38.13	4	35.93	5
WH 1142 (c)	28.93	7	34.87	8	35.83	8	33.21	8
PBW 644 (c)	28.23	8	35.40	7	36.23	7	33.29	7
HI 1628	30.10	6	38.70	4	39.80	3	36.20	4
NIAW 3170	34.50	1	41.20	1	42.83	1	39.51	1
MEAN	30.75		37.36		38.28		35.46	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.44		1.72		6.41	
Genotype (B)	**		0.69		1.97		5.86	
B within A	NS		1.20		3.41			
A within B			1.21		3.63			
Date of Sowing:			28.11.2018					
Date of Harvesting:			04.04.2019		08.04.2019		12.04.2019	

Table 2.2.2. North Western Plains Zone **RIR-TS-TAS** **Delhi 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	48.02	2	50.40	1	52.18	1	50.20	1
WH 1080 (c)	46.83	8	48.41	7	49.60	8	48.28	8
HD 3043 (c)	45.83	9	48.21	9	49.60	8	47.88	9
HI 1620 (I)	47.62	4	49.01	3	50.60	2	49.07	2
HD 3237 (I)	47.82	3	48.61	6	50.00	3	48.81	3
WH 1142 (c)	48.21	1	48.41	7	49.80	4	48.81	3
PBW 644 (c)	47.02	6	49.60	2	49.80	5	48.81	5
HI 1628	46.94	7	49.01	3	49.80	5	48.58	7
NIAW 3170	47.62	4	48.81	5	49.80	5	48.74	6
MEAN	47.32		48.94		50.13		48.80	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.38		1.50		4.08	
Genotype (B)	**		0.36		1.01		2.19	
B within A	NS		0.62		1.76			
A within B			0.70		2.09			
			Earhead/sqm					
BRW 3806	471	6	508	6	515	5	498	6
WH 1080 (c)	503	2	530	2	512	6	515	5
HD 3043 (c)	420	9	448	9	453	8	441	9
HI 1620 (I)	432	7	455	8	452	9	446	8
HD 3237 (I)	497	5	523	4	552	2	524	2
WH 1142 (c)	503	2	530	2	532	3	522	3
PBW 644 (c)	575	1	595	1	600	1	590	1
HI 1628	431	8	460	7	482	7	458	7
NIAW 3170	500	4	523	4	528	4	517	4
MEAN	481		508		514		501	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		6.69		26.26		6.94	
Genotype (B)	**		13.78		39.19		8.25	
B within A	NS		23.87		67.88			
A within B			23.47		70.38			
			Grains/Earhead					
BRW 3806	26.00	6	22.83	6	22.37	6	23.73	6
WH 1080 (c)	25.41	8	22.54	7	22.97	5	23.64	7
HD 3043 (c)	29.10	3	25.80	2	24.96	3	26.62	3
HI 1620 (I)	30.87	2	25.43	3	26.46	1	27.58	2
HD 3237 (I)	27.71	5	24.19	5	22.36	7	24.75	5
WH 1142 (c)	25.44	7	21.98	8	21.65	8	23.03	8
PBW 644 (c)	22.47	9	21.53	9	20.40	9	21.46	9
HI 1628	31.99	1	27.92	1	25.75	2	28.55	1
NIAW 3170	28.48	4	24.82	4	24.05	4	25.78	4
MEAN	27.50		24.12		23.44		25.02	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.35		1.36		7.17	
Genotype (B)	**		0.82		2.34		9.86	
B within A	NS		1.42		4.05			
A within B			1.39		4.16			
			1000 Grains Weight, g					
BRW 3806	39.22	1	43.53	1	45.49	1	42.75	1
WH 1080 (c)	36.67	4	40.66	5	42.85	4	40.06	5
HD 3043 (c)	37.49	3	41.85	3	43.96	2	41.10	2
HI 1620 (I)	36.25	6	42.72	2	42.44	5	40.47	4
HD 3237 (I)	35.76	7	39.66	6	41.33	6	38.92	6
WH 1142 (c)	37.87	2	41.71	4	43.53	3	41.04	3
PBW 644 (c)	36.49	5	38.78	7	40.71	7	38.66	7
HI 1628	34.34	8	38.39	8	40.24	8	37.66	8
NIAW 3170	33.61	9	37.62	9	39.39	9	36.88	9
MEAN	36.41		40.55		42.22		39.73	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.63		2.46		8.20	
Genotype (B)	**		0.32		0.92		2.44	
B within A	NS		0.56		1.59			
A within B			0.82		2.46			
Date of Sowing:			17.11.2018					
Date of Harvesting:			13.04.2019		15.04.2019		17.04.2019	

Table 2.2.3. North Western Plains Zone **RIR-TS-TAS** **Durgapura 2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	22.67	2	28.23	2	35.99	1	28.96	2
WH 1080 (c)	23.57	1	30.34	1	35.50	2	29.80	1
HD 3043 (c)	19.21	4	25.80	4	34.41	4	26.47	4
HI 1620 (I)	18.63	5	24.24	7	33.13	6	25.33	6
HD 3237 (I)	20.26	3	25.95	3	33.58	5	26.60	3
WH 1142 (c)	16.51	6	25.35	5	34.60	3	25.49	5
PBW 644 (c)	16.32	7	24.50	6	32.34	7	24.39	7
HI 1628	15.38	8	22.39	8	29.36	8	22.38	8
NIAW 3170	14.92	9	20.14	9	27.33	9	20.80	9
MEAN	18.61		25.21		32.91		25.58	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.44		1.71		8.87	
Genotype (B)	**		0.60		1.71		7.04	
B within A	NS		1.04		2.96			
A within B			1.07		3.22			
			Earhead/sqm					
BRW 3806	240	1	264	5	354	1	286	1
WH 1080 (c)	218	2	297	1	310	5	275	2
HD 3043 (c)	198	3	278	2	259	7	245	4
HI 1620 (I)	174	6	215	9	316	4	235	6
HD 3237 (I)	181	4	237	6	346	2	255	3
WH 1142 (c)	158	7	221	8	338	3	239	5
PBW 644 (c)	181	5	229	7	265	6	225	7
HI 1628	144	8	273	4	213	8	210	8
NIAW 3170	122	9	275	3	201	9	199	9
MEAN	179		254		289		241	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		5.59		21.94		12.05	
Genotype (B)	**		8.48		24.13		10.56	
B within A	**		14.69		41.79			
A within B			14.94		44.79			
			Grains/Earhead					
BRW 3806	28.11	9	32.85	5	25.31	8	28.76	9
WH 1080 (c)	34.22	5	26.76	7	32.75	5	31.24	8
HD 3043 (c)	30.74	7	24.26	9	45.95	1	33.65	4
HI 1620 (I)	37.19	3	36.57	1	28.08	7	33.95	3
HD 3237 (I)	39.75	2	34.17	3	23.20	9	32.37	7
WH 1142 (c)	34.15	6	34.27	2	30.12	6	32.85	6
PBW 644 (c)	30.59	8	33.93	4	34.10	4	32.87	5
HI 1628	36.43	4	27.01	6	41.51	3	34.98	2
NIAW 3170	42.51	1	25.00	8	42.84	2	36.78	1
MEAN	34.86		30.53		33.76		33.05	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		1.25		4.90		19.63	
Genotype (B)	NS		1.79		5.08		16.22	
B within A	**		3.10		8.80			
A within B			3.17		9.52			
			1000 Grains Weight, g					
BRW 3806	33.75	1	34.02	3	40.17	2	35.98	1
WH 1080 (c)	31.91	2	39.37	2	35.04	5	35.44	2
HD 3043 (c)	31.61	3	39.66	1	30.14	9	33.80	4
HI 1620 (I)	28.83	8	31.39	7	39.08	3	33.10	5
HD 3237 (I)	28.52	9	33.22	5	42.06	1	34.60	3
WH 1142 (c)	30.92	4	33.82	4	34.25	6	33.00	6
PBW 644 (c)	29.66	5	31.93	6	36.00	4	32.53	7
HI 1628	29.51	6	30.70	8	34.00	7	31.40	8
NIAW 3170	29.07	7	29.49	9	32.00	8	30.19	9
MEAN	30.42		33.73		35.86		33.34	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.64		2.51		9.98	
Genotype (B)	**		0.99		2.82		8.92	
B within A	**		1.72		4.88			
A within B			1.74		5.22			
Date of Sowing:			08.11.2018					
Date of Harvesting:			15.03.2019		24.03.2019		29.03.2019	

Table 2.2.4. North Western Plains Zone **RIR-TS-TAS** **Gurdaspur 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	68.51	4	67.18	3	74.41	2	70.03	4
WH 1080 (c)	61.17	8	63.53	6	68.61	5	64.44	5
HD 3043 (c)	59.85	9	61.03	9	68.61	5	63.16	8
HI 1620 (I)	74.03	2	76.01	1	77.31	1	75.78	1
HD 3237 (I)	63.61	6	65.87	5	63.73	7	64.40	6
WH 1142 (c)	74.46	1	75.51	2	73.43	3	74.47	2
PBW 644 (c)	62.57	7	63.41	7	63.70	8	63.23	7
HI 1628	64.03	5	62.79	8	61.34	9	62.72	9
NIAW 3170	73.44	3	67.07	4	70.08	4	70.20	3
MEAN	66.85		66.93		69.02		67.60	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		1.50		5.88		11.52	
Genotype (B)	**		1.44		4.11		6.41	
B within A	NS		2.50		7.12			
A within B			2.79		8.38			
			Earhead/sqm					
BRW 3806	342	9	430	4	447	2	406	7
WH 1080 (c)	397	6	438	3	443	3	426	3
HD 3043 (c)	374	7	404	8	400	9	393	9
HI 1620 (I)	373	8	418	7	428	5	406	6
HD 3237 (I)	400	5	423	6	427	6	417	5
WH 1142 (c)	473	1	475	1	469	1	472	1
PBW 644 (c)	401	4	402	9	403	8	402	8
HI 1628	425	2	445	2	432	4	434	2
NIAW 3170	420	3	429	5	424	7	424	4
MEAN	400		429		430		420	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		8.39		32.94		10.38	
Genotype (B)	**		6.85		19.47		4.89	
B within A	*		11.86		33.72			
A within B			13.98		41.91			
			Grains/Earhead					
BRW 3806	42.82	1	34.49	7	35.03	7	37.45	5
WH 1080 (c)	39.14	5	36.98	4	38.22	3	38.11	4
HD 3043 (c)	42.03	3	41.24	2	46.28	1	43.18	1
HI 1620 (I)	42.31	2	38.77	3	38.15	4	39.74	3
HD 3237 (I)	36.17	8	36.23	6	34.61	8	35.67	8
WH 1142 (c)	41.02	4	41.75	1	40.92	2	41.23	2
PBW 644 (c)	36.74	7	36.76	5	36.98	5	36.83	6
HI 1628	32.32	9	32.39	9	31.13	9	31.95	9
NIAW 3170	38.69	6	33.75	8	36.15	6	36.20	7
MEAN	39.03		36.93		37.50		37.82	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.60		2.34		8.20	
Genotype (B)	**		1.16		3.29		9.17	
B within A	NS		2.00		5.70			
A within B			1.98		5.94			
			1000 Grains Weight, g					
BRW 3806	46.95	2	45.54	3	47.68	1	46.72	2
WH 1080 (c)	39.39	7	39.25	7	40.74	7	39.79	7
HD 3043 (c)	38.72	8	36.77	9	37.21	9	37.57	9
HI 1620 (I)	47.06	1	47.04	1	47.44	2	47.18	1
HD 3237 (I)	44.04	5	43.00	5	43.07	5	43.37	5
WH 1142 (c)	38.45	9	38.02	8	38.29	8	38.25	8
PBW 644 (c)	42.44	6	42.98	6	42.84	6	42.76	6
HI 1628	46.86	3	43.60	4	45.98	3	45.48	4
NIAW 3170	45.54	4	46.32	2	45.80	4	45.89	3
MEAN	43.27		42.50		43.23		43.00	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.25		0.99		3.05	
Genotype (B)	**		0.44		1.25		3.07	
B within A	NS		0.76		2.17			
A within B			0.76		2.29			
Date of Sowing:			07.11.2018					
Date of Harvesting:			06.05.2019		07.05.2019			

Table 2.2.5. North Western Plains Zone **RIR-TS-TAS** **Hisar 2018-19**

Genotype	Irrigation level Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	43.25	2	54.48	4	60.08	3	52.61	3
WH 1080 (c)	40.32	6	52.18	6	55.60	6	49.37	6
HD 3043 (c)	39.17	8	49.80	8	54.40	7	47.79	7
HI 1620 (I)	42.02	4	56.59	2	60.63	2	53.08	2
HD 3237 (I)	39.37	7	53.02	5	55.79	5	49.39	5
WH 1142 (c)	45.99	1	56.67	1	61.90	1	54.85	1
PBW 644 (c)	35.87	9	51.27	7	53.13	8	46.76	9
HI 1628	41.87	5	49.44	9	52.06	9	47.79	7
NIAW 3170	43.17	3	54.68	3	59.25	4	52.37	4
MEAN	41.23		53.13		56.98		50.45	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.84		3.30		8.66	
Genotype (B)	**		0.83		2.37		4.96	
B within A	NS		1.45		4.11			
A within B			1.60		4.80			
			Earhead/sqm					
BRW 3806	358	3	412	5	422	5	397	5
WH 1080 (c)	347	6	403	7	420	6	390	6
HD 3043 (c)	362	1	425	2	435	1	407	1
HI 1620 (I)	338	7	428	1	428	3	398	4
HD 3237 (I)	355	4	422	4	427	4	401	3
WH 1142 (c)	360	2	423	3	430	2	404	2
PBW 644 (c)	307	9	375	8	408	8	363	9
HI 1628	337	8	368	9	392	9	366	8
NIAW 3170	352	5	405	6	410	7	389	7
MEAN	346		407		419		391	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		5.42		21.27		7.21	
Genotype (B)	*		9.72		27.63		7.46	
B within A	NS		16.83		47.86			
A within B			16.77		50.27			
			Grains/Earhead					
BRW 3806	25.29	3	27.64	5	28.89	4	27.27	5
WH 1080 (c)	24.60	4	29.55	4	27.82	7	27.32	4
HD 3043 (c)	26.83	2	30.13	3	32.21	2	29.72	2
HI 1620 (I)	23.71	7	25.93	7	27.91	6	25.85	7
HD 3237 (I)	22.57	9	25.72	9	26.72	8	25.00	8
WH 1142 (c)	31.25	1	31.98	1	34.14	1	32.46	1
PBW 644 (c)	24.13	6	31.31	2	29.23	3	28.22	3
HI 1628	23.03	8	25.78	8	25.33	9	24.71	9
NIAW 3170	24.24	5	26.63	6	28.38	5	26.42	6
MEAN	25.07		28.30		28.96		27.44	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.27		1.05		5.05	
Genotype (B)	**		0.88		2.50		9.62	
B within A	NS		1.52		4.33			
A within B			1.46		4.38			
			1000 Grains Weight, g					
BRW 3806	47.77	6	48.00	5	49.38	4	48.38	5
WH 1080 (c)	47.43	7	43.89	7	47.77	6	46.36	6
HD 3043 (c)	40.46	9	38.90	9	38.95	9	39.44	9
HI 1620 (I)	52.56	2	51.01	2	51.19	2	51.59	2
HD 3237 (I)	49.28	4	48.95	4	49.18	5	49.14	4
WH 1142 (c)	41.16	8	42.17	8	42.66	8	42.00	8
PBW 644 (c)	48.56	5	43.96	6	44.58	7	45.70	7
HI 1628	54.07	1	52.34	1	52.75	1	53.05	1
NIAW 3170	51.01	3	50.76	3	50.99	3	50.92	3
MEAN	48.03		46.66		47.49		47.40	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.30		1.17		3.27	
Genotype (B)	**		0.47		1.33		2.96	
B within A	*		0.81		2.31			
A within B			0.82		2.46			
Date of Sowing:								
Date of Harvesting:			10.04.2019		14.04.2019			

Table 2.2.6. North Western Plains Zone **RIR-TS-TAS** **Jammu 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	41.05	1	40.67	1	40.20	2	40.64	1
WH 1080 (c)	39.45	2	38.23	4	38.00	6	38.56	3
HD 3043 (c)	37.82	6	37.68	6	40.23	1	38.58	2
HI 1620 (I)	36.57	7	37.94	5	39.20	4	37.90	6
HD 3237 (I)	36.48	8	38.32	3	36.77	8	37.19	8
WH 1142 (c)	36.40	9	36.74	8	39.46	3	37.53	7
PBW 644 (c)	38.26	4	36.44	9	36.53	9	37.08	9
HI 1628	38.82	3	39.49	2	36.81	7	38.37	4
NIAW 3170	37.95	5	37.48	7	38.49	5	37.97	5
MEAN	38.09		38.11		38.41		38.20	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.44		1.72		5.97	
Genotype (B)	**		0.52		1.49		4.12	
B within A	NS		0.91		2.59			
A within B			0.96		2.89			
			Earhead/sqm					
BRW 3806	398	5	430	2	431	2	419	2
WH 1080 (c)	362	9	388	8	395	8	382	9
HD 3043 (c)	397	6	411	5	418	4	408	6
HI 1620 (I)	431	1	378	9	434	1	414	4
HD 3237 (I)	431	1	431	1	430	3	431	1
WH 1142 (c)	395	7	395	6	388	9	393	8
PBW 644 (c)	418	3	418	3	411	5	415	3
HI 1628	393	8	393	7	410	6	399	7
NIAW 3170	414	4	414	4	404	7	411	5
MEAN	404		406		413		408	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		2.16		8.49		2.75	
Genotype (B)	**		7.15		20.32		5.25	
B within A	NS		12.38		35.20			
A within B			11.87		35.58			
			Grains/Earhead					
BRW 3806	40.63	1	38.01	2	37.81	2	38.82	1
WH 1080 (c)	40.44	2	37.36	3	36.04	5	37.95	2
HD 3043 (c)	35.10	4	33.48	7	37.08	3	35.22	5
HI 1620 (I)	30.97	8	33.91	6	36.37	4	33.75	7
HD 3237 (I)	30.44	9	35.34	4	31.19	8	32.32	8
WH 1142 (c)	33.01	7	34.97	5	39.70	1	35.90	4
PBW 644 (c)	33.54	6	32.39	9	30.98	9	32.30	9
HI 1628	36.03	3	40.36	1	32.46	7	36.28	3
NIAW 3170	33.54	5	33.44	8	34.66	6	33.88	6
MEAN	34.86		35.47		35.14		35.16	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		1.17		4.61		17.36	
Genotype (B)	**		1.31		3.72		11.17	
B within A	NS		2.27		6.45			
A within B			2.44		7.32			
			1000 Grains Weight, g					
BRW 3806	25.54	9	24.90	9	25.57	8	25.34	9
WH 1080 (c)	26.96	8	26.83	5	26.88	5	26.89	7
HD 3043 (c)	27.52	5	28.32	2	26.07	6	27.30	4
HI 1620 (I)	27.39	7	29.72	1	25.26	9	27.45	2
HD 3237 (I)	27.95	2	25.23	7	27.63	3	26.94	5
WH 1142 (c)	28.14	1	26.68	6	25.94	7	26.92	6
PBW 644 (c)	27.56	4	26.95	4	29.13	1	27.88	1
HI 1628	27.58	3	25.12	8	27.77	2	26.83	8
NIAW 3170	27.45	6	27.19	3	27.54	4	27.39	3
MEAN	27.34		26.77		26.86		26.99	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.63		2.46		12.06	
Genotype (B)	NS		0.95		2.70		10.55	
B within A	NS		1.64		4.67			
A within B			1.67		5.01			
Date of Sowing:			06.11.2018					
Date of Harvesting:			30.04.2019		02.05.2019		03.05.2019	

Table 2.2.7. North Western Plains Zone **RIR-TS-TAS** **Karnal 2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	47.39	3	51.88	5	54.08	4	51.12	4
WH 1080 (c)	43.89	8	51.61	6	53.85	5	49.78	6
HD 3043 (c)	40.96	9	45.37	9	48.92	9	45.08	9
HI 1620 (I)	45.27	6	52.54	3	53.56	6	50.46	5
HD 3237 (I)	44.38	7	54.26	2	55.14	2	51.26	3
WH 1142 (c)	45.87	4	48.59	8	49.51	8	47.99	8
PBW 644 (c)	45.34	5	51.18	7	52.63	7	49.71	7
HI 1628	48.50	1	55.26	1	54.32	3	52.69	1
NIAW 3170	47.42	2	52.11	4	56.14	1	51.89	2
MEAN	45.44		51.42		53.13		50.00	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		2.01		7.90		20.91	
Genotype (B)	**		1.34		3.82		8.06	
B within A	NS		2.33		6.62			
A within B			2.98		8.92			
			Earhead/sqm					
BRW 3806	251	8	301	9	332	2	295	8
WH 1080 (c)	309	2	369	1	296	6	325	2
HD 3043 (c)	304	3	326	7	293	7	308	4
HI 1620 (I)	293	6	333	4	272	9	299	7
HD 3237 (I)	262	7	328	5	323	3	304	6
WH 1142 (c)	293	5	328	6	307	5	309	3
PBW 644 (c)	246	9	347	2	284	8	292	9
HI 1628	298	4	316	8	308	4	307	5
NIAW 3170	349	1	334	3	375	1	353	1
MEAN	290		331		310		310	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		26.39		103.60		44.19	
Genotype (B)	**		9.86		28.04		9.53	
B within A	*		17.08		48.57			
A within B			30.91		92.68			
			Grains/Earhead					
BRW 3806	38.47	3	36.95	2	37.29	6	37.57	4
WH 1080 (c)	30.72	8	29.94	9	40.06	3	33.58	8
HD 3043 (c)	34.72	5	36.51	4	45.67	1	38.96	2
HI 1620 (I)	31.24	7	30.92	8	39.84	4	34.00	7
HD 3237 (I)	34.87	4	36.52	3	36.82	7	36.07	5
WH 1142 (c)	39.14	2	37.00	1	38.67	5	38.27	3
PBW 644 (c)	42.65	1	33.92	6	41.46	2	39.34	1
HI 1628	33.49	6	35.76	5	35.66	8	34.97	6
NIAW 3170	27.36	9	32.48	7	30.18	9	30.00	9
MEAN	34.74		34.44		38.41		35.86	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		2.66		10.46		38.60	
Genotype (B)	**		1.34		3.81		11.19	
B within A	*		2.32		6.59			
A within B			3.45		10.33			
			1000 Grains Weight, g					
BRW 3806	49.19	3	46.95	4	48.29	4	48.14	4
WH 1080 (c)	46.18	6	46.90	5	47.16	5	46.75	6
HD 3043 (c)	38.74	9	38.58	9	37.59	9	38.31	9
HI 1620 (I)	50.45	1	51.27	1	50.63	1	50.78	1
HD 3237 (I)	48.21	5	45.52	6	47.06	6	46.93	5
WH 1142 (c)	39.83	8	40.23	8	42.77	8	40.94	8
PBW 644 (c)	43.15	7	43.87	7	45.49	7	44.17	7
HI 1628	48.85	4	49.65	2	50.14	3	49.55	2
NIAW 3170	49.76	2	48.21	3	50.62	2	49.53	3
MEAN	46.04		45.69		46.64		46.12	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.26		1.02		2.94	
Genotype (B)	**		0.37		1.05		2.40	
B within A	*		0.64		1.81			
A within B			0.66		1.97			
Date of Sowing:			06.11.2018					
Date of Harvesting:			12.04.2019					

Table 2.2.8. North Western Plains Zone **RIR-TS-TAS** **Ludhiana 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	45.27	6	52.21	7	57.95	2	51.81	4
WH 1080 (c)	36.01	9	52.46	6	55.92	4	48.13	9
HD 3043 (c)	43.07	8	53.15	4	54.14	6	50.12	6
HI 1620 (I)	43.60	7	50.18	9	52.20	8	48.66	8
HD 3237 (I)	49.85	2	55.51	2	56.78	3	54.05	3
WH 1142 (c)	46.07	5	66.79	1	64.97	1	59.28	1
PBW 644 (c)	46.10	4	52.59	5	50.21	9	49.63	7
HI 1628	48.36	3	51.34	8	52.61	7	50.77	5
NIAW 3170	52.65	1	54.40	3	55.54	5	54.20	2
MEAN	45.66		54.29		55.59		51.85	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		1.74		6.82		17.42	
Genotype (B)	**		0.97		2.75		5.59	
B within A	**		1.67		4.76			
A within B			2.35		7.04			
			Earhead/sqm					
BRW 3806	287	8	325	6	325	7	312	9
WH 1080 (c)	281	9	336	4	337	2	318	6
HD 3043 (c)	313	4	313	9	332	4	319	5
HI 1620 (I)	303	5	325	5	324	8	318	7
HD 3237 (I)	316	3	314	8	330	5	320	4
WH 1142 (c)	334	2	366	1	319	9	339	2
PBW 644 (c)	293	7	336	3	335	3	321	3
HI 1628	300	6	323	7	326	6	316	8
NIAW 3170	342	1	342	2	360	1	348	1
MEAN	308		331		332		324	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		7.53		29.54		12.09	
Genotype (B)	*		8.03		22.83		7.45	
B within A	NS		13.91		39.55			
A within B			15.12		45.32			
			Grains/Earhead					
BRW 3806	32.67	3	31.02	4	33.17	2	32.29	3
WH 1080 (c)	27.46	9	28.88	6	30.90	5	29.08	8
HD 3043 (c)	32.44	5	31.64	3	31.09	4	31.72	4
HI 1620 (I)	30.02	7	27.64	9	28.11	7	28.59	9
HD 3237 (I)	32.56	4	32.81	2	32.71	3	32.69	2
WH 1142 (c)	28.57	8	35.96	1	35.82	1	33.45	1
PBW 644 (c)	33.92	2	28.38	8	27.02	9	29.77	6
HI 1628	35.73	1	28.56	7	28.67	6	30.98	5
NIAW 3170	30.36	6	30.38	5	27.81	8	29.52	7
MEAN	31.52		30.58		30.59		30.90	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		1.38		5.42		23.20	
Genotype (B)	NS		1.32		3.76		12.82	
B within A	NS		2.29		6.50			
A within B			2.56		7.68			
			1000 Grains Weight, g					
BRW 3806	48.40	4	51.82	8	54.64	6	51.62	8
WH 1080 (c)	47.23	6	54.16	5	54.56	7	51.98	6
HD 3043 (c)	42.56	9	54.08	6	52.67	9	49.77	9
HI 1620 (I)	48.09	5	57.73	1	57.48	2	54.44	1
HD 3237 (I)	48.47	3	54.27	4	52.82	8	51.85	7
WH 1142 (c)	49.64	2	51.16	9	56.96	3	52.59	5
PBW 644 (c)	46.38	7	55.91	2	55.95	4	52.75	4
HI 1628	45.62	8	55.81	3	57.54	1	52.99	3
NIAW 3170	51.80	1	52.47	7	55.88	5	53.38	2
MEAN	47.58		54.16		55.39		52.37	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.64		2.53		6.39	
Genotype (B)	NS		1.53		4.36		8.77	
B within A	NS		2.65		7.54			
A within B			2.58		7.74			
Date of Sowing:			29.10.2018					
Date of Harvesting:			22.04.2019					

Table 2.2.9. North Western Plains Zone **RIR-TS-TAS** **Pantnagar 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	37.76	1	46.98	1	55.91	1	46.88	1
WH 1080 (c)	34.20	7	39.55	7	49.23	4	40.99	7
HD 3043 (c)	35.40	4	37.38	9	46.04	8	39.61	8
HI 1620 (I)	37.22	2	46.70	2	54.08	2	46.00	2
HD 3237 (I)	34.51	6	44.81	3	52.33	3	43.88	3
WH 1142 (c)	29.90	9	39.05	8	46.68	6	38.54	9
PBW 644 (c)	33.11	8	41.56	6	48.46	5	41.04	6
HI 1628	35.53	3	44.34	5	46.48	7	42.12	4
NIAW 3170	35.05	5	44.68	4	45.72	9	41.82	5
MEAN	34.74		42.78		49.44		42.32	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		1.13		4.43		13.84	
Genotype (B)	**		0.96		2.73		6.80	
B within A	NS		1.66		4.72			
A within B			1.93		5.79			
			Earhead/sqm					
BRW 3806	293	9	402	6	427	7	374	7
WH 1080 (c)	397	3	478	1	516	1	463	1
HD 3043 (c)	404	2	436	3	452	5	430	3
HI 1620 (I)	309	7	372	8	409	8	363	9
HD 3237 (I)	437	1	459	2	477	3	458	2
WH 1142 (c)	365	4	394	7	469	4	409	5
PBW 644 (c)	293	8	430	4	441	6	388	6
HI 1628	358	6	364	9	393	9	372	8
NIAW 3170	358	5	404	5	478	2	413	4
MEAN	357		415		451		408	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		6.39		25.08		8.14	
Genotype (B)	**		11.81		33.60		8.69	
B within A	NS		20.46		58.19			
A within B			20.32		60.93			
			Grains/Earhead					
BRW 3806	28.95	1	26.70	4	28.93	2	28.19	2
WH 1080 (c)	22.06	8	20.91	9	24.69	8	22.55	9
HD 3043 (c)	24.85	5	23.47	8	26.87	7	25.06	6
HI 1620 (I)	27.44	3	28.43	2	27.72	4	27.86	3
HD 3237 (I)	19.54	9	23.75	7	27.03	6	23.44	7
WH 1142 (c)	25.33	4	30.64	1	29.65	1	28.54	1
PBW 644 (c)	28.52	2	23.85	6	27.81	3	26.73	4
HI 1628	23.92	6	28.10	3	27.12	5	26.38	5
NIAW 3170	22.78	7	25.41	5	20.90	9	23.03	8
MEAN	24.82		25.69		26.75		25.75	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.68		2.66		13.65	
Genotype (B)	**		0.97		2.76		11.31	
B within A	NS		1.68		4.78			
A within B			1.72		5.17			
			1000 Grains Weight, g					
BRW 3806	44.68	1	44.14	2	45.59	3	44.80	2
WH 1080 (c)	39.10	7	39.87	7	40.07	6	39.68	7
HD 3043 (c)	35.53	8	36.83	8	38.07	8	36.81	8
HI 1620 (I)	43.90	2	44.97	1	47.70	1	45.53	1
HD 3237 (I)	40.48	5	41.11	5	40.78	5	40.79	5
WH 1142 (c)	32.50	9	32.67	9	33.66	9	32.95	9
PBW 644 (c)	39.60	6	40.46	6	39.59	7	39.88	6
HI 1628	42.29	4	43.42	4	43.90	4	43.21	4
NIAW 3170	43.13	3	43.52	3	46.48	2	44.38	3
MEAN	40.13		40.78		41.76		40.89	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.58		2.28		7.37	
Genotype (B)	**		0.75		2.13		5.49	
B within A	NS		1.30		3.69			
A within B			1.35		4.06			
Date of Sowing:								
Date of Harvesting:			16.04.2019		20.04.2019		24.04.2019	

Table 2.2.10. North Western Plains Zone **RIR-TS-TAS** **Sriganganagar 2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield,q/ha					
BRW 3806	34.40	4	57.38	2	69.76	1	53.85	2
WH 1080 (c)	32.97	8	47.14	8	56.42	8	45.51	8
HD 3043 (c)	25.12	9	46.66	9	56.31	9	42.70	9
HI 1620 (I)	36.90	1	57.85	1	69.16	2	54.64	1
HD 3237 (I)	33.17	6	52.38	4	65.32	3	50.29	3
WH 1142 (c)	34.23	5	48.57	7	59.28	7	47.36	7
PBW 644 (c)	34.64	3	50.16	6	60.23	6	48.34	6
HI 1628	32.98	7	54.04	3	62.54	4	49.85	4
NIAW 3170	35.95	2	51.07	5	62.02	5	49.68	5
MEAN	33.37		51.70		62.34		49.14	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.36		1.42		3.82	
Genotype (B)	**		1.37		3.90		8.37	
B within A	NS		2.37		6.75			
A within B			2.27		6.80			
			Earhead/sqm					
BRW 3806	392	4	454	1	477	3	441	3
WH 1080 (c)	326	9	419	8	467	6	404	9
HD 3043 (c)	399	3	447	3	492	1	446	2
HI 1620 (I)	412	1	453	2	480	2	448	1
HD 3237 (I)	412	2	405	9	447	9	421	7
WH 1142 (c)	361	8	437	5	463	7	421	8
PBW 644 (c)	389	5	432	6	458	8	427	6
HI 1628	386	6	427	7	470	5	428	5
NIAW 3170	378	7	443	4	472	4	431	4
MEAN	384		435		470		430	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		5.86		23.01		7.09	
Genotype (B)	**		5.95		16.92		4.16	
B within A	**		10.31		29.31			
A within B			11.35		34.02			
			Grains/Earhead					
BRW 3806	20.42	5	30.32	2	36.83	2	29.19	4
WH 1080 (c)	23.78	1	29.47	4	33.38	6	28.88	5
HD 3043 (c)	16.11	9	27.55	8	30.47	9	24.71	9
HI 1620 (I)	18.85	7	28.04	7	36.14	3	27.68	6
HD 3237 (I)	19.75	6	32.53	1	41.85	1	31.37	1
WH 1142 (c)	23.60	2	29.31	5	35.86	5	29.59	2
PBW 644 (c)	21.39	3	30.17	3	36.12	4	29.23	3
HI 1628	18.45	8	29.23	6	33.09	7	26.92	7
NIAW 3170	20.82	4	27.48	9	31.37	8	26.56	8
MEAN	20.35		29.35		35.01		28.24	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.70		2.73		12.81	
Genotype (B)	*		1.21		3.44		12.85	
B within A	NS		2.09		5.96			
A within B			2.09		6.28			
			1000 Grains Weight, g					
BRW 3806	42.98	4	41.73	4	39.74	4	41.48	4
WH 1080 (c)	42.76	5	38.29	8	36.28	7	39.11	6
HD 3043 (c)	40.76	8	37.82	9	37.49	5	38.69	8
HI 1620 (I)	47.58	1	45.61	1	40.09	3	44.43	1
HD 3237 (I)	41.44	7	39.87	5	35.06	9	38.79	7
WH 1142 (c)	40.29	9	38.36	7	36.28	7	38.31	9
PBW 644 (c)	42.06	6	38.97	6	36.70	6	39.24	5
HI 1628	46.42	2	43.26	2	40.27	2	43.32	2
NIAW 3170	45.72	3	42.01	3	41.95	1	43.23	3
MEAN	43.33		40.66		38.21		40.73	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		0.67		2.64		8.58	
Genotype (B)	**		0.75		2.15		5.56	
B within A	NS		1.31		3.72			
A within B			1.40		4.21			
Date of Sowing:			14.11.2018					
Date of Harvesting:			10.04.2019		15.04.2019		25.04.2019	

Table 2.3.1. North Western Plains Zone IR-ES-HYT Gurdaspur 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
			Yield,q/ha					
HD 3317	81.28	10	88.35	5	90.33	11	86.65	9
WH 1254	84.57	4	86.05	8	90.46	10	87.03	8
DBW 301	72.21	14	73.74	14	75.88	15	73.94	14
WH 1270	90.77	1	91.15	2	93.47	7	91.80	3
HD 2967 (C)	83.08	7	88.01	6	93.71	6	88.27	5
PBW 824	83.04	8	84.44	9	96.68	3	88.06	6
UP 3043	89.17	2	91.08	3	98.42	2	92.89	1
DBW 187	83.92	6	93.16	1	100.50	1	92.53	2
HD 3086 (C)	84.15	5	87.47	7	92.12	8	87.92	7
DBW 303	82.98	9	90.64	4	95.01	4	89.54	4
DBW 304	65.26	15	67.34	15	76.58	14	69.73	15
UP 3042	77.79	13	79.25	11	91.83	9	82.96	12
DBW 302	79.96	12	74.50	13	85.24	13	79.90	13
PBW 825	80.78	11	82.73	10	94.81	5	86.11	10
HD 3347	86.18	3	77.96	12	86.12	12	83.42	11
MEAN	81.68		83.73		90.74		85.38	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		1.33		5.21		10.43	
Genotype (B)	**		1.88		5.28		6.59	
B within A	NS		3.25		9.15			
A within B			3.41		9.87			
			Earhead/sqm					
HD 3317	416	5	455	3	478	6	450	4
WH 1254	412	6	438	5	462	10	437	7
DBW 301	438	3	462	2	482	5	460	2
WH 1270	454	2	440	4	464	9	452	3
HD 2967 (C)	464	1	471	1	476	7	470	1
PBW 824	423	4	435	7	445	14	434	8
UP 3043	384	13	394	14	437	15	405	14
DBW 187	389	11	400	13	489	2	426	10
HD 3086 (C)	401	8	427	8	485	4	438	6
DBW 303	411	7	425	9	492	1	443	5
DBW 304	390	10	413	11	488	3	430	9
UP 3042	387	12	436	6	452	12	425	11
DBW 302	373	14	418	10	451	13	414	13
PBW 825	343	15	394	15	455	11	397	15
HD 3347	397	9	411	12	465	8	424	12
MEAN	405		428		468		434	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		2.45		9.62		3.79	
Genotype (B)	**		4.27		12.03		2.95	
B within A	**		7.40		20.84			
A within B			7.55		21.88			
			Grains/Earhead					
HD 3317	39.58	13	39.44	13	40.04	14	39.69	14
WH 1254	51.09	3	50.71	1	55.18	1	52.33	1
DBW 301	46.10	7	45.39	6	46.20	6	45.90	7
WH 1270	42.79	11	44.44	8	45.81	8	44.35	9
HD 2967 (C)	37.67	14	40.53	12	46.04	7	41.41	12
PBW 824	42.91	10	43.89	10	51.94	3	46.25	6
UP 3043	46.85	5	47.17	5	47.35	5	47.12	4
DBW 187	44.02	9	47.97	3	44.97	10	45.65	8
HD 3086 (C)	45.36	8	44.43	9	43.18	12	44.32	10
DBW 303	46.47	6	49.13	2	45.39	9	47.00	5
DBW 304	35.86	15	35.11	15	34.67	15	35.21	15
UP 3042	40.66	12	37.22	14	43.93	11	40.60	13
DBW 302	52.51	2	44.66	7	55.06	2	50.74	2
PBW 825	53.06	1	47.18	4	50.28	4	50.17	3
HD 3347	46.96	4	41.41	11	41.23	13	43.20	11
MEAN	44.79		43.91		46.08		44.93	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		0.83		3.25		12.35	
Genotype (B)	**		1.36		3.83		9.08	
B within A	NS		2.36		6.64			
A within B			2.42		7.01			

Table 2.3.1a. North Western Plains Zone IR-ES-HYT Gurdaspur 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	49.48	2	49.28	1	47.26	2	48.67	2
WH 1254	40.33	14	38.84	14	35.50	13	38.22	14
DBW 301	35.75	15	35.21	15	34.08	15	35.01	15
WH 1270	46.71	7	46.64	5	43.99	8	45.78	6
HD 2967 (C)	47.45	5	46.17	8	42.85	9	45.49	9
PBW 824	45.79	10	44.64	10	42.19	11	44.21	10
UP 3043	49.51	1	48.94	2	47.82	1	48.76	1
DBW 187	49.06	4	48.57	4	46.04	4	47.89	4
HD 3086 (C)	46.39	8	46.20	7	44.14	7	45.58	8
DBW 303	43.90	12	43.38	12	42.60	10	43.29	12
DBW 304	46.74	6	46.40	6	45.20	5	46.11	5
UP 3042	49.44	3	48.92	3	46.33	3	48.23	3
DBW 302	40.89	13	39.97	13	34.56	14	38.47	13
PBW 825	44.67	11	44.61	11	41.45	12	43.58	11
HD 3347	46.31	9	45.90	9	45.05	6	45.75	7
MEAN	45.50		44.91		42.60		44.34	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.35		1.38		5.31	
Genotype (B)	**		0.55		1.54		3.69	
B within A	NS		0.95		2.66			
A within B			0.98		2.83			
Biomass, q/ha								
HD 3317	228.87	7	246.48	4	237.68	7	237.68	4
WH 1254	220.07	11	234.74	9	233.27	10	229.36	12
DBW 301	184.86	15	205.40	15	202.46	15	197.57	15
WH 1270	225.94	8	243.54	6	234.74	8	234.74	8
HD 2967 (C)	231.81	6	237.68	7	243.54	4	237.68	4
PBW 824	218.60	13	245.01	5	240.61	6	234.74	8
UP 3043	231.81	5	237.68	8	264.08	1	244.52	3
DBW 187	239.14	4	249.41	2	247.95	3	245.50	2
HD 3086 (C)	211.27	14	223.00	13	230.34	12	221.54	13
DBW 303	219.48	12	249.41	2	243.54	4	237.48	6
DBW 304	250.88	1	252.35	1	255.28	2	252.84	1
UP 3042	223.00	9	234.74	9	234.74	8	230.83	11
DBW 302	240.61	2	234.74	9	233.27	10	236.21	7
PBW 825	221.54	10	211.27	14	228.87	13	220.56	14
HD 3347	240.61	2	230.34	12	223.00	14	231.32	10
MEAN	225.90		235.72		236.89		232.84	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		5.34		20.97		15.39	
Genotype (B)	**		3.83		10.80		4.94	
B within A	NS		6.64		18.71			
A within B			8.35		24.18			
Plant Height, cm								
HD 3317	98.33	1	100.67	1	93.47	1	97.49	1
WH 1254	91.60	11	95.80	8	83.67	10	90.36	11
DBW 301	87.33	15	86.53	15	80.93	12	84.93	15
WH 1270	91.40	12	94.67	13	80.20	13	88.76	12
HD 2967 (C)	93.07	8	95.67	9	83.93	9	90.89	9
PBW 824	93.07	8	98.27	2	87.53	5	92.96	4
UP 3043	95.87	2	97.33	3	89.47	3	94.22	2
DBW 187	92.93	10	96.47	5	85.87	8	91.76	8
HD 3086 (C)	87.67	14	94.93	12	77.40	14	86.67	14
DBW 303	94.07	5	97.33	3	86.87	6	92.76	6
DBW 304	93.87	7	96.07	7	81.27	11	90.40	10
UP 3042	95.53	3	96.07	6	86.67	7	92.76	5
DBW 302	94.60	4	95.20	11	87.93	4	92.58	7
PBW 825	93.93	6	95.47	10	91.27	2	93.56	3
HD 3347	91.27	13	92.80	14	77.07	15	87.04	13
MEAN	92.97		95.55		84.90		91.14	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.41		1.61		3.01	
Genotype (B)	**		1.03		2.91		3.40	
B within A	NS		1.79		5.04			
A within B			1.78		5.14			
Date of Sowing:		30.10.2018			Date of Harvesting:		24.04.2019	

Table 2.3.2. North Western Plains Zone IR-ES-HYT Hisar 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
			Yield,q/ha					
HD 3317	57.38	15	62.50	15	65.44	15	61.77	15
WH 1254	70.63	2	72.78	2	75.87	1	73.10	2
DBW 301	65.67	10	68.02	10	71.27	9	68.32	10
WH 1270	69.52	3	70.87	5	72.18	7	70.86	4
HD 2967 (C)	65.44	11	69.44	8	71.47	8	68.78	8
PBW 824	68.37	6	70.60	6	72.38	5	70.45	6
UP 3043	71.63	1	73.65	1	75.08	2	73.45	1
DBW 187	68.65	4	72.18	3	73.85	3	71.56	3
HD 3086 (C)	68.41	5	70.91	4	72.86	4	70.73	5
DBW 303	66.19	7	69.76	7	72.38	5	69.44	7
DBW 304	65.75	9	67.42	11	68.89	11	67.35	11
UP 3042	65.95	8	68.97	9	70.36	10	68.43	9
DBW 302	61.59	14	65.91	13	68.69	13	65.40	13
PBW 825	65.08	12	66.03	12	68.89	11	66.67	12
HD 3347	62.42	13	63.33	14	67.70	14	64.48	14
MEAN	66.18		68.83		71.15		68.72	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.93		3.66		9.11	
Genotype (B)	**		0.95		2.68		4.15	
B within A	NS		1.65		4.64			
A within B			1.84		5.34			
			Earhead/sqm					
HD 3317	357	15	372	15	375	15	368	15
WH 1254	452	1	443	1	433	1	443	1
DBW 301	390	11	400	10	407	9	399	10
WH 1270	405	5	405	7	407	9	406	6
HD 2967 (C)	393	10	403	9	412	5	403	9
PBW 824	402	6	407	5	412	5	407	5
UP 3043	410	3	418	4	427	3	418	4
DBW 187	407	4	435	2	432	2	424	2
HD 3086 (C)	418	2	420	3	418	4	419	3
DBW 303	397	7	405	7	408	8	403	8
DBW 304	388	12	397	11	405	11	397	11
UP 3042	397	7	407	5	412	5	405	7
DBW 302	383	13	397	11	395	12	392	12
PBW 825	395	9	382	13	378	14	385	13
HD 3347	372	14	375	14	383	13	377	14
MEAN	398		404		407		403	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		3.74		14.67		6.22	
Genotype (B)	**		7.25		20.43		5.40	
B within A	NS		12.56		35.39			
A within B			12.70		36.78			
			Grains/Earhead					
HD 3317	30.46	15	32.00	14	32.97	15	31.81	15
WH 1254	38.18	2	39.62	2	43.98	1	40.59	2
DBW 301	42.60	1	42.20	1	42.79	2	42.53	1
WH 1270	33.75	11	33.82	12	36.94	9	34.84	9
HD 2967 (C)	37.40	3	36.34	7	37.33	7	37.02	7
PBW 824	36.67	6	36.62	6	38.88	6	37.39	6
UP 3043	34.86	9	34.37	9	34.99	12	34.74	10
DBW 187	33.44	12	31.82	15	34.01	13	33.09	13
HD 3086 (C)	32.58	13	34.17	10	37.23	8	34.66	11
DBW 303	37.26	4	39.10	3	40.11	5	38.82	3
DBW 304	34.23	10	33.99	11	35.50	11	34.57	12
UP 3042	31.51	14	32.79	13	33.74	14	32.68	14
DBW 302	37.25	5	37.99	4	40.40	4	38.55	4
PBW 825	35.91	7	37.10	5	40.93	3	37.98	5
HD 3347	35.64	8	34.54	8	36.85	10	35.68	8
MEAN	35.45		35.76		37.78		36.33	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.44		1.72		8.07	
Genotype (B)	**		0.81		2.28		6.69	
B within A	NS		1.40		3.95			
A within B			1.42		4.12			

Table 2.3.2a. North Western Plains Zone IR-ES-HYT Hisar 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	53.08	1	52.67	1	52.94	1	52.90	1
WH 1254	41.07	14	41.55	14	39.83	15	40.82	14
DBW 301	39.61	15	40.34	15	41.00	14	40.32	15
WH 1270	51.02	3	51.87	3	48.12	5	50.34	5
HD 2967 (C)	44.67	12	47.45	9	46.62	9	46.25	10
PBW 824	46.47	9	47.41	10	45.26	10	46.38	9
UP 3043	50.25	5	51.29	5	50.55	3	50.70	4
DBW 187	50.62	4	52.24	2	50.33	4	51.06	3
HD 3086 (C)	50.24	6	49.55	7	46.86	8	48.88	7
DBW 303	44.85	11	44.15	12	44.21	12	44.40	12
DBW 304	49.68	7	50.06	6	47.99	7	49.24	6
UP 3042	52.92	2	51.78	4	50.77	2	51.82	2
DBW 302	43.24	13	43.79	13	43.08	13	43.37	13
PBW 825	45.85	10	46.66	11	44.75	11	45.75	11
HD 3347	47.39	8	49.03	8	48.05	6	48.16	8
MEAN	47.40		47.99		46.69		47.36	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.12		0.48		1.73	
Genotype (B)	**		0.41		1.15		2.59	
B within A	NS		0.71		1.99			
A within B			0.69		2.01			
Biomass, q/ha								
HD 3317	166.27	15	178.57	12	176.59	13	173.81	13
WH 1254	186.11	3	191.27	2	197.22	1	191.53	1
DBW 301	172.62	13	168.65	15	176.98	12	172.75	14
WH 1270	183.33	5	184.52	8	179.76	10	182.54	9
HD 2967 (C)	182.94	6	191.27	3	186.90	6	187.04	5
PBW 824	182.94	6	182.94	10	180.95	9	182.28	10
UP 3043	187.30	1	194.44	1	191.27	3	191.01	2
DBW 187	186.51	2	190.48	4	191.67	2	189.55	3
HD 3086 (C)	180.16	9	183.73	9	185.71	7	183.20	7
DBW 303	173.41	12	179.76	11	181.75	8	178.31	11
DBW 304	181.75	8	189.68	6	177.78	11	183.07	8
UP 3042	183.73	4	190.08	5	188.49	4	187.43	4
DBW 302	177.78	10	186.90	7	188.49	5	184.39	6
PBW 825	172.62	13	173.81	14	171.03	15	172.49	15
HD 3347	176.98	11	178.57	12	175.79	14	177.12	12
MEAN	179.63		184.31		183.36		182.43	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		1.95		7.67		7.19	
Genotype (B)	**		2.42		6.81		3.98	
B within A	NS		4.19		11.80			
A within B			4.49		13.02			
Plant Height, cm								
HD 3317	129.00	1	131.00	1	111.33	1	123.78	1
WH 1254	112.67	12	115.67	13	106.33	7	111.56	10
DBW 301	103.33	15	105.00	15	100.33	11	102.89	15
WH 1270	110.67	14	112.67	14	97.33	13	106.89	14
HD 2967 (C)	123.00	5	123.67	3	105.00	8	117.22	3
PBW 824	123.67	3	126.33	2	108.67	2	119.56	2
UP 3043	122.00	6	118.67	8	108.33	3	116.33	5
DBW 187	125.00	2	122.33	5	101.33	9	116.22	6
HD 3086 (C)	114.00	10	116.33	11	93.00	15	107.78	13
DBW 303	123.33	4	123.67	3	101.33	9	116.11	7
DBW 304	112.33	13	116.00	12	98.67	12	109.00	12
UP 3042	119.33	8	120.00	7	108.00	4	115.78	8
DBW 302	121.67	7	120.33	6	107.67	5	116.56	4
PBW 825	115.00	9	118.00	9	106.67	6	113.22	9
HD 3347	113.33	11	117.67	10	97.33	13	109.44	11
MEAN	117.89		119.16		103.42		113.49	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.77		3.03		4.57	
Genotype (B)	**		0.92		2.59		2.43	
B within A	**		1.59		4.49			
A within B			1.72		4.99			
Date of Sowing:		25.10.2018			Date of Harvesting:		10.04.2019	

Table 2.3.3. North Western Plains Zone IR-ES-HYT Karnal 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
			Yield,q/ha					
HD 3317	64.98	6	66.39	10	69.27	11	66.88	9
WH 1254	69.16	3	70.11	4	70.32	9	69.86	5
DBW 301	64.94	7	66.83	9	67.61	14	66.46	10
WH 1270	69.80	2	71.30	3	73.82	4	71.64	3
HD 2967 (C)	64.68	9	68.45	6	72.82	5	68.65	6
PBW 824	64.36	10	67.84	7	72.43	6	68.21	7
UP 3043	64.69	8	67.83	8	71.53	7	68.01	8
DBW 187	68.22	4	73.27	1	78.76	1	73.42	2
HD 3086 (C)	65.86	5	69.45	5	74.65	3	69.99	4
DBW 303	70.37	1	72.82	2	78.16	2	73.78	1
DBW 304	58.59	15	62.42	15	66.06	15	62.36	15
UP 3042	62.98	12	65.63	11	70.52	8	66.37	11
DBW 302	61.74	13	63.24	13	68.63	12	64.53	13
PBW 825	60.68	14	63.16	14	69.64	10	64.49	14
HD 3347	63.88	11	65.32	12	68.06	13	65.75	12
MEAN	64.99		67.60		71.49		68.03	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.81		3.17		7.96	
Genotype (B)	**		0.64		1.81		2.84	
B within A	NS		1.11		3.14			
A within B			1.34		3.90			
			Earhead/sqm					
HD 3317	424	7	431	7	423	10	426	10
WH 1254	474	1	491	1	496	1	487	1
DBW 301	473	2	441	5	494	2	469	3
WH 1270	470	3	404	8	409	12	428	9
HD 2967 (C)	407	9	445	4	484	6	445	5
PBW 824	358	12	389	10	444	9	397	11
UP 3043	327	15	336	14	378	14	347	14
DBW 187	404	10	403	9	490	5	433	7
HD 3086 (C)	444	5	459	3	460	7	454	4
DBW 303	343	13	383	12	385	13	370	13
DBW 304	438	6	358	13	493	3	430	8
UP 3042	363	11	387	11	410	11	387	12
DBW 302	459	4	477	2	493	3	476	2
PBW 825	333	14	334	15	365	15	344	15
HD 3347	422	8	432	6	449	8	434	6
MEAN	409		411		445		422	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		4.06		15.92		6.45	
Genotype (B)	**		16.72		47.09		11.89	
B within A	NS		28.95		81.56			
A within B			28.26		81.86			
			Grains/Earhead					
HD 3317	29.94	13	29.82	15	34.09	11	31.28	14
WH 1254	39.68	2	36.21	8	39.07	4	38.32	5
DBW 301	37.10	6	40.79	2	39.17	3	39.02	3
WH 1270	29.91	14	35.62	9	36.84	6	34.12	8
HD 2967 (C)	34.67	7	33.19	10	33.26	14	33.71	10
PBW 824	38.41	5	36.79	5	36.34	7	37.18	6
UP 3043	38.58	4	39.13	3	37.91	5	38.54	4
DBW 187	33.40	10	36.23	7	34.39	10	34.67	7
HD 3086 (C)	32.19	12	32.59	13	35.90	8	33.56	12
DBW 303	47.18	1	43.59	1	47.42	1	46.06	1
DBW 304	27.78	15	36.32	6	28.46	15	30.85	15
UP 3042	33.99	8	33.07	11	33.70	13	33.59	11
DBW 302	33.57	9	32.02	14	35.68	9	33.76	9
PBW 825	38.58	3	38.73	4	44.49	2	40.60	2
HD 3347	33.29	11	32.80	12	33.72	12	33.27	13
MEAN	35.22		35.79		36.70		35.90	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.39		1.55		7.36	
Genotype (B)	**		1.34		3.78		11.22	
B within A	NS		2.33		6.55			
A within B			2.28		6.61			

Table 2.3.3a. North Western Plains Zone IR-ES-HYT Karnal 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	51.65	2	51.79	2	48.31	4	50.58	3
WH 1254	37.31	14	39.46	14	36.77	14	37.84	14
DBW 301	37.21	15	37.44	15	36.34	15	37.00	15
WH 1270	49.97	5	50.20	5	49.49	3	49.89	5
HD 2967 (C)	46.43	9	47.20	9	45.24	9	46.29	9
PBW 824	47.13	8	47.41	8	45.60	7	46.72	7
UP 3043	51.33	4	51.64	4	50.06	2	51.01	2
DBW 187	51.41	3	51.69	3	47.33	5	50.15	4
HD 3086 (C)	46.13	10	46.47	10	45.24	8	45.95	10
DBW 303	43.73	12	43.86	12	42.89	12	43.49	12
DBW 304	48.42	6	48.85	6	47.33	6	48.20	6
UP 3042	53.16	1	53.34	1	51.05	1	52.52	1
DBW 302	41.43	13	41.44	13	39.11	13	40.66	13
PBW 825	47.35	7	48.81	7	43.30	11	46.49	8
HD 3347	45.60	11	46.20	11	44.97	10	45.59	11
MEAN	46.55		47.05		44.87		46.16	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.18		0.72		2.67	
Genotype (B)	**		0.24		0.68		1.56	
B within A	**		0.42		1.17			
A within B			0.44		1.28			
Biomass, q/ha								
HD 3317	180.56	9	199.54	1	184.72	12	188.27	6
WH 1254	193.98	3	189.35	4	196.76	3	193.36	2
DBW 301	183.33	7	188.43	6	187.50	10	186.42	10
WH 1270	197.69	1	187.50	8	189.81	8	191.67	4
HD 2967 (C)	178.70	10	188.89	5	197.22	2	188.27	6
PBW 824	168.98	14	176.85	14	193.52	5	179.78	12
UP 3043	171.30	13	179.17	12	182.87	14	177.78	14
DBW 187	195.37	2	186.57	10	196.30	4	192.75	3
HD 3086 (C)	173.61	12	182.87	11	188.89	9	181.79	11
DBW 303	186.57	5	187.50	8	191.67	6	188.58	5
DBW 304	186.11	6	192.13	3	185.19	11	187.81	8
UP 3042	181.94	8	187.96	7	190.74	7	186.88	9
DBW 302	192.13	4	196.30	2	224.54	1	204.32	1
PBW 825	160.65	15	172.22	15	175.93	15	169.60	15
HD 3347	174.07	11	178.24	13	183.33	13	178.55	13
MEAN	181.67		186.23		191.27		186.39	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		2.29		9.01		8.26	
Genotype (B)	**		2.67		7.51		4.29	
B within A	**		4.62		13.01			
A within B			5.02		14.53			
Plant Height, cm								
HD 3317	119.46	1	120.05	1	104.24	3	114.58	1
WH 1254	111.03	8	111.35	11	98.94	8	107.11	10
DBW 301	99.86	15	100.80	15	94.02	13	98.23	15
WH 1270	102.84	14	102.79	14	98.89	9	101.51	13
HD 2967 (C)	112.45	4	114.09	4	103.37	5	109.97	3
PBW 824	110.62	9	114.99	3	103.81	4	109.81	4
UP 3043	111.72	6	113.30	6	103.13	6	109.38	6
DBW 187	115.95	2	115.65	2	97.36	10	109.65	5
HD 3086 (C)	108.00	12	109.53	12	90.37	15	102.63	12
DBW 303	115.33	3	112.97	7	96.92	11	108.41	8
DBW 304	106.18	13	106.29	13	91.54	14	101.34	14
UP 3042	109.12	11	112.39	9	102.65	7	108.05	9
DBW 302	112.02	5	113.81	5	107.95	1	111.26	2
PBW 825	110.59	10	111.67	10	104.29	2	108.85	7
HD 3347	111.10	7	112.91	8	95.39	12	106.46	11
MEAN	110.42		111.50		99.52		107.15	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.91		3.58		5.72	
Genotype (B)	**		1.10		3.10		3.08	
B within A	**		1.91		5.38			
A within B			2.06		5.96			
Date of Sowing:		25.10.2018			Date of Harvesting:		15.04.2019	

Table 2.3.4. North Western Plains Zone IR-ES-HYT Ludhiana 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
			Yield,q/ha					
HD 3317	69.01	12	69.53	11	70.24	13	69.59	11
WH 1254	71.31	10	70.52	10	73.57	11	71.80	10
DBW 301	55.67	14	56.08	15	72.46	12	61.40	15
WH 1270	71.98	8	74.17	4	80.36	4	75.50	3
HD 2967 (C)	51.98	15	61.03	14	80.87	2	64.63	13
PBW 824	72.98	3	74.76	3	80.52	3	76.08	2
UP 3043	70.83	11	72.06	8	78.93	5	73.94	6
DBW 187	81.90	1	82.05	1	86.03	1	83.33	1
HD 3086 (C)	72.89	4	71.47	9	75.20	8	73.19	8
DBW 303	72.70	6	72.34	7	73.87	10	72.97	9
DBW 304	72.34	7	73.97	5	77.86	6	74.72	5
UP 3042	72.86	5	76.98	2	76.31	7	75.38	4
DBW 302	75.60	2	63.85	12	66.75	15	68.73	12
PBW 825	60.20	13	62.42	13	67.30	14	63.31	14
HD 3347	71.59	9	73.69	6	74.33	9	73.20	7
MEAN	69.59		70.33		75.64		71.85	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		1.48		5.81		13.81	
Genotype (B)	**		2.00		5.63		8.35	
B within A	*		3.46		9.76			
A within B			3.66		10.60			
			Earhead/sqm					
HD 3317	318	13	323	14	336	14	326	14
WH 1254	342	5	346	7	368	5	352	6
DBW 301	380	1	389	1	378	3	382	1
WH 1270	338	7	351	5	383	1	357	4
HD 2967 (C)	327	11	330	12	365	7	340	11
PBW 824	333	8	325	13	351	13	336	12
UP 3043	301	14	307	15	325	15	311	15
DBW 187	346	4	344	8	354	11	348	7
HD 3086 (C)	354	2	348	6	355	10	352	5
DBW 303	321	12	354	4	353	12	343	10
DBW 304	340	6	360	2	374	4	358	3
UP 3042	331	9	343	10	363	8	345	8
DBW 302	353	3	360	3	380	2	364	2
PBW 825	295	15	344	9	367	6	335	13
HD 3347	327	10	343	10	361	9	343	9
MEAN	334		344		361		346	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		5.00		19.61		9.68	
Genotype (B)	**		7.27		20.48		6.30	
B within A	NS		12.59		35.47			
A within B			13.15		38.08			
			Grains/Earhead					
HD 3317	39.05	15	42.17	10	41.54	11	40.92	12
WH 1254	42.16	10	44.00	6	46.19	7	44.12	5
DBW 301	39.81	13	36.86	14	51.15	1	42.61	9
WH 1270	41.97	11	42.66	8	38.03	13	40.89	13
HD 2967 (C)	41.58	12	42.52	9	47.96	4	44.02	6
PBW 824	42.53	8	44.74	3	47.93	5	45.07	4
UP 3043	45.99	4	44.41	4	47.98	3	46.13	3
DBW 187	50.72	2	47.50	1	46.42	6	48.21	2
HD 3086 (C)	42.35	9	37.35	13	41.95	10	40.55	14
DBW 303	50.79	1	45.22	2	48.66	2	48.22	1
DBW 304	45.50	5	39.06	12	42.31	9	42.29	11
UP 3042	44.24	7	43.17	7	40.58	12	42.67	8
DBW 302	45.22	6	39.41	11	42.38	8	42.34	10
PBW 825	39.32	14	34.74	15	37.18	15	37.08	15
HD 3347	47.09	3	44.00	5	37.19	14	42.76	7
MEAN	43.89		41.85		43.83		43.19	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		1.28		5.04		19.94	
Genotype (B)	**		1.62		4.55		11.22	
B within A	NS		2.80		7.88			
A within B			2.99		8.67			

Table 2.3.4a. North Western Plains Zone IR-ES-HYT Ludhiana 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	55.78	1	51.39	7	50.90	5	52.69	1
WH 1254	49.67	7	46.41	11	43.42	12	46.50	11
DBW 301	37.02	15	39.13	15	38.22	15	38.12	15
WH 1270	51.30	4	49.64	10	55.77	1	52.24	2
HD 2967 (C)	38.33	14	43.68	14	46.39	11	42.80	14
PBW 824	51.91	2	52.07	6	47.84	10	50.61	8
UP 3043	51.29	5	53.11	2	50.85	6	51.75	3
DBW 187	46.75	11	50.28	8	52.59	3	49.87	9
HD 3086 (C)	48.62	8	55.11	1	50.82	7	51.51	4
DBW 303	44.88	13	44.83	13	43.16	13	44.29	13
DBW 304	47.05	10	52.79	3	49.43	9	49.76	10
UP 3042	49.69	6	52.28	5	52.42	4	51.46	5
DBW 302	47.59	9	44.98	12	41.79	14	44.79	12
PBW 825	51.87	3	52.74	4	49.46	8	51.36	6
HD 3347	46.67	12	49.78	9	55.62	2	50.69	7
MEAN	47.89		49.21		48.58		48.56	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		0.83		3.27		11.49	
Genotype (B)	**		0.82		2.31		5.07	
B within A	**		1.42		4.01			
A within B			1.61		4.65			
Biomass, q/ha								
HD 3317	170.71	10	172.90	11	158.73	15	167.45	13
WH 1254	174.01	9	180.28	4	171.03	13	175.11	11
DBW 301	147.22	15	147.22	15	162.06	14	152.17	15
WH 1270	183.53	3	184.65	2	189.21	7	185.80	2
HD 2967 (C)	160.71	13	165.48	13	197.58	2	174.59	12
PBW 824	179.76	5	175.97	8	193.25	3	182.99	4
UP 3043	165.63	12	176.90	7	184.80	9	175.78	10
DBW 187	206.43	1	187.22	1	215.16	1	202.94	1
HD 3086 (C)	175.56	8	180.95	3	184.33	10	180.28	6
DBW 303	176.23	7	177.18	6	182.74	12	178.72	9
DBW 304	185.71	2	175.71	9	191.83	4	184.42	3
UP 3042	170.48	11	180.24	5	189.92	5	180.21	7
DBW 302	177.03	6	171.94	12	187.83	8	178.93	8
PBW 825	157.34	14	160.32	14	183.21	11	166.96	14
HD 3347	181.87	4	174.17	10	189.44	6	181.83	5
MEAN	174.15		174.08		185.41		177.88	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	NS		4.44		17.42		16.73	
Genotype (B)	**		3.38		9.52		5.70	
B within A	*		5.85		16.49			
A within B			7.19		20.82			
Plant Height, cm								
HD 3317	95.20	5	100.13	2	90.87	5	95.40	3
WH 1254	93.00	9	95.13	8	88.33	10	92.16	10
DBW 301	85.20	15	88.47	15	84.33	15	86.00	15
WH 1270	88.00	14	89.40	14	86.33	13	87.91	14
HD 2967 (C)	94.43	6	95.47	7	88.67	9	92.86	7
PBW 824	90.73	10	92.47	11	87.67	12	90.29	11
UP 3043	96.93	2	97.40	5	93.40	2	95.91	2
DBW 187	93.47	8	94.73	9	90.27	6	92.82	8
HD 3086 (C)	90.07	12	91.47	12	86.07	14	89.20	13
DBW 303	94.07	7	93.27	10	91.07	4	92.80	9
DBW 304	89.67	13	90.60	13	88.00	11	89.42	12
UP 3042	95.40	4	97.73	4	91.20	3	94.78	4
DBW 302	99.33	1	101.93	1	96.80	1	99.36	1
PBW 825	95.93	3	96.33	6	89.87	8	94.04	5
HD 3347	90.67	11	98.40	3	90.13	7	93.07	6
MEAN	92.81		94.86		89.53		92.40	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.42		1.66		3.08	
Genotype (B)	**		1.03		2.89		3.33	
B within A	NS		1.78		5.01			
A within B			1.77		5.13			
Date of Sowing:		27.10.2018			Date of Harvesting:		03.05.2019	

Table 2.3.5. North Western Plains Zone IR-ES-HYT Pantnagar 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
			Yield,q/ha					
HD 3317	57.19	11	57.11	13	59.01	14	57.77	12
WH 1254	65.32	2	67.60	2	71.74	3	68.22	2
DBW 301	53.16	15	55.68	15	58.59	15	55.81	15
WH 1270	55.04	12	57.18	12	59.05	13	57.09	13
HD 2967 (C)	58.43	10	58.88	11	67.81	7	61.71	9
PBW 824	59.77	8	62.41	8	66.04	9	62.74	8
UP 3043	60.34	7	63.50	6	73.16	1	65.67	5
DBW 187	62.49	4	65.77	4	72.02	2	66.76	4
HD 3086 (C)	61.25	6	64.62	5	67.68	8	64.51	6
DBW 303	64.23	3	67.59	3	70.82	4	67.55	3
DBW 304	59.30	9	60.56	9	62.61	10	60.82	10
UP 3042	65.92	1	68.44	1	70.72	5	68.36	1
DBW 302	54.41	13	59.99	10	61.99	11	58.80	11
PBW 825	61.35	5	63.15	7	68.44	6	64.31	7
HD 3347	53.84	14	55.85	14	61.02	12	56.90	14
MEAN	59.47		61.89		66.05		62.47	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.50		1.95		5.33	
Genotype (B)	**		0.97		2.74		4.68	
B within A	NS		1.69		4.75			
A within B			1.70		4.93			
			Earhead/sqm					
HD 3317	330	14	350	14	451	9	377	13
WH 1254	441	5	490	2	577	1	503	1
DBW 301	448	3	486	3	513	5	483	4
WH 1270	461	2	480	4	542	2	494	2
HD 2967 (C)	386	12	397	11	413	12	398	11
PBW 824	388	11	390	12	398	14	392	12
UP 3043	313	15	323	15	333	15	323	15
DBW 187	424	8	465	5	487	6	459	7
HD 3086 (C)	462	1	495	1	523	4	493	3
DBW 303	429	7	449	8	524	3	467	5
DBW 304	435	6	451	7	482	8	456	8
UP 3042	394	10	403	10	449	10	415	10
DBW 302	448	3	454	6	483	7	462	6
PBW 825	348	13	364	13	413	12	375	14
HD 3347	408	9	429	9	445	11	427	9
MEAN	407		428		469		435	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		2.44		9.56		3.76	
Genotype (B)	**		13.17		37.09		9.08	
B within A	NS		22.80		64.24			
A within B			22.17		64.20			
			Grains/Earhead					
HD 3317	41.89	1	38.83	1	30.02	6	36.91	2
WH 1254	35.32	6	31.15	8	27.38	12	31.28	8
DBW 301	26.12	15	25.43	15	23.31	14	24.95	15
WH 1270	31.58	12	27.73	13	28.75	9	29.35	12
HD 2967 (C)	33.18	9	28.74	11	32.78	5	31.57	7
PBW 824	36.24	5	33.30	5	34.42	2	34.65	5
UP 3043	37.48	3	35.91	3	37.84	1	37.08	1
DBW 187	36.89	4	33.34	4	34.22	3	34.82	4
HD 3086 (C)	32.43	11	30.80	9	29.61	7	30.95	10
DBW 303	26.75	14	25.61	14	23.01	15	25.13	14
DBW 304	32.75	10	31.40	7	29.46	8	31.20	9
UP 3042	37.60	2	36.77	2	33.93	4	36.10	3
DBW 302	27.55	13	28.45	12	27.45	11	27.81	13
PBW 825	33.55	8	30.25	10	24.81	13	29.54	11
HD 3347	33.89	7	33.13	6	27.86	10	31.63	6
MEAN	33.55		31.39		29.66		31.53	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.47		1.85		10.03	
Genotype (B)	**		1.25		3.52		11.89	
B within A	NS		2.17		6.10			
A within B			2.14		6.21			

Table 2.3.5a. North Western Plains Zone IR-ES-HYT Pantnagar 2018-19

Genotype	Nutrient management: Rec.NPK	Rk	Rec. NPK + FYM	Rk	150% + FYM+GR	Rk	Mean	Rk
1000 Grains Weight, g								
HD 3317	42.03	10	42.33	14	43.77	14	42.71	12
WH 1254	42.23	9	44.43	9	45.67	10	44.11	9
DBW 301	45.97	4	46.10	8	49.06	6	47.04	6
WH 1270	38.33	15	43.03	10	38.06	15	39.81	15
HD 2967 (C)	45.73	5	52.00	4	51.43	4	49.72	4
PBW 824	44.13	8	49.10	5	48.50	7	47.24	5
UP 3043	51.50	3	55.22	3	58.67	3	55.13	3
DBW 187	40.13	13	42.57	13	44.43	11	42.38	14
HD 3086 (C)	41.10	12	42.83	12	44.07	13	42.67	13
DBW 303	56.00	1	58.83	1	59.17	2	58.00	2
DBW 304	42.00	11	43.00	11	44.33	12	43.11	10
UP 3042	44.77	7	46.50	6	46.63	9	45.97	8
DBW 302	45.13	6	46.50	6	47.13	8	46.26	7
PBW 825	52.90	2	57.50	2	67.07	1	59.16	1
HD 3347	39.10	14	39.91	15	49.34	5	42.78	11
MEAN	44.74		47.32		49.15		47.07	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	*		0.77		3.04		11.04	
Genotype (B)	**		1.01		2.83		6.41	
B within A	*		1.74		4.90			
A within B			1.85		5.36			
Biomass, q/ha								
HD 3317	163.25	1	169.66	2	191.00	2	174.64	1
WH 1254	146.47	10	158.12	8	191.29	1	165.29	5
DBW 301	140.79	15	146.73	15	166.49	11	151.34	13
WH 1270	144.76	14	148.33	13	154.62	15	149.24	15
HD 2967 (C)	152.14	5	161.42	6	170.72	7	161.43	7
PBW 824	146.15	12	157.26	9	166.67	10	156.69	10
UP 3043	151.28	6	150.55	12	174.36	6	158.73	8
DBW 187	161.72	3	171.79	1	181.66	4	171.72	2
HD 3086 (C)	148.72	9	165.79	4	170.38	8	161.63	6
DBW 303	146.29	11	151.90	11	156.24	14	151.48	12
DBW 304	145.20	13	147.86	14	158.97	13	150.68	14
UP 3042	163.25	1	167.44	3	176.07	5	168.92	4
DBW 302	161.54	4	164.03	5	182.12	3	169.23	3
PBW 825	149.66	8	156.19	10	163.84	12	156.56	11
HD 3347	150.43	7	158.33	7	167.01	9	158.59	9
MEAN	151.44		158.36		171.43		160.41	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		1.76		6.89		7.34	
Genotype (B)	**		3.25		9.16		6.08	
B within A	NS		5.63		15.87			
A within B			5.72		16.56			
Plant Height, cm								
HD 3317	104.53	1	105.50	1	96.00	2	102.01	1
WH 1254	94.13	13	95.87	13	85.70	13	91.90	14
DBW 301	88.13	15	88.50	15	85.60	14	87.41	15
WH 1270	93.80	14	97.20	12	89.63	12	93.54	13
HD 2967 (C)	99.53	5	103.97	3	94.57	5	99.36	4
PBW 824	100.10	3	101.50	6	98.77	1	100.12	2
UP 3043	99.73	4	104.10	2	94.63	4	99.49	3
DBW 187	99.47	6	101.77	5	85.20	15	95.48	10
HD 3086 (C)	94.30	12	100.00	11	89.67	11	94.66	12
DBW 303	98.93	7	100.03	10	92.80	9	97.26	9
DBW 304	95.00	11	95.77	14	94.77	3	95.18	11
UP 3042	97.40	10	101.83	4	94.57	5	97.93	5
DBW 302	98.23	9	100.17	9	94.00	7	97.47	8
PBW 825	98.50	8	100.87	8	93.23	8	97.53	7
HD 3347	101.00	2	101.33	7	91.47	10	97.93	6
MEAN	97.52		99.89		92.04		96.48	
	F Test		SEm		CD		CV (%)	
Nutrients (A)	**		0.77		3.04		5.38	
Genotype (B)	**		1.20		3.38		3.73	
B within A	NS		2.08		5.85			
A within B			2.15		6.23			
Date of Sowing:		27.10.2018			Date of Harvesting:		03.05.2019	

Table 3.1.1. North Eastern Plains Zone **IR-TAS-DOS** **Burdwan** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	44.24	4	35.00	9	27.76	5	35.67	7
PBW 757 (I)	28.80	9	38.18	7	29.61	3	32.20	9
DBW 71 (c)	35.65	8	43.52	2	29.56	4	36.24	5
HD 3249	43.62	5	42.60	4	25.44	7	37.22	4
DBW 39 (c)	45.18	2	38.64	6	30.75	1	38.19	2
DBW 187 (I)	44.82	3	42.81	3	30.52	2	39.38	1
HD 2967 (c)	43.07	6	35.81	8	22.08	9	33.65	8
HI 1621	47.11	1	39.69	5	25.31	8	37.37	3
HD 3271	37.16	7	44.32	1	25.65	6	35.71	6
MEAN	41.07		40.06		27.41		36.18	
	F Test		S.E.m		CD		CV (%)	
Date of sowing (A)	**		0.26		1.04		3.80	
Genotype (B)	**		0.76		2.15		6.27	
B within A	**		1.31		3.72			
A within B			1.26		3.79			
			Earheads/sqm					
HD 2733 (c)	307	1	322	2	272	4	300	1
PBW 757 (I)	253	7	263	9	275	1	264	8
DBW 71 (c)	272	6	327	1	273	3	291	4
HD 3249	240	9	282	8	243	9	255	9
DBW 39 (c)	253	7	320	3	260	8	278	6
DBW 187 (I)	273	5	297	7	262	7	277	7
HD 2967 (c)	298	3	303	6	268	6	290	5
HI 1621	300	2	313	5	270	5	294	2
HD 3271	285	4	315	4	275	1	292	3
MEAN	276		305		266		282	
	F Test		S.E.m		CD		CV (%)	
Sowing (A)	**		2.52		9.90		4.64	
Genotype (B)	**		5.56		15.82		5.91	
B within A	*		9.64		27.41			
A within B			9.43		28.27			
			Grains/Earhead					
HD 2733 (c)	30.07	7	24.12	9	26.41	9	26.87	9
PBW 757 (I)	25.18	9	36.91	1	30.50	5	30.86	8
DBW 71 (c)	30.39	6	35.49	3	33.12	2	33.00	4
HD 3249	39.78	1	36.52	2	30.13	6	35.48	1
DBW 39 (c)	39.62	2	31.04	8	34.97	1	35.21	2
DBW 187 (I)	34.35	4	34.58	4	31.12	3	33.35	3
HD 2967 (c)	34.87	3	31.81	7	27.62	8	31.43	5
HI 1621	31.72	5	33.15	5	27.85	7	30.91	7
HD 3271	29.54	8	32.97	6	31.03	4	31.18	6
MEAN	32.84		32.95		30.31		32.03	
	F Test		S.E.m		CD		CV (%)	
Sowing (A)	**		0.31		1.21		5.01	
Genotype (B)	**		0.64		1.83		6.04	
B within A	**		1.12		3.18			
A within B			1.10		3.29			
			1000 Grains Weight, g					
HD 2733 (c)	48.05	2	45.11	1	38.80	1	43.99	1
PBW 757 (I)	45.28	5	39.30	5	35.55	3	40.05	5
DBW 71 (c)	43.27	8	37.59	8	32.79	7	37.88	8
HD 3249	45.74	4	41.52	4	34.67	4	40.65	3
DBW 39 (c)	45.09	6	38.88	6	33.79	5	39.25	6
DBW 187 (I)	47.80	3	41.73	3	37.47	2	42.34	2
HD 2967 (c)	41.44	9	37.04	9	29.85	9	36.11	9
HI 1621	49.66	1	38.32	7	33.67	6	40.55	4
HD 3271	44.21	7	42.68	2	30.12	8	39.00	7
MEAN	45.62		40.24		34.08		39.98	
	F Test		S.E.m		CD		CV (%)	
Sowing (A)	**		0.29		1.15		3.80	
Genotype (B)	**		0.45		1.27		3.35	
B within A	**		0.77		2.20			
A within B			0.79		2.36			
Date of Sowing:			05.11.2018		14.12.2018		04.01.2019	
Date of Harvesting:			20.02.19-15.03.19		20.03.19-28.03.19		01.04.19-08.04.19	

Table 3.1.2. North Eastern Plains Zone **IR-TAS-DOS** **Coochbehar** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	51.20	2	35.30	3	16.43	3	34.31	2
PBW 757 (I)	44.77	7	29.03	8	16.23	4	30.01	6
DBW 71 (c)	48.10	4	34.23	4	16.67	2	33.00	4
HD 3249	47.57	5	34.10	5	14.70	6	32.12	5
DBW 39 (c)	48.70	3	36.37	1	14.50	7	33.19	3
DBW 187 (I)	41.80	8	30.43	7	15.80	5	29.34	8
HD 2967 (c)	56.20	1	36.33	2	19.13	1	37.22	1
HI 1621	44.93	6	30.63	6	14.13	8	29.90	7
HD 3271	33.77	9	24.93	9	12.07	9	23.59	9
MEAN	46.34		32.37		15.52		31.41	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.57		2.24		9.45	
Genotype (B)	**		0.82		2.33		7.84	
B within A	**		1.42		4.04			
A within B			1.46		4.37			
			Earheads/sqm					
HD 2733 (c)	290	2	232	3	155	3	226	3
PBW 757 (I)	217	8	169	9	136	8	174	8
DBW 71 (c)	284	3	235	2	159	1	226	2
HD 3249	271	4	223	6	137	7	210	6
DBW 39 (c)	271	4	227	4	138	6	212	4
DBW 187 (I)	267	6	225	5	140	5	211	5
HD 2967 (c)	309	1	237	1	159	2	235	1
HI 1621	264	7	210	7	145	4	206	7
HD 3271	204	9	178	8	129	9	170	9
MEAN	264		215		144		208	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		6.09		23.91		15.23	
Genotype (B)	**		9.99		28.42		14.43	
B within A	**NS**		17.31		49.23			
A within B			17.42		52.23			
			Grains/Earhead					
HD 2733 (c)	46.74	3	40.57	2	31.33	4	39.54	3
PBW 757 (I)	48.20	1	40.36	4	32.61	2	40.39	2
DBW 71 (c)	44.25	5	38.29	5	28.40	6	36.98	6
HD 3249	42.71	6	37.27	6	28.16	8	36.04	7
DBW 39 (c)	45.71	4	40.45	3	29.27	5	38.48	4
DBW 187 (I)	42.32	7	37.02	7	32.07	3	37.13	5
HD 2967 (c)	46.86	2	42.96	1	34.32	1	41.38	1
HI 1621	40.73	8	35.24	9	28.17	7	34.71	8
HD 3271	40.31	9	35.29	8	26.50	9	34.03	9
MEAN	44.20		38.60		30.09		37.63	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.78		3.05		10.74	
Genotype (B)	NS		2.12		6.02		16.87	
B within A	NS		3.67		10.43			
A within B			3.54		10.62			
			1000 Grains Weight, g					
HD 2733 (c)	38.40	9	37.80	7	34.03	9	36.74	9
PBW 757 (I)	43.20	1	42.63	1	37.53	2	41.12	1
DBW 71 (c)	38.53	7	38.07	6	37.53	2	38.04	6
HD 3249	41.47	3	41.27	3	38.30	1	40.34	2
DBW 39 (c)	39.97	5	39.90	4	36.50	4	38.79	5
DBW 187 (I)	38.43	8	37.10	9	36.03	5	37.19	8
HD 2967 (c)	39.13	6	37.17	8	35.73	6	37.34	7
HI 1621	42.97	2	41.57	2	34.93	8	39.82	3
HD 3271	41.13	4	39.83	5	35.43	7	38.80	4
MEAN	40.36		39.48		36.23		38.69	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.19		0.73		2.49	
Genotype (B)	**		0.30		0.86		2.34	
B within A	**		0.52		1.49			
A within B			0.53		1.58			
Date of Sowing:			08.11.2018		13.12.2018		03.01.2019	
Date of Harvesting:			14.03.2019		03.04.2019		10.04.2019	

Table 3.1.3. North Eastern Plains Zone **IR-TAS-DOS** **Faizabad** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	58.73	2	48.51	6	28.77	5	45.34	4
PBW 757 (I)	57.34	3	47.92	8	28.67	6	44.64	5
DBW 71 (c)	53.97	8	47.13	9	29.96	3	43.69	8
HD 3249	56.05	4	50.32	4	26.98	8	44.45	6
DBW 39 (c)	54.76	6	48.02	7	25.10	9	42.63	9
DBW 187 (I)	55.46	5	49.80	5	31.75	2	45.67	2
HD 2967 (c)	53.37	9	51.41	2	27.28	7	44.02	7
HI 1621	59.33	1	50.99	3	32.34	1	47.55	1
HD 3271	54.37	7	52.58	1	29.17	4	45.37	3
MEAN	55.93		49.63		28.89		44.82	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.18		0.69		2.04	
Genotype (B)	**		0.44		1.24		2.92	
B within A	**		0.76		2.15			
A within B			0.73		2.20			
			Earheads/sqm					
HD 2733 (c)	461	3	477	3	421	2	453	2
PBW 757 (I)	436	8	436	7	389	8	420	8
DBW 71 (c)	455	4	433	8	400	5	429	6
HD 3249	467	2	455	5	391	7	438	5
DBW 39 (c)	425	9	431	9	375	9	410	9
DBW 187 (I)	441	7	441	6	394	6	425	7
HD 2967 (c)	447	6	481	1	411	4	447	4
HI 1621	452	5	466	4	427	1	448	3
HD 3271	475	1	477	2	415	3	456	1
MEAN	451		455		403		436	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.47		1.86		0.56	
Genotype (B)	**		1.98		5.63		1.36	
B within A	**		3.43		9.75			
A within B			3.27		9.79			
			Grains/Earhead					
HD 2733 (c)	31.48	4	27.15	8	28.55	4	29.06	6
PBW 757 (I)	40.07	1	35.85	1	30.39	3	35.44	1
DBW 71 (c)	32.27	2	31.77	3	25.55	7	29.86	5
HD 3249	28.93	8	30.42	5	25.98	6	28.44	7
DBW 39 (c)	30.11	5	27.28	7	24.43	8	27.27	8
DBW 187 (I)	28.82	9	29.31	6	31.83	1	29.99	4
HD 2967 (c)	31.66	3	33.21	2	28.22	5	31.03	2
HI 1621	29.07	7	25.11	9	24.40	9	26.19	9
HD 3271	29.70	6	30.81	4	30.69	2	30.40	3
MEAN	31.35		30.10		27.78		29.74	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.21		0.83		3.68	
Genotype (B)	**		0.79		2.24		7.96	
B within A	**		1.37		3.89			
A within B			1.31		3.91			
			1000 Grains Weight, g					
HD 2733 (c)	40.53	5	37.50	4	24.00	7	34.01	5
PBW 757 (I)	32.90	9	30.70	9	24.30	6	29.30	9
DBW 71 (c)	36.80	8	34.30	7	29.40	2	33.50	6
HD 3249	41.50	4	36.40	5	27.13	4	35.01	4
DBW 39 (c)	42.80	3	40.90	2	27.40	3	37.03	2
DBW 187 (I)	43.70	2	38.60	3	25.50	5	35.93	3
HD 2967 (c)	37.70	7	32.20	8	23.77	8	31.22	8
HI 1621	45.20	1	43.70	1	31.37	1	40.09	1
HD 3271	38.60	6	35.80	6	23.10	9	32.50	7
MEAN	39.97		36.68		26.22		34.29	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.18		0.72		2.77	
Genotype (B)	**		0.65		1.85		5.70	
B within A	**		1.13		3.21			
A within B			1.08		3.24			
Date of Sowing:			11.11.2018		16.12.2018		07.01.2019	
Date of Harvesting:			25.04.2019		05.05.2019		10.05.2019	

Table 3.1.4. North Eastern Plains Zone **IR-TAS-DOS** **IARI PUSA** **2018-19**

	Sowing time							
Genotype	Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	61.46	2	56.57	2	42.91	3	53.65	2
PBW 757 (I)	46.37	7	50.03	6	41.46	6	45.95	6
DBW 71 (c)	41.75	9	52.07	4	34.44	9	42.76	9
HD 3249	61.85	1	57.29	1	42.37	4	53.84	1
DBW 39 (c)	52.73	5	50.35	5	43.58	1	48.88	3
DBW 187 (I)	51.61	6	54.93	3	38.52	7	48.35	5
HD 2967 (c)	56.07	3	42.28	9	37.96	8	45.44	7
HI 1621	43.92	8	48.93	8	42.31	5	45.05	8
HD 3271	53.14	4	49.48	7	43.00	2	48.54	4
MEAN	52.10		51.33		40.73		48.05	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	*		2.62		10.30		28.36	
Genotype (B)	**		1.64		4.66		10.22	
B within A	**		2.84		8.06			
A within B			3.74		11.23			
			Earheads/sqm					
HD 2733 (c)	447	1	501	1	394	1	447	1
PBW 757 (I)	368	5	369	8	322	6	353	7
DBW 71 (c)	362	6	402	5	355	3	373	4
HD 3249	352	8	418	3	300	7	357	6
DBW 39 (c)	326	9	370	7	284	8	326	9
DBW 187 (I)	371	4	347	9	282	9	333	8
HD 2967 (c)	441	2	410	4	340	5	397	3
HI 1621	353	7	395	6	365	2	371	5
HD 3271	436	3	430	2	341	4	402	2
MEAN	384		405		331		373	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		14.83		58.23		20.64	
Genotype (B)	**		13.76		39.12		11.05	
B within A	**NS**		23.83		67.76			
A within B			26.92		80.71			
			Grains/Earhead					
HD 2733 (c)	27.77	8	25.89	7	27.81	8	27.15	8
PBW 757 (I)	28.24	7	33.72	2	32.64	4	31.54	4
DBW 71 (c)	28.72	5	31.29	4	24.33	9	28.11	7
HD 3249	33.38	2	28.30	6	33.02	3	31.57	3
DBW 39 (c)	33.80	1	32.20	3	35.23	2	33.74	1
DBW 187 (I)	28.46	6	34.88	1	36.46	1	33.27	2
HD 2967 (c)	31.11	3	25.72	8	30.63	6	29.15	6
HI 1621	28.81	4	29.77	5	30.16	7	29.58	5
HD 3271	23.89	9	25.29	9	31.55	5	26.91	9
MEAN	29.35		29.67		31.31		30.11	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	NS		1.53		6.02		26.47	
Genotype (B)	*		1.50		4.26		14.91	
B within A	NS		2.59		7.37			
A within B			2.89		8.65			
			1000 Grains Weight, g					
HD 2733 (c)	50.77	3	44.03	4	40.40	3	45.07	3
PBW 757 (I)	44.13	6	40.37	8	39.53	6	41.34	7
DBW 71 (c)	42.60	8	41.37	7	40.30	4	41.42	6
HD 3249	52.87	1	48.63	1	43.47	2	48.32	1
DBW 39 (c)	47.27	5	42.80	5	44.17	1	44.74	4
DBW 187 (I)	48.67	4	45.87	3	38.40	8	44.31	5
HD 2967 (c)	41.87	9	40.17	9	36.57	9	39.53	9
HI 1621	43.23	7	41.70	6	38.43	7	41.12	8
HD 3271	51.47	2	46.17	2	40.20	5	45.94	2
MEAN	46.99		43.46		40.16		43.53	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.47		1.83		5.55	
Genotype (B)	**		0.85		2.42		5.87	
B within A	NS		1.48		4.20			
A within B			1.47		4.40			
Date of Sowing:			08.11.2018		12.12.2018		01.01.2019	
Date of Harvesting:			30.03.2109		05.04.2019		11.04.2019	

Table 3.1.5. North Eastern Plains Zone **IR-TAS-DOS** **Kalyani** **2018-19**

	Sowing time							
Genotype	Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	42.50	4	39.12	6	36.30	3	39.31	2
PBW 757 (I)	40.50	6	39.35	5	34.97	4	38.27	4
DBW 71 (c)	46.15	1	32.29	9	30.17	7	36.20	8
HD 3249	45.18	2	43.74	1	39.94	1	42.96	1
DBW 39 (c)	37.75	7	42.03	3	37.72	2	39.17	3
DBW 187 (I)	37.56	8	42.04	2	32.48	6	37.36	6
HD 2967 (c)	42.53	3	39.36	4	29.85	8	37.24	7
HI 1621	37.06	9	37.77	8	27.47	9	34.10	9
HD 3271	41.26	5	38.23	7	33.53	5	37.67	5
MEAN	41.16		39.32		33.60		38.03	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.82		3.22		11.20	
Genotype (B)	*		1.63		4.63		12.85	
B within A	NS		2.82		8.03			
A within B			2.78		8.35			
			Earheads/sqm					
HD 2733 (c)	351	5	350	2	300	7	334	5
PBW 757 (I)	347	6	338	7	327	4	338	4
DBW 71 (c)	331	7	343	6	353	2	343	3
HD 3249	352	4	348	3	296	8	332	6
DBW 39 (c)	356	3	322	8	314	5	331	7
DBW 187 (I)	356	2	346	4	365	1	356	1
HD 2967 (c)	317	9	355	1	287	9	320	8
HI 1621	364	1	345	5	348	3	352	2
HD 3271	328	8	320	9	307	6	318	9
MEAN	345		341		322		336	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	NS		9.91		38.92		15.34	
Genotype (B)	NS		11.23		31.94		10.03	
B within A	**NS**		19.45		55.32			
A within B			20.85		62.50			
			Grains/Earhead					
HD 2733 (c)	28.60	5	27.21	8	31.45	3	29.09	6
PBW 757 (I)	28.36	6	32.08	3	27.25	6	29.23	5
DBW 71 (c)	35.46	2	25.28	9	23.80	8	28.18	8
HD 3249	31.33	4	29.55	6	37.97	1	32.95	2
DBW 39 (c)	25.45	9	37.81	1	34.33	2	32.53	3
DBW 187 (I)	27.52	7	32.92	2	25.06	7	28.50	7
HD 2967 (c)	39.45	1	29.74	5	29.79	4	32.99	1
HI 1621	25.94	8	28.00	7	22.26	9	25.40	9
HD 3271	32.98	3	31.71	4	29.60	5	31.43	4
MEAN	30.56		30.48		29.06		30.03	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	NS		1.14		4.47		19.71	
Genotype (B)	NS		1.94		5.52		19.40	
B within A	NS		3.36		9.56			
A within B			3.37		10.10			
			1000 Grains Weight, g					
HD 2733 (c)	43.17	1	42.17	2	38.67	2	41.33	1
PBW 757 (I)	42.00	3	36.50	8	39.80	1	39.43	3
DBW 71 (c)	40.00	7	37.83	5	36.50	5	38.11	7
HD 3249	41.00	5	42.83	1	36.83	4	40.22	2
DBW 39 (c)	42.33	2	35.67	9	35.50	9	37.83	8
DBW 187 (I)	41.67	4	37.00	7	36.00	6	38.22	6
HD 2967 (c)	36.33	9	37.67	6	35.83	7	36.61	9
HI 1621	39.67	8	40.00	3	35.67	8	38.44	5
HD 3271	40.17	6	38.17	4	37.17	3	38.50	4
MEAN	40.70		38.65		36.89		38.75	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		0.54		2.14		7.31	
Genotype (B)	NS		1.58		4.50		12.26	
B within A	NS		2.74		7.80			
A within B			2.64		7.92			
Date of Sowing:			10.11.2018		14.12.2018		04.01.2019	
Date of Harvesting:			12.03.2019		25.03.2019		15.04.2019	

Table 3.1.6. North Eastern Plains Zone **IR-TAS-DOS** **Kanpur** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	49.79	8	34.99	9	27.14	7	37.31	9
PBW 757 (I)	53.68	4	42.12	5	31.22	4	42.34	3
DBW 71 (c)	53.17	5	40.81	6	20.40	9	38.13	8
HD 3249	52.73	6	51.53	2	44.89	1	49.72	1
DBW 39 (c)	57.18	2	42.45	4	26.53	8	42.05	5
DBW 187 (I)	55.40	3	51.53	1	32.65	2	46.53	2
HD 2967 (c)	52.04	7	36.02	7	30.91	5	39.66	7
HI 1621	48.42	9	43.60	3	30.20	6	40.74	6
HD 3271	59.20	1	35.20	8	32.24	3	42.21	4
MEAN	53.51		42.03		30.69		42.08	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.63		2.48		7.79	
Genotype (B)	**		0.84		2.40		6.02	
B within A	**		1.46		4.16			
A within B			1.52		4.55			
			Earheads/sqm					
HD 2733 (c)	384	5	392	1	313	2	363	2
PBW 757 (I)	415	3	366	7	282	7	354	5
DBW 71 (c)	398	4	377	5	296	5	357	3
HD 3249	376	7	372	6	307	4	351	6
DBW 39 (c)	427	2	324	9	262	9	338	8
DBW 187 (I)	458	1	381	4	318	1	386	1
HD 2967 (c)	365	9	386	2	279	8	343	7
HI 1621	376	6	385	3	308	3	356	4
HD 3271	375	8	335	8	287	6	333	9
MEAN	397		369		295		353	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		5.26		20.66		7.74	
Genotype (B)	*		10.30		29.31		8.75	
B within A	**NS**		17.85		50.76			
A within B			17.63		52.86			
			Grains/Earhead					
HD 2733 (c)	33.52	5	23.09	8	23.09	8	26.57	9
PBW 757 (I)	31.17	8	31.27	4	33.32	2	31.92	2
DBW 71 (c)	33.61	4	27.99	6	18.40	9	26.67	8
HD 3249	35.60	2	36.01	1	39.18	1	36.93	1
DBW 39 (c)	31.25	7	33.86	3	27.95	6	31.02	4
DBW 187 (I)	17.74	9	34.13	2	28.83	5	26.90	7
HD 2967 (c)	35.36	3	22.93	9	29.88	4	29.39	5
HI 1621	31.81	6	28.03	5	26.08	7	28.64	6
HD 3271	39.21	1	26.58	7	29.91	3	31.90	3
MEAN	32.14		29.32		28.51		29.99	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		0.62		2.42		10.66	
Genotype (B)	**		1.81		5.15		18.12	
B within A	**		3.14		8.92			
A within B			3.02		9.06			
			1000 Grains Weight, g					
HD 2733 (c)	39.23	9	38.67	8	37.68	2	38.53	9
PBW 757 (I)	41.62	3	37.07	9	37.10	8	38.60	7
DBW 71 (c)	39.83	7	38.86	7	37.50	4	38.73	6
HD 3249	39.43	8	38.93	5	37.33	6	38.56	8
DBW 39 (c)	42.83	2	38.90	6	37.50	4	39.74	2
DBW 187 (I)	44.44	1	39.92	3	35.90	9	40.09	1
HD 2967 (c)	40.43	6	40.90	1	37.16	7	39.50	4
HI 1621	40.67	4	40.43	2	37.60	3	39.57	3
HD 3271	40.63	5	39.60	4	37.91	1	39.38	5
MEAN	41.01		39.25		37.30		39.19	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.39		1.52		5.15	
Genotype (B)	NS		0.87		2.46		6.62	
B within A	NS		1.50		4.26			
A within B			1.47		4.39			
Date of Sowing:			27.11.2018		12.12.2018		19.01.2019	
Date of Harvesting:			25.04.2019		28.04.2019		30.04.2019	

Table 3.1.7. North Eastern Plains Zone **IR-TAS-DOS** **Ranchi** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	46.13	6	37.07	6	22.40	6	35.20	7
PBW 757 (I)	50.40	3	42.47	3	25.67	3	39.51	2
DBW 71 (c)	41.90	8	38.67	4	25.27	4	35.28	6
HD 3249	52.00	2	44.07	1	25.90	2	40.66	1
DBW 39 (c)	46.60	4	37.87	5	21.67	7	35.38	5
DBW 187 (I)	53.20	1	36.07	9	24.47	5	37.91	4
HD 2967 (c)	46.33	5	36.27	8	20.93	8	34.51	8
HI 1621	42.80	7	43.07	2	30.57	1	38.81	3
HD 3271	41.80	9	36.47	7	19.13	9	32.47	9
MEAN	46.80		39.11		24.00		36.64	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		1.00		3.93		14.19	
Genotype (B)	**		1.22		3.47		9.98	
B within A	*		2.11		6.00			
A within B			2.23		6.68			
			Earheads/sqm					
HD 2733 (c)	380	7	332	8	280	7	331	7
PBW 757 (I)	400	3	372	3	293	4	355	3
DBW 71 (c)	362	8	347	6	287	5	332	6
HD 3249	448	1	415	1	300	2	388	1
DBW 39 (c)	398	4	355	4	295	3	349	5
DBW 187 (I)	448	1	333	7	282	6	354	4
HD 2967 (c)	388	5	328	9	273	8	330	8
HI 1621	382	6	382	2	315	1	359	2
HD 3271	357	9	348	5	267	9	324	9
MEAN	396		357		288		347	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		12.07		47.39		18.08	
Genotype (B)	*		13.40		38.10		11.59	
B within A	NS		23.21		66.00			
A within B			24.99		74.92			
			Grains/Earhead					
HD 2733 (c)	28.36	4	27.61	7	20.95	7	25.64	8
PBW 757 (I)	29.19	2	31.03	3	26.20	2	28.80	1
DBW 71 (c)	27.64	6	31.89	1	24.04	4	27.86	3
HD 3249	25.37	9	26.84	9	23.05	5	25.09	9
DBW 39 (c)	30.26	1	26.88	8	19.85	8	25.66	7
DBW 187 (I)	27.10	7	27.72	6	24.85	3	26.55	5
HD 2967 (c)	29.12	3	30.96	4	19.77	9	26.61	4
HI 1621	25.43	8	31.08	2	29.41	1	28.64	2
HD 3271	27.80	5	29.11	5	21.48	6	26.13	6
MEAN	27.81		29.23		23.29		26.78	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		1.52		5.97		29.52	
Genotype (B)	NS		1.45		4.12		16.24	
B within A	NS		2.51		7.14			
A within B			2.81		8.44			
			1000 Grains Weight, g					
HD 2733 (c)	43.07	5	40.87	2	38.80	1	40.91	2
PBW 757 (I)	43.47	4	36.93	5	34.40	7	38.27	7
DBW 71 (c)	42.07	7	35.93	9	37.00	5	38.33	6
HD 3249	46.20	1	40.47	3	37.43	4	41.37	1
DBW 39 (c)	39.60	9	41.13	1	37.60	3	39.44	4
DBW 187 (I)	43.90	3	39.73	4	35.37	6	39.67	3
HD 2967 (c)	41.07	8	36.80	6	38.80	1	38.89	5
HI 1621	44.80	2	36.53	7	33.47	9	38.27	7
HD 3271	42.13	6	36.07	8	33.50	8	37.23	9
MEAN	42.92		38.27		36.26		39.15	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.40		1.56		5.26	
Genotype (B)	**		0.56		1.59		4.28	
B within A	**		0.97		2.75			
A within B			0.99		2.98			
Date of Sowing:			10.11.2018		10.12.2018		01.01.2019	
Date of Harvesting:			28.03.2019		04.04.2019		15.04.2019	

Table 3.1.8. North Eastern Plains Zone **IR-TAS-DOS** **CAU Pusa** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	45.89	5	38.45	3	38.85	3	41.06	4
PBW 757 (I)	44.19	9	33.58	9	37.44	6	38.40	8
DBW 71 (c)	44.82	7	34.89	7	36.64	8	38.78	7
HD 3249	50.25	1	36.89	4	40.33	1	42.49	1
DBW 39 (c)	47.22	3	36.32	5	38.33	5	40.62	5
DBW 187 (I)	48.64	2	35.64	6	39.02	2	41.10	3
HD 2967 (c)	46.12	4	40.46	1	38.67	4	41.75	2
HI 1621	44.66	8	34.05	8	35.33	9	38.01	9
HD 3271	45.36	6	39.37	2	37.12	7	40.62	6
MEAN	46.35		36.63		37.97		40.32	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.42		1.64		5.37	
Genotype (B)	**		0.47		1.33		3.47	
B within A	**		0.81		2.30			
A within B			0.87		2.61			
			Earheads/sqm					
HD 2733 (c)	339	5	321	3	291	3	317	3
PBW 757 (I)	323	9	304	9	296	1	308	8
DBW 71 (c)	329	7	310	7	285	6	308	7
HD 3249	363	1	318	4	293	2	325	1
DBW 39 (c)	345	3	317	5	287	5	316	5
DBW 187 (I)	352	2	314	6	289	4	318	2
HD 2967 (c)	341	4	327	1	283	7	317	3
HI 1621	326	8	307	8	282	8	305	9
HD 3271	332	6	322	2	280	9	311	6
MEAN	339		316		287		314	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.30		1.19		0.50	
Genotype (B)	**		0.80		2.28		0.76	
B within A	**		1.39		3.94			
A within B			1.34		4.02			
			Grains/Earhead					
HD 2733 (c)	31.42	5	29.93	3	35.87	8	32.41	7
PBW 757 (I)	33.64	1	29.82	4	33.26	9	32.24	8
DBW 71 (c)	32.97	3	29.59	5	35.94	7	32.83	4
HD 3249	30.90	9	29.15	9	36.45	5	32.17	9
DBW 39 (c)	31.35	7	29.16	8	36.82	3	32.44	6
DBW 187 (I)	31.37	6	29.28	7	36.72	4	32.46	5
HD 2967 (c)	31.16	8	30.33	1	39.01	1	33.50	2
HI 1621	33.39	2	29.41	6	36.06	6	32.95	3
HD 3271	31.95	4	30.30	2	38.92	2	33.72	1
MEAN	32.02		29.66		36.56		32.75	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.40		1.56		6.32	
Genotype (B)	NS		0.68		1.93		6.23	
B within A	NS		1.18		3.35			
A within B			1.18		3.54			
			1000 Grains Weight, g					
HD 2733 (c)	43.08	5	40.03	3	37.22	3	40.11	2
PBW 757 (I)	40.74	9	37.07	9	38.05	1	38.62	7
DBW 71 (c)	41.38	7	38.14	7	35.84	6	38.45	8
HD 3249	44.89	1	39.79	4	37.82	2	40.83	1
DBW 39 (c)	43.75	3	39.33	5	36.31	5	39.80	4
DBW 187 (I)	44.08	2	38.81	6	36.95	4	39.95	3
HD 2967 (c)	43.41	4	40.79	1	35.07	7	39.76	5
HI 1621	41.04	8	37.75	8	34.81	8	37.87	9
HD 3271	42.77	6	40.35	2	34.11	9	39.08	6
MEAN	42.79		39.12		36.24		39.38	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.22		0.88		2.95	
Genotype (B)	**		0.49		1.39		3.73	
B within A	*		0.85		2.41			
A within B			0.83		2.49			
Date of Sowing:			11.11.2018		10.12.2019		01.01.2019	
Date of Harvesting:			08.04.2019		14.04.2019		19.04.2019	

Table 3.1.9. North Eastern Plains Zone **IR-TAS-DOS** **Sabour** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	37.74	9	37.18	6	33.00	4	35.97	8
PBW 757 (I)	40.59	5	36.89	8	27.93	9	35.14	9
DBW 71 (c)	40.11	7	37.02	7	34.20	2	37.11	4
HD 3249	41.31	4	41.01	1	36.54	1	39.62	1
DBW 39 (c)	39.96	8	36.28	9	34.04	3	36.76	6
DBW 187 (I)	41.94	3	40.50	2	32.11	5	38.18	2
HD 2967 (c)	42.81	2	38.79	3	29.17	8	36.92	5
HI 1621	40.47	6	37.24	5	30.31	7	36.01	7
HD 3271	44.34	1	37.56	4	31.76	6	37.89	3
MEAN	41.03		38.05		32.12		37.07	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.47		1.86		6.65	
Genotype (B)	*		0.91		2.59		7.37	
B within A	NS		1.58		4.48			
A within B			1.56		4.68			
			Earheads/sqm					
HD 2733 (c)	232	9	225	9	214	8	224	9
PBW 757 (I)	265	3	239	5	223	1	242	3
DBW 71 (c)	254	6	237	6	217	5	236	5
HD 3249	252	7	237	7	216	7	235	7
DBW 39 (c)	260	4	245	3	220	2	242	4
DBW 187 (I)	250	8	237	7	218	4	235	8
HD 2967 (c)	269	2	254	1	217	6	247	2
HI 1621	256	5	243	4	207	9	235	6
HD 3271	300	1	253	2	218	3	257	1
MEAN	260		241		217		239	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		3.56		13.99		7.74	
Genotype (B)	**		4.81		13.68		6.03	
B within A	**NS**		8.33		23.70			
A within B			8.63		25.86			
			Grains/Earhead					
HD 2733 (c)	38.42	6	41.27	3	39.42	6	39.70	4
PBW 757 (I)	37.03	8	39.24	6	34.85	9	37.04	9
DBW 71 (c)	38.66	4	40.41	4	42.48	2	40.51	2
HD 3249	41.12	1	43.79	1	44.58	1	43.16	1
DBW 39 (c)	37.74	7	36.32	9	40.76	3	38.28	6
DBW 187 (I)	39.40	2	41.64	2	40.09	4	40.38	3
HD 2967 (c)	39.24	3	38.27	7	36.56	8	38.02	7
HI 1621	38.63	5	39.34	5	39.50	5	39.15	5
HD 3271	36.48	9	36.88	8	38.30	7	37.22	8
MEAN	38.52		39.68		39.62		39.28	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	NS		0.60		2.34		7.88	
Genotype (B)	*		1.14		3.23		8.68	
B within A	NS		1.97		5.60			
A within B			1.95		5.84			
			1000 Grains Weight, g					
HD 2733 (c)	42.33	2	40.00	4	39.00	1	40.44	1
PBW 757 (I)	41.67	3	40.00	4	36.00	9	39.22	6
DBW 71 (c)	41.00	6	39.00	8	37.00	5	39.00	9
HD 3249	40.00	9	39.67	7	38.00	2	39.22	6
DBW 39 (c)	41.00	6	41.00	1	38.00	2	40.00	3
DBW 187 (I)	42.67	1	41.00	1	37.00	5	40.22	2
HD 2967 (c)	41.33	5	40.00	4	37.00	5	39.44	5
HI 1621	41.67	3	39.00	8	37.00	5	39.22	6
HD 3271	40.67	8	40.33	3	38.00	2	39.67	4
MEAN	41.37		40.00		37.44		39.60	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		0.19		0.74		2.47	
Genotype (B)	NS		0.51		1.46		3.89	
B within A	NS		0.89		2.53			
A within B			0.86		2.58			
Date of Sowing:			01.12.2018		24.12.2018		07.01.2019	
Date of Harvesting:			22.04.2019		26.04.2019		30.04.2019	

Table 3.1.10. North Eastern Plains Zone **IR-TAS-DOS** **Shillongani** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	42.79	4	38.44	8	25.14	8	35.45	8
PBW 757 (I)	35.46	9	33.07	9	32.23	3	33.59	9
DBW 71 (c)	46.45	2	44.39	1	38.05	1	42.96	1
HD 3249	42.35	6	41.91	5	30.66	5	38.31	4
DBW 39 (c)	44.26	3	43.52	3	28.45	6	38.74	3
DBW 187 (I)	42.75	5	42.18	4	25.39	7	36.77	7
HD 2967 (c)	58.75	1	43.55	2	21.58	9	41.29	2
HI 1621	40.59	7	39.89	6	31.44	4	37.31	5
HD 3271	39.67	8	38.59	7	32.88	2	37.05	6
MEAN	43.67		40.61		29.54		37.94	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.68		2.68		9.36	
Genotype (B)	**		0.51		1.46		4.06	
B within A	**		0.89		2.53			
A within B			1.08		3.24			
			Earheads/sqm					
HD 2733 (c)	226	1	219	2	214	3	220	2
PBW 757 (I)	208	7	206	7	205	6	206	6
DBW 71 (c)	223	2	220	1	219	1	220	1
HD 3249	209	6	208	5	207	5	208	5
DBW 39 (c)	202	8	202	8	201	7	202	8
DBW 187 (I)	199	9	198	9	193	9	197	9
HD 2967 (c)	222	3	216	3	215	2	218	3
HI 1621	209	5	208	5	199	8	205	7
HD 3271	214	4	212	4	211	4	212	4
MEAN	212		210		207		210	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		0.96		3.75		2.37	
Genotype (B)	**		2.35		6.67		3.35	
B within A	**NS**		4.06		11.55			
A within B			3.95		11.83			
			Grains/Earhead					
HD 2733 (c)	36.93	9	38.30	8	31.36	8	35.53	9
PBW 757 (I)	39.43	8	37.59	9	41.48	2	39.50	8
DBW 71 (c)	49.22	2	50.51	2	48.69	1	49.47	1
HD 3249	41.01	6	45.07	4	35.32	6	40.47	6
DBW 39 (c)	46.21	3	47.71	3	36.78	5	43.57	3
DBW 187 (I)	44.33	4	44.85	6	32.25	7	40.48	5
HD 2967 (c)	59.02	1	51.02	1	30.12	9	46.72	2
HI 1621	41.83	5	45.00	5	41.16	3	42.67	4
HD 3271	39.64	7	40.16	7	39.53	4	39.78	7
MEAN	44.18		44.47		37.41		42.02	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		1.33		5.24		16.49	
Genotype (B)	**		0.88		2.51		6.31	
B within A	**		1.53		4.35			
A within B			1.97		5.89			
			1000 Grains Weight, g					
HD 2733 (c)	51.50	1	45.86	2	37.53	7	44.96	3
PBW 757 (I)	43.23	8	42.77	7	37.94	6	41.32	7
DBW 71 (c)	42.43	9	39.95	8	36.21	8	39.53	8
HD 3249	49.51	2	44.98	5	42.12	1	45.54	2
DBW 39 (c)	47.35	4	45.13	4	38.60	4	43.69	5
DBW 187 (I)	48.39	3	47.51	1	41.10	2	45.67	1
HD 2967 (c)	45.06	7	39.55	9	33.28	9	39.30	9
HI 1621	46.48	6	42.87	6	38.45	5	42.60	6
HD 3271	46.78	5	45.36	3	39.55	3	43.90	4
MEAN	46.75		43.78		38.31		42.95	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		1.04		4.07		12.53	
Genotype (B)	**		0.66		1.87		4.59	
B within A	NS		1.14		3.24			
A within B			1.49		4.47			
Date of Sowing:			08.11.2018		11.12.2018		02.01.2019	
Date of Harvesting:			16.03.19 to 03.04.19		28.03.19 to 13.04.19		11.04.19 to 25.04.19	

Table 3.1.11. North Eastern Plains Zone **IR-TAS-DOS** **Varanasi** **2018-19**

Genotype	Sowing time: Normal	Rk	Late	Rk	V. Late	Rk	Mean	Rk
			Yield, q/ha					
HD 2733 (c)	57.45	5	54.54	1	44.34	2	52.11	1
PBW 757 (I)	55.19	6	46.34	9	35.47	7	45.67	8
DBW 71 (c)	60.39	2	47.33	8	44.62	1	50.78	3
HD 3249	53.38	7	51.76	3	32.80	8	45.98	6
DBW 39 (c)	58.24	4	48.23	6	39.26	6	48.58	5
DBW 187 (I)	60.41	1	49.22	5	39.51	5	49.72	4
HD 2967 (c)	52.72	8	47.37	7	30.32	9	43.47	9
HI 1621	46.55	9	49.90	4	40.94	4	45.79	7
HD 3271	59.37	3	51.78	2	42.62	3	51.26	2
MEAN	55.97		49.61		38.87		48.15	
	F Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.31		1.23		3.38	
Genotype (B)	**		0.47		1.33		2.92	
B within A	**		0.81		2.31			
A within B			0.83		2.48			
			Earheads/sqm					
HD 2733 (c)	400	1	412	1	323	3	378	1
PBW 757 (I)	294	8	329	8	317	5	313	9
DBW 71 (c)	328	7	332	7	294	9	318	8
HD 3249	339	6	357	4	332	1	343	4
DBW 39 (c)	340	5	328	9	304	7	324	6
DBW 187 (I)	342	4	374	3	303	8	340	5
HD 2967 (c)	391	2	389	2	319	4	366	2
HI 1621	282	9	356	5	326	2	322	7
HD 3271	362	3	355	6	316	6	344	3
MEAN	342		359		315		339	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		8.15		32.01		12.51	
Genotype (B)	**		10.83		30.80		9.59	
B within A	NS		18.76		53.35			
A within B			19.48		58.39			
			Grains/Earhead					
HD 2733 (c)	33.75	9	35.42	9	38.33	3	35.83	7
PBW 757 (I)	49.90	1	37.22	5	32.67	8	39.93	4
DBW 71 (c)	46.27	3	35.94	6	45.09	1	42.43	1
HD 3249	35.50	7	37.75	4	30.03	9	34.43	9
DBW 39 (c)	43.03	4	40.74	2	39.61	2	41.13	3
DBW 187 (I)	37.93	5	35.71	8	37.47	5	37.03	6
HD 2967 (c)	34.95	8	35.77	7	33.12	7	34.62	8
HI 1621	47.31	2	41.68	1	36.41	6	41.80	2
HD 3271	36.59	6	38.98	3	38.25	4	37.94	5
MEAN	40.58		37.69		36.78		38.35	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	NS		1.36		5.33		18.39	
Genotype (B)	**		1.73		4.92		13.53	
B within A	*		2.99		8.52			
A within B			3.13		9.39			
			1000 Grains Weight, g					
HD 2733 (c)	42.94	4	37.38	5	35.82	1	38.71	4
PBW 757 (I)	37.63	9	38.34	3	34.87	4	36.95	6
DBW 71 (c)	40.55	5	39.77	1	34.21	6	38.18	5
HD 3249	44.86	3	38.64	2	33.48	7	38.99	3
DBW 39 (c)	40.55	6	36.23	7	32.75	8	36.51	7
DBW 187 (I)	46.58	1	37.05	6	35.03	3	39.55	1
HD 2967 (c)	39.71	7	34.19	9	28.71	9	34.20	9
HI 1621	37.81	8	34.85	8	34.61	5	35.76	8
HD 3271	45.07	2	37.71	4	35.25	2	39.34	2
MEAN	41.75		37.13		33.86		37.58	
	F Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	**		3.12		0.57		1.89	
Genotype (B)	**		2.36		0.49		1.36	
B within A	*		4.08		0.84			
A within B			4.71		0.90			
Date of Sowing:			10.11.2018		12.12.2018		02.01.2019	
Date of Harvesting:			10.04.2019		14.04.2019		21.04.2019	

Table 3.2.1. North Eastern Plains Zone **RIR-TS-TAS** **Burdwan** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	19.45	6	29.74	6	32.92	6	27.37	6
HI 1612 (c)	25.96	2	36.64	2	41.72	3	34.77	2
HD 2888 (c)	23.80	4	31.33	5	38.07	5	31.07	5
K 8027 (c)	22.06	5	32.76	4	39.66	4	31.49	4
DBW 252	24.90	3	35.60	3	42.66	2	34.38	3
K 1317 (c)	26.59	1	37.16	1	44.22	1	35.99	1
MEAN	23.79		33.87		39.87		32.51	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.47		1.83		6.09	
Genotype (B)	**		0.40		1.17		3.73	
B within A	*		0.70		2.02			
A within B			0.79		2.29			
			Earheads/sqm					
HD 3171 (c)	237	2	275	5	272	5	261	4
HI 1612 (c)	223	5	277	4	283	4	261	4
HD 2888 (c)	248	1	303	1	303	1	285	1
K 8027 (c)	232	3	292	2	295	2	273	2
DBW 252	218	6	262	6	267	6	249	6
K 1317 (c)	228	4	292	2	290	3	270	3
MEAN	231		283		285		266	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		5.06		19.85		8.05	
Genotype (B)	**		5.43		15.67		6.11	
B within A	NS		9.40		27.14			
A within B			9.96		28.76			
			Grains/Earhead					
HD 3171 (c)	19.2	6	24.6	5	26.2	6	23.3	6
HI 1612 (c)	28.3	1	31.6	1	33.7	2	31.2	1
HD 2888 (c)	22.7	4	24.4	6	29.1	4	25.4	4
K 8027 (c)	21.5	5	25.0	4	27.4	5	24.6	5
DBW 252	26.3	3	30.2	2	33.7	1	30.1	2
K 1317 (c)	26.5	2	28.0	3	30.4	3	28.3	3
MEAN	24.10		27.30		30.09		27.16	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.68		2.67		10.62	
Genotype (B)	**		0.73		2.09		8.01	
B within A	NS		1.26		3.63			
A within B			1.33		3.85			
			1000 Grains Weight, g					
HD 3171 (c)	42.72	4	43.90	4	46.41	4	44.35	4
HI 1612 (c)	41.13	6	42.21	6	43.67	5	42.34	6
HD 2888 (c)	42.16	5	42.52	5	43.26	6	42.64	5
K 8027 (c)	44.85	1	44.99	3	49.13	2	46.32	2
DBW 252	43.71	3	45.31	2	47.49	3	45.50	3
K 1317 (c)	44.23	2	45.75	1	50.24	1	46.74	1
MEAN	43.14		44.11		46.70		44.65	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.16		0.62		1.49	
Genotype (B)	**		0.36		1.04		2.43	
B within A	*		0.63		1.81			
A within B			0.59		1.71			
Date of Sowing:			08.11.2018					
Date of Harvesting:			04.03.2019		08.03.2019			

Table 3.2.2 North Eastern Plains Zone **RIR-TS-TAS** **Coochbehar** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	19.80	4	22.40	4	28.30	4	23.50	4
HI 1612 (c)	24.27	3	31.77	3	32.47	3	29.50	3
HD 2888 (c)	12.47	6	18.20	6	24.47	6	18.38	6
K 8027 (c)	14.50	5	19.43	5	25.33	5	19.76	5
DBW 252	24.83	1	33.90	1	39.60	2	32.78	1
K 1317 (c)	24.33	2	32.60	2	40.97	1	32.63	2
MEAN	20.03		26.38		31.86		26.09	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.42		1.63		6.76	
Genotype (B)	**		0.63		1.82		7.23	
B within A	**		1.09		3.14			
A within B			1.08		3.11			
			Earheads/sqm					
HD 3171 (c)	167	4	182	4	194	4	181	4
HI 1612 (c)	173	3	201	2	203	3	192	3
HD 2888 (c)	112	6	138	6	163	5	138	6
K 8027 (c)	118	5	139	5	159	6	139	5
DBW 252	179	2	201	3	221	2	200	2
K 1317 (c)	180	1	209	1	231	1	207	1
MEAN	155		178		195		176	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		2.36		9.26		5.68	
Genotype (B)	**		3.49		10.09		5.95	
B within A	NS		6.05		17.47			
A within B			6.01		17.34			
			Grains/Earhead					
HD 3171 (c)	37.8	4	37.0	6	40.9	5	38.6	5
HI 1612 (c)	41.6	2	45.0	2	43.7	3	43.4	3
HD 2888 (c)	35.7	6	39.8	5	40.1	6	38.5	6
K 8027 (c)	37.2	5	40.0	4	42.5	4	39.9	4
DBW 252	42.6	1	46.8	1	47.1	1	45.5	1
K 1317 (c)	40.5	3	44.2	3	46.6	2	43.7	2
MEAN	39.22		42.14		43.46		41.61	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.60		2.38		6.17	
Genotype (B)	**		1.53		4.43		11.06	
B within A	NS		2.66		7.67			
A within B			2.50		7.22			
			1000 Grains Weight, g					
HD 3171 (c)	31.57	6	33.37	6	35.77	6	33.57	6
HI 1612 (c)	33.93	1	35.20	3	36.87	5	35.33	3
HD 2888 (c)	31.60	5	33.47	5	37.60	3	34.22	5
K 8027 (c)	33.03	3	35.03	4	37.50	4	35.19	4
DBW 252	32.60	4	36.17	1	38.07	1	35.61	1
K 1317 (c)	33.37	2	35.40	2	37.97	2	35.58	2
MEAN	32.68		34.77		37.29		34.92	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.21		0.84		2.59	
Genotype (B)	*		0.48		1.38		4.11	
B within A	NS		0.83		2.39			
A within B			0.78		2.27			
Date of Sowing:			11.11.2018					
Date of Harvesting:			15.03.2019		20.03.2019		29.03.2019	

Table 3.2.3 North Eastern Plains Zone **RIR-TS-TAS** **Faizabad** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	30.85	3	44.35	3	46.53	5	40.58	3
HI 1612 (c)	33.39	1	44.84	2	49.21	2	42.48	1
HD 2888 (c)	32.90	2	40.58	6	45.34	6	39.60	6
K 8027 (c)	29.07	6	45.04	1	50.60	1	41.57	2
DBW 252	30.06	4	43.95	4	47.72	4	40.58	4
K 1317 (c)	29.26	5	43.16	5	48.61	3	40.34	5
MEAN	30.92		43.65		48.00		40.86	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.24		0.95		2.52	
Genotype (B)	**		0.47		1.37		3.48	
B within A	**		0.82		2.37			
A within B			0.79		2.27			
			Earheads/sqm					
HD 3171 (c)	317	2	351	4	429	1	366	4
HI 1612 (c)	315	3	391	3	419	3	375	2
HD 2888 (c)	361	1	402	2	416	4	393	1
K 8027 (c)	287	6	408	1	411	5	369	3
DBW 252	295	5	325	6	336	6	319	6
K 1317 (c)	310	4	349	5	425	2	361	5
MEAN	314		371		406		364	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.04		4.09		1.22	
Genotype (B)	**		3.02		8.73		2.49	
B within A	**		5.24		15.12			
A within B			4.89		14.13			
			Grains/Earhead					
HD 3171 (c)	24.5	2	32.7	2	27.8	3	28.3	2
HI 1612 (c)	26.8	1	28.9	3	28.2	2	28.0	3
HD 2888 (c)	21.9	6	22.7	6	23.8	6	22.8	6
K 8027 (c)	23.4	4	23.1	5	26.7	4	24.4	5
DBW 252	23.5	3	33.8	1	35.2	1	30.8	1
K 1317 (c)	22.1	5	28.4	4	25.9	5	25.5	4
MEAN	23.70		28.28		27.94		26.64	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.12		0.49		1.99	
Genotype (B)	**		0.65		1.88		7.33	
B within A	**		1.13		3.26			
A within B			1.04		2.99			
			1000 Grains Weight, g					
HD 3171 (c)	39.80	5	38.80	6	39.20	6	39.27	6
HI 1612 (c)	39.70	6	39.70	5	41.70	4	40.37	5
HD 2888 (c)	41.60	4	44.50	2	45.80	2	43.97	2
K 8027 (c)	43.30	2	47.90	1	46.30	1	45.83	1
DBW 252	43.50	1	40.00	4	40.40	5	41.30	4
K 1317 (c)	42.90	3	43.60	3	44.10	3	43.53	3
MEAN	41.80		42.42		42.92		42.38	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.09		0.37		0.93	
Genotype (B)	**		0.65		1.87		4.59	
B within A	*		1.12		3.24			
A within B			1.03		2.97			
Date of Sowing:								
Date of Harvesting:			17.03.2019		20.03.2019		24.03.2019	

Table 3.2.4 North Eastern Plains Zone **RIR-TS-TAS** **IARI Pusa** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	40.32	2	49.19	2	45.19	2	44.90	2
HI 1612 (c)	39.20	3	43.30	4	44.47	4	42.32	3
HD 2888 (c)	30.68	6	21.83	6	24.56	6	25.69	6
K 8027 (c)	32.04	4	29.49	5	29.87	5	30.47	5
DBW 252	31.90	5	44.95	3	44.68	3	40.51	4
K 1317 (c)	46.34	1	53.40	1	56.67	1	52.14	1
MEAN	36.75		40.36		40.91		39.34	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		2.34		9.18		25.23	
Genotype (B)	**		1.92		5.55		14.66	
B within A	NS		3.33		9.61			
A within B			3.83		11.07			
			Earheads/sqm					
HD 3171 (c)	369	4	452	3	418	6	413	4
HI 1612 (c)	379	3	465	1	444	2	429	2
HD 2888 (c)	388	2	418	5	452	1	419	3
K 8027 (c)	361	5	409	6	419	5	397	6
DBW 252	318	6	453	2	427	4	399	5
K 1317 (c)	423	1	428	4	443	3	432	1
MEAN	373		438		434		415	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		5.90		23.15		6.03	
Genotype (B)	NS		9.34		26.96		6.75	
B within A	*		16.17		46.69			
A within B			15.89		45.90			
			Grains/Earhead					
HD 3171 (c)	23.2	1	24.2	2	21.6	4	23.0	3
HI 1612 (c)	22.9	2	21.9	4	23.6	3	22.8	4
HD 2888 (c)	18.0	6	11.8	6	12.9	6	14.2	6
K 8027 (c)	18.4	5	14.4	5	14.3	5	15.7	5
DBW 252	22.6	3	22.5	3	25.5	2	23.5	2
K 1317 (c)	21.4	4	25.6	1	25.6	1	24.2	1
MEAN	21.08		20.07		20.58		20.58	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		1.53		6.01		31.58	
Genotype (B)	**		1.37		3.97		20.05	
B within A	NS		2.38		6.88			
A within B			2.66		7.68			
			1000 Grains Weight, g					
HD 3171 (c)	48.67	2	46.77	3	50.13	2	48.52	3
HI 1612 (c)	44.90	4	43.13	6	43.10	4	43.71	4
HD 2888 (c)	44.00	6	44.30	4	42.43	6	43.58	6
K 8027 (c)	48.23	3	49.97	1	49.83	3	49.34	2
DBW 252	44.20	5	44.10	5	42.50	5	43.60	5
K 1317 (c)	50.77	1	48.70	2	50.77	1	50.08	1
MEAN	46.79		46.16		46.46		46.47	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		0.89		3.49		8.11	
Genotype (B)	**		0.86		2.48		5.55	
B within A	NS		1.49		4.30			
A within B			1.62		4.69			
Date of Sowing:								
Date of Harvesting:			06.04.2019					

Table 3.2.5 North Eastern Plains Zone **RIR-TS-TAS** **Kalyani** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	27.34	1	27.06	2	28.38	3	27.59	2
HI 1612 (c)	24.48	3	28.37	1	31.97	1	28.28	1
HD 2888 (c)	22.11	6	25.28	5	30.76	2	26.05	3
K 8027 (c)	22.91	4	20.08	6	24.31	6	22.43	6
DBW 252	25.76	2	25.30	4	26.28	5	25.78	4
K 1317 (c)	22.65	5	25.47	3	26.30	4	24.81	5
MEAN	24.21		25.26		28.00		25.82	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		1.33		5.22		21.86	
Genotype (B)	*		1.24		3.57		14.38	
B within A	NS		2.14		6.19			
A within B			2.37		6.83			
			Earheads/sqm					
HD 3171 (c)	236	1	257	4	293	5	262	2
HI 1612 (c)	208	3	248	6	290	6	249	6
HD 2888 (c)	200	6	270	1	311	2	260	3
K 8027 (c)	214	2	250	5	323	1	262	1
DBW 252	202	5	260	3	304	3	255	5
K 1317 (c)	208	4	263	2	302	4	258	4
MEAN	211		258		304		258	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		7.56		29.69		12.45	
Genotype (B)	NS		8.38		24.19		9.75	
B within A	NS		14.51		41.90			
A within B			15.25		44.05			
			Grains/Earhead					
HD 3171 (c)	31.2	3	27.4	2	23.9	3	27.5	2
HI 1612 (c)	35.3	1	29.8	1	26.0	2	30.3	1
HD 2888 (c)	30.3	4	24.0	4	26.4	1	26.9	3
K 8027 (c)	28.5	6	19.8	6	17.0	6	21.8	6
DBW 252	34.3	2	24.9	3	21.0	4	26.7	4
K 1317 (c)	28.8	5	22.7	5	20.8	5	24.1	5
MEAN	31.41		24.77		22.51		26.23	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.51		5.92		24.37	
Genotype (B)	NS		1.89		5.45		21.60	
B within A	NS		3.27		9.45			
A within B			3.34		9.66			
			1000 Grains Weight, g					
HD 3171 (c)	37.17	4	39.50	4	40.50	5	39.06	4
HI 1612 (c)	34.50	6	38.50	6	42.67	2	38.56	5
HD 2888 (c)	37.00	5	39.67	3	38.17	6	38.28	6
K 8027 (c)	38.17	2	41.00	2	44.17	1	41.11	2
DBW 252	38.50	1	39.50	4	41.40	4	39.80	3
K 1317 (c)	38.17	2	43.00	1	42.67	2	41.28	1
MEAN	37.25		40.19		41.59		39.68	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.18		4.62		12.59	
Genotype (B)	NS		1.13		3.25		8.52	
B within A	NS		1.95		5.64			
A within B			2.14		6.17			
Date of Sowing:			12.11.18					
Date of Harvesting:			10.03.19		12.03.19		15.03.19	

Table 3.2.6 North Eastern Plains Zone **RIR-TS-TAS** **Kanpur** **2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	28.17	6	43.50	1	49.08	4	40.25	2
HI 1612 (c)	30.16	4	40.30	2	52.28	1	40.91	1
HD 2888 (c)	31.50	2	37.40	5	46.10	6	38.33	5
K 8027 (c)	29.12	5	38.70	3	47.10	5	38.31	6
DBW 252	30.50	3	38.50	4	50.38	3	39.79	4
K 1317 (c)	32.40	1	36.43	6	51.30	2	40.04	3
MEAN	30.31		39.14		49.37		39.61	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.64		2.52		6.87	
Genotype (B)	**		0.54		1.57		4.11	
B within A	**		0.94		2.71			
A within B			1.07		3.09			
			Earheads/sqm					
HD 3171 (c)	300	6	359	1	361	1	340	6
HI 1612 (c)	321	5	353	2	359	2	344	1
HD 2888 (c)	338	2	344	5	348	5	343	3
K 8027 (c)	325	4	349	3	358	3	344	2
DBW 252	326	3	347	4	357	4	343	3
K 1317 (c)	344	1	339	6	343	6	342	5
MEAN	326		349		354		343	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.70		6.69		2.11	
Genotype (B)	NS		2.28		6.59		2.00	
B within A	**		3.95		11.42			
A within B			3.99		11.53			
			Grains/Earhead					
HD 3171 (c)	25.3	2	29.7	1	33.0	4	29.3	1
HI 1612 (c)	24.8	3	28.4	3	34.2	2	29.1	3
HD 2888 (c)	24.1	6	27.6	5	32.4	5	28.0	6
K 8027 (c)	26.2	1	28.3	4	31.6	6	28.7	5
DBW 252	24.4	4	28.7	2	33.3	3	28.8	4
K 1317 (c)	24.2	5	27.5	6	36.1	1	29.2	2
MEAN	24.82		28.36		33.44		28.88	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.60		2.36		8.85	
Genotype (B)	NS		0.58		1.67		5.99	
B within A	NS		1.00		2.89			
A within B			1.09		3.16			
			1000 Grains Weight, g					
HD 3171 (c)	37.13	5	40.76	1	41.26	5	39.72	4
HI 1612 (c)	37.90	4	40.23	2	42.53	1	40.22	1
HD 2888 (c)	38.76	2	39.43	3	40.80	6	39.66	5
K 8027 (c)	34.42	6	39.20	4	41.73	3	38.45	6
DBW 252	38.36	3	38.76	6	42.46	2	39.86	3
K 1317 (c)	39.03	1	39.12	5	41.50	4	39.88	2
MEAN	37.60		39.58		41.71		39.63	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.27		1.07		2.91	
Genotype (B)	NS		0.46		1.31		3.45	
B within A	*		0.79		2.28			
A within B			0.77		2.22			
Date of Sowing:								
Date of Harvesting:			20.04.2019		22.04.2019		24.04.2019	

Table 3.2.7 North Eastern Plains Zone **RIR-TS-TAS** **Ranchi** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha		02.05.2018			
HD 3171 (c)	39.40	1	43.47	1	45.33	2	42.73	1
HI 1612 (c)	34.07	4	39.40	3	36.93	4	36.80	3
HD 2888 (c)	22.40	6	35.93	4	20.33	6	26.22	6
K 8027 (c)	25.93	5	28.73	6	29.07	5	27.91	5
DBW 252	35.60	3	31.53	5	42.27	3	36.47	4
K 1317 (c)	38.73	2	39.93	2	49.20	1	42.62	2
MEAN	32.69		36.50		37.19		35.46	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.33		5.20		15.86	
Genotype (B)	**		1.09		3.15		9.23	
B within A	**		1.89		5.45			
A within B			2.17		6.28			
			Earheads/sqm					
HD 3171 (c)	375	1	377	1	433	2	395	2
HI 1612 (c)	333	4	347	3	390	4	357	4
HD 2888 (c)	330	5	310	5	317	5	319	5
K 8027 (c)	323	6	300	6	307	6	310	6
DBW 252	340	3	347	3	417	3	368	3
K 1317 (c)	363	2	370	2	457	1	397	1
MEAN	344		342		387		358	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		14.93		58.59		17.71	
Genotype (B)	**		14.68		42.38		12.32	
B within A	NS		25.42		73.41			
A within B			27.59		79.68			
			Grains/Earhead					
HD 3171 (c)	23.6	2	26.0	2	22.8	2	24.1	1
HI 1612 (c)	22.8	4	25.6	3	22.4	4	23.6	2
HD 2888 (c)	16.6	6	27.7	1	14.4	6	19.6	6
K 8027 (c)	19.4	5	22.3	5	21.4	5	21.0	5
DBW 252	23.3	3	20.0	6	22.6	3	21.9	4
K 1317 (c)	24.0	1	23.4	4	22.9	1	23.4	3
MEAN	21.60		24.14		21.07		22.27	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		1.42		5.59		27.14	
Genotype (B)	NS		1.32		3.81		17.77	
B within A	NS		2.29		6.60			
A within B			2.53		7.30			
			1000 Grains Weight, g					
HD 3171 (c)	44.73	4	44.67	4	46.23	2	45.21	3
HI 1612 (c)	45.17	2	45.00	3	43.23	6	44.47	4
HD 2888 (c)	41.07	6	42.13	6	44.80	5	42.67	6
K 8027 (c)	42.87	5	44.47	5	45.60	3	44.31	5
DBW 252	45.17	2	46.03	2	45.13	4	45.44	2
K 1317 (c)	45.80	1	46.53	1	48.83	1	47.06	1
MEAN	44.13		44.81		45.64		44.86	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.25		0.97		2.33	
Genotype (B)	**		0.31		0.90		2.07	
B within A	**		0.54		1.55			
A within B			0.55		1.58			
Date of Sowing:			28.10.2018					
Date of Harvesting:			30.03.2019		02.04.2019		4.04.2019	

Table 3.2.8 North Eastern Plains Zone **RIR-TS-TAS** **CAU Pusa** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	33.85	2	38.56	1	42.78	1	38.40	1
HI 1612 (c)	34.65	1	37.65	3	40.35	5	37.55	2
HD 2888 (c)	31.85	5	36.05	5	39.73	6	35.88	5
K 8027 (c)	31.05	6	35.28	6	41.21	4	35.85	6
DBW 252	32.74	3	38.02	2	41.85	3	37.54	3
K 1317 (c)	32.21	4	36.71	4	42.05	2	36.99	4
MEAN	32.73		37.05		41.33		37.03	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.21		0.83		2.41	
Genotype (B)	*		0.60		1.72		4.82	
B within A	NS		1.03		2.98			
A within B			0.96		2.78			
			Earheads/sqm					
HD 3171 (c)	303	2	328	1	346	1	326	1
HI 1612 (c)	305	1	323	3	338	5	322	3
HD 2888 (c)	298	6	318	5	336	6	317	6
K 8027 (c)	300	5	315	6	339	4	318	5
DBW 252	302	3	325	2	341	3	323	2
K 1317 (c)	301	4	320	4	344	2	322	4
MEAN	302		322		341		321	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.53		2.06		0.69	
Genotype (B)	**		0.91		2.64		0.85	
B within A	*		1.58		4.57			
A within B			1.54		4.44			
			Grains/Earhead					
HD 3171 (c)	29.6	3	30.0	5	30.3	6	30.0	6
HI 1612 (c)	29.7	2	30.1	4	30.6	3	30.1	3
HD 2888 (c)	30.9	1	30.2	2	30.5	5	30.5	1
K 8027 (c)	29.1	6	30.3	1	31.1	1	30.2	2
DBW 252	29.3	5	30.0	6	30.9	2	30.1	4
K 1317 (c)	29.6	4	30.1	3	30.5	4	30.1	5
MEAN	29.71		30.12		30.67		30.17	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.17		0.67		2.41	
Genotype (B)	NS		0.77		2.22		7.64	
B within A	NS		1.33		3.84			
A within B			1.23		3.54			
			1000 Grains Weight, g					
HD 3171 (c)	37.69	2	39.25	1	40.82	1	39.25	1
HI 1612 (c)	38.28	1	38.78	3	39.05	5	38.70	2
HD 2888 (c)	34.71	6	37.63	5	38.89	6	37.08	6
K 8027 (c)	35.62	5	37.08	6	39.14	4	37.28	5
DBW 252	37.05	3	39.01	2	39.75	3	38.60	3
K 1317 (c)	36.18	4	38.12	4	40.21	2	38.17	4
MEAN	36.59		38.31		39.64		38.18	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.24		0.93		2.63	
Genotype (B)	NS		0.62		1.80		4.91	
B within A	NS		1.08		3.13			
A within B			1.02		2.93			
Date of Sowing:			26.11.2018					
Date of Harvesting:			08.04.2019		11.04.2019		14.04.2019	

Table 3.2.9 North Eastern Plains Zone **RIR-TS-TAS** **Sabour** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	28.79	4	37.33	4	43.68	4	36.60	4
HI 1612 (c)	29.36	3	37.81	3	44.84	3	37.34	3
HD 2888 (c)	27.38	6	36.82	5	42.23	5	35.47	5
K 8027 (c)	31.90	2	39.03	2	45.63	2	38.85	2
DBW 252	32.71	1	42.39	1	48.72	1	41.27	1
K 1317 (c)	27.40	5	36.23	6	41.93	6	35.19	6
MEAN	29.59		38.27		44.51		37.45	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.97		3.81		10.98	
Genotype (B)	**		1.04		3.01		8.35	
B within A	NS		1.81		5.22			
A within B			1.91		5.52			
			Earheads/sqm					
HD 3171 (c)	282	4	315	4	343	4	313	4
HI 1612 (c)	290	3	326	3	347	3	321	3
HD 2888 (c)	271	5	300	5	339	5	303	5
K 8027 (c)	300	2	334	2	352	2	329	2
DBW 252	306	1	340	1	359	1	335	1
K 1317 (c)	268	6	295	6	324	6	296	6
MEAN	286		318		344		316	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		2.84		11.14		3.81	
Genotype (B)	**		5.51		15.92		5.23	
B within A	NS		9.55		27.58			
A within B			9.17		26.48			
			Grains/Earhead					
HD 3171 (c)	28.9	4	33.2	4	35.6	2	32.6	3
HI 1612 (c)	28.2	6	31.5	6	34.8	4	31.5	6
HD 2888 (c)	28.8	5	33.4	3	33.5	6	31.9	5
K 8027 (c)	30.8	1	31.7	5	33.8	5	32.1	4
DBW 252	29.0	3	34.1	2	35.3	3	32.8	2
K 1317 (c)	29.9	2	34.5	1	36.6	1	33.7	1
MEAN	29.27		33.07		34.93		32.43	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.39		5.46		18.21	
Genotype (B)	NS		1.47		4.25		13.63	
B within A	NS		2.55		7.37			
A within B			2.71		7.84			
			1000 Grains Weight, g					
HD 3171 (c)	35.38	4	35.80	6	36.69	5	35.95	5
HI 1612 (c)	35.97	2	36.80	3	37.04	4	36.60	3
HD 2888 (c)	35.64	3	36.93	2	37.21	3	36.59	4
K 8027 (c)	35.00	5	37.20	1	38.40	2	36.87	2
DBW 252	37.06	1	36.67	4	38.71	1	37.48	1
K 1317 (c)	34.47	6	35.88	5	35.79	6	35.38	6
MEAN	35.59		36.55		37.31		36.48	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		0.69		2.70		8.01	
Genotype (B)	NS		0.86		2.47		7.05	
B within A	NS		1.48		4.29			
A within B			1.52		4.39			
Date of Sowing:								
Date of Harvesting:			06.04.2019		13.04.2019		14.04.2019	

Table 3.2.10 North Eastern Plains Zone **RIR-TS-TAS** **Shillongani** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	32.30	4	43.07	3	47.07	2	40.81	3
HI 1612 (c)	35.44	1	45.48	1	47.83	1	42.92	1
HD 2888 (c)	33.85	2	44.15	2	46.58	3	41.53	2
K 8027 (c)	30.41	5	35.55	6	38.79	6	34.91	6
DBW 252	33.67	3	41.65	4	44.99	4	40.10	4
K 1317 (c)	25.40	6	37.57	5	43.34	5	35.44	5
MEAN	31.85		41.24		44.77		39.28	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.37		1.45		4.00	
Genotype (B)	**		0.65		1.87		4.95	
B within A	*		1.12		3.24			
A within B			1.09		3.14			
			Earheads/sqm					
HD 3171 (c)	194	5	237	4	237	5	223	4
HI 1612 (c)	223	2	242	3	241	4	235	2
HD 2888 (c)	232	1	244	1	244	2	240	1
K 8027 (c)	212	3	228	6	250	1	230	3
DBW 252	177	6	244	1	244	3	222	5
K 1317 (c)	199	4	230	5	233	6	221	6
MEAN	206		237		242		228	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.85		3.35		1.59	
Genotype (B)	**		2.62		7.56		3.44	
B within A	**		4.54		13.10			
A within B			4.23		12.21			
			Grains/Earhead					
HD 3171 (c)	36.3	2	36.3	3	39.2	2	37.2	2
HI 1612 (c)	32.8	3	38.7	1	39.9	1	37.1	3
HD 2888 (c)	29.8	5	37.4	2	39.2	3	35.5	4
K 8027 (c)	29.9	4	32.5	5	31.8	6	31.4	5
DBW 252	40.1	1	35.3	4	37.9	4	37.8	1
K 1317 (c)	23.8	6	30.4	6	36.9	5	30.4	6
MEAN	32.12		35.09		37.46		34.89	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.33		1.28		3.97	
Genotype (B)	**		0.91		2.64		7.86	
B within A	**		1.58		4.57			
A within B			1.48		4.28			
			1000 Grains Weight, g					
HD 3171 (c)	45.95	6	50.16	2	50.65	1	48.92	3
HI 1612 (c)	48.45	3	48.65	3	49.73	3	48.94	2
HD 2888 (c)	48.96	2	48.51	4	48.84	4	48.77	4
K 8027 (c)	48.16	4	47.95	6	48.78	5	48.29	6
DBW 252	47.77	5	48.45	5	48.73	6	48.32	5
K 1317 (c)	53.55	1	54.07	1	50.60	2	52.74	1
MEAN	48.81		49.63		49.55		49.33	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		0.29		1.13		2.47	
Genotype (B)	**		0.66		1.91		4.02	
B within A	NS		1.14		3.30			
A within B			1.08		3.13			
Date of Sowing:								
Date of Harvesting:			05.03.19 to 20.03.19		05.03.19 to 20.03.19		05.03.19 to 23.03.19	

Table 3.2.11 North Eastern Plains Zone **RIR-TS-TAS** **Varanasi** **2018-19**

	Irrigation level							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HD 3171 (c)	41.61	3	51.23	1	55.30	1	49.38	1
HI 1612 (c)	40.66	5	43.75	4	45.88	4	43.43	4
HD 2888 (c)	46.11	1	35.05	5	35.59	5	38.92	5
K 8027 (c)	37.98	6	25.23	6	27.47	6	30.23	6
DBW 252	41.05	4	46.65	2	48.49	3	45.40	3
K 1317 (c)	43.43	2	46.28	3	52.05	2	47.25	2
MEAN	41.80		41.37		44.13		42.43	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		1.04		4.09		10.41	
Genotype (B)	**		1.68		4.84		11.85	
B within A	**		2.90		8.38			
A within B			2.85		8.22			
			Earheads/sqm					
HD 3171 (c)	332	5	372	5	383	3	362	5
HI 1612 (c)	366	2	422	1	397	2	395	2
HD 2888 (c)	381	1	409	2	431	1	407	1
K 8027 (c)	310	6	337	6	315	6	321	6
DBW 252	349	3	389	3	368	5	369	3
K 1317 (c)	341	4	382	4	380	4	368	4
MEAN	347		385		379		370	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		7.95		31.21		9.11	
Genotype (B)	**		9.85		28.46		7.98	
B within A	NS		17.07		49.29			
A within B			17.49		50.51			
			Grains/Earhead					
HD 3171 (c)	29.8	2	33.7	1	34.2	1	32.6	1
HI 1612 (c)	29.2	4	25.5	4	28.4	4	27.7	4
HD 2888 (c)	29.5	3	20.8	5	20.3	5	23.5	5
K 8027 (c)	27.3	6	18.3	6	20.2	6	21.9	6
DBW 252	30.7	1	29.5	2	32.0	2	30.8	2
K 1317 (c)	29.0	5	28.6	3	31.4	3	29.6	3
MEAN	29.26		26.07		27.76		27.69	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		1.21		4.74		18.50	
Genotype (B)	**		1.11		3.20		12.00	
B within A	*		1.92		5.54			
A within B			2.13		6.14			
			1000 Grains Weight, g					
HD 3171 (c)	42.52	3	40.99	5	42.31	3	41.94	3
HI 1612 (c)	38.98	6	40.69	6	40.73	5	40.13	6
HD 2888 (c)	41.03	4	41.13	3	40.72	6	40.96	4
K 8027 (c)	44.74	1	41.25	2	43.43	2	43.14	2
DBW 252	39.02	5	41.13	4	41.23	4	40.46	5
K 1317 (c)	44.41	2	42.83	1	43.82	1	43.68	1
MEAN	41.78		41.33		42.04		41.72	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	NS		0.38		1.51		3.91	
Genotype (B)	**		0.75		2.17		5.41	
B within A	NS		1.30		3.76			
A within B			1.25		3.61			
Date of Sowing:			22.11.2018					
Date of Harvesting:			15.04.2019		18.04.2019		23.04.2019	

Table 4.1.1. Central Zone **RIR-TS-TAD** **Bilaspur** **2018-19**

Genotype	Irrigation Levels: No	Rk	One	Rk	Two	Rk	Mean	Rk
Yield, q/ha								
DDW 47 (d)	28.79	4	30.24	4	32.84	4	30.62	4
DBW 110 (c)	34.32	1	34.39	1	38.39	1	35.70	1
HI 8627 (dc)	29.58	3	31.95	3	34.01	3	31.85	3
MP 3288 (c)	32.87	2	32.69	2	36.75	2	34.10	2
UAS 466 (d)	23.83	5	28.43	5	28.50	5	26.92	5
MEAN	29.88		31.54		34.10		31.84	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.38		1.48		4.59	
Genotype (B)	**		0.53		1.54		4.96	
B within A	NS		0.91		2.66			
A within B			0.90		2.62			
Earhead/sqm								
DDW 47 (d)	247	4	262	3	288	4	265	3
DBW 110 (c)	281	1	290	1	323	1	298	1
HI 8627 (dc)	255	3	249	4	290	3	265	4
MP 3288 (c)	255	2	268	2	296	2	273	2
UAS 466 (d)	239	5	243	5	278	5	253	5
MEAN	255		262		295		271	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		1.85		7.26		2.65	
Genotype (B)	**		2.08		6.07		2.30	
B within A	NS		3.60		10.51			
A within B			3.71		10.84			
Grains/earhead								
DDW 47 (d)	32.97	2	29.44	4	29.84	1	30.75	2
DBW 110 (c)	28.53	4	27.20	5	26.76	5	27.50	5
HI 8627 (dc)	30.27	3	31.83	1	26.86	4	29.65	3
MP 3288 (c)	33.80	1	31.35	2	28.15	3	31.10	1
UAS 466 (d)	26.04	5	30.35	3	28.72	2	28.37	4
MEAN	30.32		30.03		28.07		29.47	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		1.14		4.47		14.97	
Genotype (B)	**		0.56		1.65		5.74	
B within A	**		0.98		2.85			
A within B			1.44		4.19			
1000 Grains Weight, g								
DDW 47 (d)	35.50	5	39.19	3	38.23	4	37.64	4
DBW 110 (c)	42.82	1	43.47	1	44.51	1	43.60	1
HI 8627 (dc)	38.59	2	40.44	2	43.59	3	40.87	2
MP 3288 (c)	38.18	4	38.79	4	44.15	2	40.37	3
UAS 466 (d)	38.59	2	38.63	5	35.63	5	37.61	5
MEAN	38.74		40.10		41.22		40.02	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.96		3.78		9.32	
Genotype (B)	**		0.60		1.75		4.50	
B within A	**		1.04		3.03			
A within B			1.34		3.91			
Date of Sowing:			28.10.2018					
Date of Harvesting:			03.03.2019		05.03.2019		06.03.2019	

Table 4.1.2. Central Zone	RIR-TS-TAD		Gwalior		2018-19			
	Irrigation Levels							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
Yield, q/ha								
DDW 47 (d)	22.27	3	35.07	1	38.10	2	31.81	2
DBW 110 (c)	17.83	5	30.57	5	33.30	5	27.23	5
HI 8627 (dc)	22.43	2	32.33	3	36.33	3	30.37	3
MP 3288 (c)	24.77	1	33.87	2	40.30	1	32.98	1
UAS 466 (d)	20.59	4	32.13	4	34.10	4	28.94	4
MEAN	21.58		32.79		36.43		30.27	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.17		0.65		2.13	
Genotype (B)	**		0.23		0.68		2.32	
B within A	**		0.41		1.18			
A within B			0.40		1.16			
Earhead/sqm								
DDW 47 (d)	225	4	286	1	334	2	282	2
DBW 110 (c)	221	5	263	3	282	5	256	5
HI 8627 (dc)	228	3	260	4	293	3	260	3
MP 3288 (c)	261	1	277	2	352	1	297	1
UAS 466 (d)	229	2	257	5	287	4	258	4
MEAN	233		269		310		270	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		1.68		6.61		2.41	
Genotype (B)	**		3.17		9.27		3.52	
B within A	**		5.50		16.05			
A within B			5.20		15.17			
Grains/earhead								
DDW 47 (d)	21.64	3	28.55	5	24.11	5	24.77	5
DBW 110 (c)	19.17	5	30.47	3	30.83	2	26.82	4
HI 8627 (dc)	23.94	2	29.51	4	28.98	4	27.48	3
MP 3288 (c)	24.28	1	38.26	1	29.69	3	30.74	1
UAS 466 (d)	20.69	4	35.44	2	30.96	1	29.03	2
MEAN	21.94		32.45		28.91		27.77	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.28		1.10		3.92	
Genotype (B)	**		0.39		1.15		4.27	
B within A	**		0.68		2.00			
A within B			0.67		1.97			
1000 Grains Weight, g								
DDW 47 (d)	45.79	1	42.91	1	47.37	1	45.36	1
DBW 110 (c)	42.07	3	38.15	3	38.31	5	39.51	3
HI 8627 (dc)	41.12	4	42.21	2	42.84	2	42.06	2
MP 3288 (c)	39.15	5	32.01	5	38.60	3	36.58	5
UAS 466 (d)	43.71	2	35.28	4	38.33	4	39.11	4
MEAN	42.37		38.11		41.09		40.52	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.33		1.30		3.16	
Genotype (B)	**		0.35		1.02		2.58	
B within A	**		0.60		1.76			
A within B			0.63		1.85			
Date of Sowing:			13.11.2018					
Date of Harvesting:			30.03.2019		05.04.2019		08.04.2019	

Table 4.1.3. Central Zone	RIR-TS-TAD		Indore		2018-19			
	Irrigation Levels							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
Yield, q/ha								
DDW 47 (d)	15.13	5	23.10	4	31.97	5	23.40	4
DBW 110 (c)	19.40	3	27.53	3	36.53	3	27.82	3
HI 8627 (dc)	20.03	1	28.67	2	38.33	2	29.01	2
MP 3288 (c)	19.63	2	31.33	1	41.70	1	30.89	1
UAS 466 (d)	15.30	4	20.07	5	33.00	4	22.79	5
MEAN	17.90		26.14		36.31		26.78	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.46		1.79		6.61	
Genotype (B)	**		0.68		1.99		7.62	
B within A	NS		1.18		3.44			
A within B			1.15		3.35			
Earhead/sqm								
DDW 47 (d)	164	5	203	5	223	5	197	5
DBW 110 (c)	192	2	229	4	241	4	221	4
HI 8627 (dc)	187	3	242	3	261	2	230	2
MP 3288 (c)	209	1	261	1	306	1	258	1
UAS 466 (d)	177	4	244	2	258	3	226	3
MEAN	186		236		258		226	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		3.10		12.17		5.30	
Genotype (B)	**		4.58		13.38		6.08	
B within A	NS		7.94		23.18			
A within B			7.75		22.62			
Grains/earhead								
DDW 47 (d)	16.34	5	21.02	4	22.71	5	20.02	5
DBW 110 (c)	22.06	2	26.51	2	33.30	1	27.29	1
HI 8627 (dc)	20.85	3	23.12	3	26.05	4	23.34	3
MP 3288 (c)	22.45	1	27.12	1	30.42	2	26.66	2
UAS 466 (d)	19.20	4	17.86	5	26.14	3	21.07	4
MEAN	20.18		23.12		27.73		23.68	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.15		0.58		2.42	
Genotype (B)	**		0.30		0.89		3.86	
B within A	**		0.53		1.54			
A within B			0.49		1.44			
1000 Grains Weight, g								
DDW 47 (d)	56.90	1	54.33	1	63.33	1	58.19	1
DBW 110 (c)	45.80	3	45.40	4	45.50	4	45.57	4
HI 8627 (dc)	51.40	2	51.23	2	56.40	2	53.01	2
MP 3288 (c)	41.83	5	44.33	5	44.80	5	43.66	5
UAS 466 (d)	44.87	4	46.03	3	49.03	3	46.64	3
MEAN	48.16		48.27		51.81		49.41	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.27		1.05		2.09	
Genotype (B)	**		0.26		0.77		1.59	
B within A	**		0.45		1.33			
A within B			0.49		1.42			
Date of Sowing:			05.11.2018					
Date of Harvesting:			15.03.2019		24.03.2019		24.03.2019	

Table 4.1.4. Central Zone **RIR-TS-TAD** **Powarkheda** **2018-19**

Genotype	Irrigation Levels: No	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
DDW 47 (d)	21.36	5	47.42	3	59.52	3	42.77	3
DBW 110 (c)	23.94	2	48.61	1	63.69	1	45.41	2
HI 8627 (dc)	27.31	1	47.62	2	62.50	2	45.81	1
MP 3288 (c)	23.14	3	46.63	4	53.77	4	41.18	4
UAS 466 (d)	23.14	3	41.86	5	53.67	5	39.56	5
MEAN	23.78		46.43		58.63		42.95	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		2.67		10.47		24.04	
Genotype (B)	NS		1.82		5.32		12.73	
B within A	NS		3.16		9.22			
A within B			3.88		11.34			
			Earhead/sqm					
DDW 47 (d)	244	5	306	3	365	2	305	2
DBW 110 (c)	261	4	309	2	329	3	300	3
HI 8627 (dc)	270	3	278	5	283	5	277	5
MP 3288 (c)	290	1	335	1	408	1	344	1
UAS 466 (d)	277	2	297	4	308	4	294	4
MEAN	268		305		338		304	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		3.96		15.55		5.05	
Genotype (B)	**		6.52		19.04		6.44	
B within A	**		11.30		32.98			
A within B			10.85		31.68			
			Grains/earhead					
DDW 47 (d)	23.03	5	34.73	5	34.13	5	30.63	5
DBW 110 (c)	29.68	1	41.62	1	50.12	1	40.47	1
HI 8627 (dc)	28.15	4	39.62	3	47.63	2	38.47	2
MP 3288 (c)	28.56	3	38.78	4	35.44	4	34.26	4
UAS 466 (d)	29.07	2	39.63	2	46.23	3	38.31	3
MEAN	27.70		38.87		42.71		36.43	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		2.57		10.09		27.33	
Genotype (B)	**		1.57		4.57		12.89	
B within A	NS		2.71		7.92			
A within B			3.53		10.32			
			1000 Grains Weight, g					
DDW 47 (d)	38.33	1	44.60	1	47.87	1	43.60	1
DBW 110 (c)	30.80	3	37.80	3	38.80	3	35.80	3
HI 8627 (dc)	36.27	2	43.27	2	46.67	2	42.07	2
MP 3288 (c)	27.93	5	35.93	4	37.40	5	33.76	5
UAS 466 (d)	28.87	4	35.80	5	38.00	4	34.22	4
MEAN	32.44		39.48		41.75		37.89	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.65		2.56		6.65	
Genotype (B)	**		0.54		1.56		4.24	
B within A	NS		0.93		2.71			
A within B			1.05		3.08			
Date of Sowing:			05.11.2018					
Date of Harvesting:			05.03.2019		12.03.2019		23.03.2019	

Table 4.1.5. Central Zone	RIR-TS-TAD		Udaipur		2018-19			
	Irrigation Levels							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
Yield, q/ha								
DDW 47 (d)	28.12	2	36.82	1	43.83	1	36.26	1
DBW 110 (c)	28.32	1	35.19	2	42.57	3	35.36	2
HI 8627 (dc)	25.57	4	33.86	3	42.64	2	34.02	3
MP 3288 (c)	26.08	3	30.97	4	34.03	4	30.36	4
UAS 466 (d)	20.50	5	29.89	5	30.40	5	26.93	5
MEAN	25.72		33.35		38.69		32.59	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.67		2.64		7.99	
Genotype (B)	**		0.67		1.95		6.16	
B within A	**		1.16		3.39			
A within B			1.24		3.61			
Earhead/sqm								
DDW 47 (d)	325	1	423	1	468	1	405	1
DBW 110 (c)	320	2	413	2	438	2	391	2
HI 8627 (dc)	313	4	382	4	423	3	373	3
MP 3288 (c)	315	3	383	3	403	5	367	4
UAS 466 (d)	295	5	378	5	408	4	360	5
MEAN	314		396		428		379	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		4.73		18.57		4.83	
Genotype (B)	*		10.10		29.47		7.99	
B within A	NS		17.49		51.04			
A within B			16.34		47.69			
Grains/earhead								
DDW 47 (d)	20.96	3	19.31	5	19.89	4	20.05	3
DBW 110 (c)	24.32	1	20.91	2	26.21	1	23.81	1
HI 8627 (dc)	19.17	5	19.73	4	21.25	2	20.05	4
MP 3288 (c)	23.21	2	20.62	3	21.13	3	21.66	2
UAS 466 (d)	19.94	4	22.36	1	17.50	5	19.93	5
MEAN	21.52		20.59		21.20		21.10	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.46		1.81		8.49	
Genotype (B)	**		0.80		2.33		11.33	
B within A	NS		1.38		4.03			
A within B			1.32		3.85			
1000 Grains Weight, g								
DDW 47 (d)	41.52	2	45.39	1	47.24	2	44.72	2
DBW 110 (c)	36.59	3	40.86	3	37.11	5	38.19	4
HI 8627 (dc)	42.65	1	45.02	2	47.81	1	45.16	1
MP 3288 (c)	36.05	4	39.25	4	40.15	4	38.48	3
UAS 466 (d)	35.13	5	35.53	5	42.64	3	37.77	5
MEAN	38.39		41.21		42.99		40.86	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.19		0.75		1.82	
Genotype (B)	**		0.28		0.83		2.08	
B within A	**		0.49		1.43			
A within B			0.48		1.40			
Date of Sowing:			11.11.2018					
Date of Harvesting:			22.03.2019		30.03.2019		05.04.2019	

Table 4.1.6. Central Zone **RIR-TS-TAD** **Jabalpur** **2018-19**

Genotype	Irrigation Levels: No	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
DDW 47 (d)	32.61	1	32.45	4	34.52	4	33.19	2
DBW 110 (c)	26.55	3	35.13	1	37.83	2	33.17	3
HI 8627 (dc)	29.50	2	34.92	2	35.53	3	33.32	1
MP 3288 (c)	25.52	4	33.43	3	39.31	1	32.75	4
UAS 466 (d)	25.34	5	31.54	5	32.06	5	29.65	5
MEAN	27.90		33.49		35.85		32.42	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.39		1.53		4.67	
Genotype (B)	**		0.38		1.12		3.54	
B within A	**		0.66		1.93			
A within B			0.71		2.07			
			Earhead/sqm					
DDW 47 (d)	297	1	298	1	299	1	298	1
DBW 110 (c)	292	2	293	2	293	2	293	2
HI 8627 (dc)	288	5	289	5	289	5	289	5
MP 3288 (c)	289	4	290	4	290	4	290	4
UAS 466 (d)	292	2	293	2	293	2	293	2
MEAN	291		292		293		292	
	F Test		SEm		CD		CV (%)	
Irrigation (A)			0.00		0.00		0.00	
Genotype (B)	**		0.34		1.00		0.35	
B within A	NS		0.60		1.74			
A within B			0.53		1.56			
			Grains/earhead					
DDW 47 (d)	28.06	1	27.12	4	28.63	4	27.94	2
DBW 110 (c)	23.59	3	30.60	1	31.57	2	28.59	1
HI 8627 (dc)	24.68	2	29.75	2	29.04	3	27.82	3
MP 3288 (c)	22.15	5	28.98	3	32.02	1	27.72	4
UAS 466 (d)	23.25	4	26.66	5	27.37	5	25.76	5
MEAN	24.35		28.62		29.73		27.57	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.21		0.84		3.02	
Genotype (B)	**		0.41		1.20		4.49	
B within A	**		0.71		2.09			
A within B			0.67		1.97			
			1000 Grains Weight, g					
DDW 47 (d)	39.14	3	40.14	3	40.44	4	39.91	3
DBW 110 (c)	38.58	4	39.22	5	40.85	3	39.55	4
HI 8627 (dc)	41.55	1	40.67	1	42.30	2	41.51	1
MP 3288 (c)	39.88	2	39.84	4	42.32	1	40.68	2
UAS 466 (d)	37.40	5	40.44	2	39.99	5	39.28	5
MEAN	39.31		40.06		41.18		40.18	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.18		0.69		1.69	
Genotype (B)	**		0.33		0.97		2.48	
B within A	NS		0.58		1.68			
A within B			0.54		1.59			
Date of Sowing:			05.11.2018					
Date of Harvesting:			28.03.2019		02.04.2019		05.04.2019	

Rejected due to improper data

Table 4.1.7. Central Zone **RIR-TS-TAD** **Junagarh** **2018-19**

Genotype	Irrigation Levels: No	Rk	One	Rk	Two	Rk	Mean	Rk
Yield, q/ha								
DDW 47 (d)	7.48	4	13.54	3	21.94	3	14.32	3
DBW 110 (c)	11.36	2	15.00	2	23.61	2	16.65	2
HI 8627 (dc)	4.52	5	8.33	5	13.71	5	8.85	5
MP 3288 (c)	18.23	1	19.62	1	29.45	1	22.43	1
UAS 466 (d)	9.97	3	13.10	4	17.99	4	13.69	4
MEAN	10.31		13.92		21.34		15.19	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.31		1.23		8.01	
Genotype (B)	**		0.25		0.72		4.89	
B within A	**		0.43		1.25			
A within B			0.50		1.45			
Earhead/sqm								
DDW 47 (d)	249	4	269	4	291	3	270	4
DBW 110 (c)	264	2	280	3	289	4	278	3
HI 8627 (dc)	237	5	255	5	278	5	257	5
MP 3288 (c)	259	3	283	2	318	2	286	2
UAS 466 (d)	277	1	309	1	326	1	304	1
MEAN	257		279		300		279	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.48		1.88		0.66	
Genotype (B)	**		1.22		3.56		1.31	
B within A	**		2.12		6.17			
A within B			1.95		5.70			
Grains/earhead								
DDW 47 (d)	9.43	4	12.65	3	17.90	3	13.33	3
DBW 110 (c)	12.60	2	14.29	2	19.93	2	15.61	2
HI 8627 (dc)	5.76	5	8.16	5	11.94	5	8.62	5
MP 3288 (c)	19.02	1	17.18	1	21.74	1	19.31	1
UAS 466 (d)	11.20	3	12.45	4	15.65	4	13.10	4
MEAN	11.60		12.95		17.43		13.99	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.31		1.23		8.70	
Genotype (B)	**		0.29		0.84		6.17	
B within A	**		0.50		1.46			
A within B			0.55		1.59			
1000 Grains Weight, g								
DDW 47 (d)	31.87	5	39.73	3	42.27	2	37.96	3
DBW 110 (c)	34.27	2	37.47	4	40.93	4	37.56	4
HI 8627 (dc)	33.07	3	40.00	2	41.33	3	38.13	2
MP 3288 (c)	37.07	1	40.40	1	42.67	1	40.04	1
UAS 466 (d)	32.13	4	34.00	5	35.27	5	33.80	5
MEAN	33.68		38.32		40.49		37.50	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.09		0.35		0.92	
Genotype (B)	**		0.34		1.01		2.76	
B within A	**		0.60		1.74			
A within B			0.54		1.58			
Date of Sowing:			21.11.2018					
Date of Harvesting:			07.03.2019					

Rejected due to low yield

Table 4.1.8. Central Zone **RIR-TS-TAD** **Vijapur** **2018-19**

	Irrigation Levels							
Genotype	No	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
DDW 47 (d)	4.43	5	10.10	5	22.33	3	12.29	3
DBW 110 (c)	10.00	1	15.42	2	24.33	1	16.58	2
HI 8627 (dc)	5.28	4	11.43	4	15.67	5	10.79	5
MP 3288 (c)	9.65	2	16.70	1	23.95	2	16.77	1
UAS 466 (d)	6.53	3	11.45	3	15.87	4	11.28	4
Mean	7.18		13.02		20.43		13.54	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.71		2.79		20.33	
Genotype (B)	**		0.49		1.42		10.77	
B within A	**		0.84		2.46			
A within B			1.04		3.02			
			Earhead/sqm					
DDW 47 (d)	61	5	98	5	166	4	108	4
DBW 110 (c)	94	2	145	2	197	2	145	2
HI 8627 (dc)	65	4	112	4	133	5	104	5
MP 3288 (c)	96	1	165	1	234	1	165	1
UAS 466 (d)	81	3	121	3	178	3	127	3
Mean	79		128		181		130	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	**		0.91		3.58		2.72	
Genotype (B)	**		3.91		11.41		9.04	
B within A	**		6.77		19.77			
A within B			6.13		17.88			
			Grains/earhead					
DDW 47 (d)	14.45	5	20.75	4	25.24	3	20.15	4
DBW 110 (c)	25.89	2	29.70	1	33.57	1	29.72	1
HI 8627 (dc)	15.79	4	19.97	5	23.43	4	19.73	5
MP 3288 (c)	26.19	1	28.24	2	28.10	2	27.51	2
UAS 466 (d)	16.91	3	22.74	3	21.77	5	20.48	3
Mean	19.85		24.28		26.42		23.52	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	*		1.12		4.41		18.48	
Genotype (B)	**		1.17		3.41		14.90	
B within A	NS		2.02		5.91			
A within B			2.13		6.21			
			1000 Grains Weight, g					
DDW 47 (d)	51.14	2	51.32	1	53.81	1	52.09	1
DBW 110 (c)	40.87	4	35.92	5	37.42	4	38.07	4
HI 8627 (dc)	51.24	1	50.77	2	50.35	2	50.79	2
MP 3288 (c)	38.58	5	36.00	4	36.68	5	37.08	5
UAS 466 (d)	48.25	3	42.56	3	41.14	3	43.98	3
Mean	46.02		43.31		43.88		44.40	
	F Test		SEm		CD		CV (%)	
Irrigation (A)	NS		0.74		2.90		6.45	
Genotype (B)	**		1.20		3.51		8.12	
B within A	NS		2.08		6.08			
A within B			2.00		5.85			
Date of Sowing:			17.11.2018					
Date of Harvesting:			20.03.2019		20.03.2019		20.03.2019	

Rejected due to low yield

Table 5.1.1. Peninsular Zone **RIR-TS-TAS** **Dharwad** **2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 8805 (d)	19.73	8	24.12	8	27.84	8	23.90	8
HI 8802 (d)	17.52	10	23.67	10	26.95	10	22.71	10
MACS 4058 (d)	21.94	6	24.95	6	28.75	6	25.21	6
NIAW 3170	22.75	4	26.12	4	30.57	4	26.48	4
MACS 6696	23.12	3	26.75	3	30.81	3	26.89	3
UAS 446 (dc)	16.32	11	22.34	11	26.52	11	21.73	11
GW 1346 (d)	18.65	9	23.98	9	27.38	9	23.34	9
AKDW 2997-16 (dc)	20.87	7	24.35	7	28.18	7	24.47	7
MACS 6695	24.48	1	28.12	1	32.86	1	28.49	1
DBW 93 (c)	22.34	5	25.48	5	29.64	5	25.82	5
HI 1605 (c)	23.95	2	27.45	2	31.75	2	27.72	2
MEAN	21.06		25.21		29.20		25.16	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.11		0.45		2.60	
Genotype (B)	**		0.79		2.24		9.46	
B within A	NS		1.37		3.89			
A within B			1.31		3.88			
			Earheads/sqm					
HI 8805 (d)	220	7	225	8	231	7	225	8
HI 8802 (d)	215	10	224	10	230	9	223	10
MACS 4058 (d)	220	7	226	5	232	5	226	6
NIAW 3170	221	5	229	4	234	4	228	4
MACS 6696	224	3	230	2	235	2	230	3
UAS 446 (dc)	213	11	223	11	229	11	222	11
GW 1346 (d)	219	9	225	8	230	9	225	9
AKDW 2997-16 (dc)	221	5	226	5	231	7	226	6
MACS 6695	226	1	232	1	236	1	231	1
DBW 93 (c)	222	4	226	5	232	5	227	5
HI 1605 (c)	225	2	230	2	235	2	230	2
MEAN	221		227		232		227	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.87		3.40		2.20	
Genotype (B)	NS		3.42		9.67		4.53	
B within A	NS		5.92		16.75			
A within B			5.71		16.85			
			Grains/Earhead					
HI 8805 (d)	21.91	8	26.09	9	28.68	9	25.56	8
HI 8802 (d)	20.80	10	25.96	10	28.04	11	24.93	10
MACS 4058 (d)	24.26	6	26.84	6	29.27	6	26.79	6
NIAW 3170	25.63	3	27.40	4	30.73	3	27.92	4
MACS 6696	25.47	4	27.85	3	30.55	4	27.96	3
UAS 446 (dc)	19.92	11	24.64	11	28.05	10	24.20	11
GW 1346 (d)	21.21	9	26.36	7	28.70	8	25.42	9
AKDW 2997-16 (dc)	23.09	7	26.25	8	29.10	7	26.15	7
MACS 6695	26.23	1	28.96	1	32.59	1	29.26	1
DBW 93 (c)	24.78	5	27.35	5	30.25	5	27.46	5
HI 1605 (c)	26.07	2	28.49	2	32.08	2	28.88	2
MEAN	23.58		26.93		29.82		26.78	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.10		0.40		2.21	
Genotype (B)	**		1.00		2.84		11.24	
B within A	NS		1.74		4.91			
A within B			1.66		4.90			
			1000 Grains Weight, g					
HI 8805 (d)	40.86	6	41.16	7	41.96	8	41.33	8
HI 8802 (d)	39.27	10	40.83	9	41.78	9	40.63	10
MACS 4058 (d)	41.16	2	41.53	5	42.38	4	41.69	3
NIAW 3170	40.23	8	41.79	4	42.56	3	41.53	5
MACS 6696	40.74	7	41.80	3	42.98	1	41.84	2
UAS 446 (dc)	38.63	11	40.69	10	41.32	11	40.21	11
GW 1346 (d)	40.20	9	40.48	11	41.52	10	40.73	9
AKDW 2997-16 (dc)	40.96	3	41.32	6	42.08	7	41.45	6
MACS 6695	41.35	1	42.13	1	42.85	2	42.11	1
DBW 93 (c)	40.92	4	41.15	8	42.19	5	41.42	7
HI 1605 (c)	40.89	5	41.84	2	42.16	6	41.63	4
MEAN	40.47		41.34		42.16		41.32	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.10		0.38		1.35	
Genotype (B)	NS		0.44		1.24		3.19	
B within A	NS		0.76		2.15			
A within B			0.73		2.16			
Date of Sowing:			03.11.2018					
Date of Harvesting:			15.02.2019		28.02.2019		03.03.2019	

Table 5.1.2. Peninsular Zone **RIR-TS-TAS** **Pune** **2018-19**

Genotype	Irrigation level: Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 8805 (d)	30.68	5	36.08	4	45.78	5	37.51	4
HI 8802 (d)	28.49	8	27.15	10	44.63	6	33.42	9
MACS 4058 (d)	29.96	6	29.82	7	44.54	7	34.77	6
NIAW 3170	31.27	3	39.69	3	47.74	3	39.57	3
MACS 6696	32.51	2	41.69	1	51.21	1	41.80	2
UAS 446 (dc)	29.54	7	29.67	8	42.68	9	33.96	7
GW 1346 (d)	27.15	9	23.83	11	39.30	11	30.09	11
AKDW 2997-16 (dc)	24.76	10	28.51	9	41.19	10	31.49	10
MACS 6695	34.37	1	41.47	2	50.13	2	41.99	1
DBW 93 (c)	24.60	11	32.95	6	43.83	8	33.79	8
HI 1605 (c)	31.02	4	33.72	5	47.05	4	37.26	5
MEAN	29.49		33.14		45.28		35.97	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.66		2.58		10.48	
Genotype (B)	**		0.73		2.06		6.09	
B within A	**		1.26		3.58			
A within B			1.37		4.05			
			Earheads/sqm					
HI 8805 (d)	291	2	237	9	295	8	274	6
HI 8802 (d)	267	5	221	11	236	11	241	10
MACS 4058 (d)	199	11	241	7	237	10	226	11
NIAW 3170	288	3	347	2	345	3	327	3
MACS 6696	237	8	384	1	364	2	328	2
UAS 446 (dc)	236	10	277	5	345	3	286	4
GW 1346 (d)	281	4	239	8	283	9	268	7
AKDW 2997-16 (dc)	251	6	227	10	317	5	265	8
MACS 6695	293	1	337	3	419	1	350	1
DBW 93 (c)	237	8	244	6	300	7	260	9
HI 1605 (c)	248	7	292	4	313	6	284	5
MEAN	257		277		314		283	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		3.57		14.00		7.24	
Genotype (B)	**		4.67		13.22		4.96	
B within A	**		8.09		22.89			
A within B			8.50		25.08			
			Grains/Earhead					
HI 8805 (d)	23.00	11	33.31	3	30.52	7	28.94	9
HI 8802 (d)	23.41	9	28.32	8	42.13	1	31.29	6
MACS 4058 (d)	31.83	3	26.67	10	36.90	4	31.80	4
NIAW 3170	25.47	7	27.63	9	29.65	10	27.58	10
MACS 6696	36.92	1	29.33	6	33.53	5	33.26	3
UAS 446 (dc)	31.57	5	28.97	7	29.91	9	30.15	7
GW 1346 (d)	23.36	10	24.39	11	33.40	6	27.05	11
AKDW 2997-16 (dc)	25.13	8	33.23	4	29.96	8	29.44	8
MACS 6695	32.07	2	33.85	2	28.49	11	31.47	5
DBW 93 (c)	26.06	6	41.84	1	37.92	2	35.27	1
HI 1605 (c)	31.69	4	32.73	5	37.16	3	33.86	2
MEAN	28.23		30.93		33.60		30.92	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.53		2.09		9.87	
Genotype (B)	**		0.85		2.39		8.21	
B within A	**		1.46		4.14			
A within B			1.49		4.41			
			1000 Grains Weight, g					
HI 8805 (d)	46.00	2	45.67	2	51.00	1	47.56	2
HI 8802 (d)	45.67	3	43.33	3	45.00	4	44.67	3
MACS 4058 (d)	47.33	1	46.33	1	51.00	1	48.22	1
NIAW 3170	42.67	4	41.33	4	46.67	3	43.56	4
MACS 6696	37.33	10	37.00	7	42.00	6	38.78	8
UAS 446 (dc)	39.67	7	37.00	7	41.33	9	39.33	7
GW 1346 (d)	41.33	5	41.33	4	41.67	8	41.44	5
AKDW 2997-16 (dc)	39.33	9	37.67	6	43.33	5	40.11	6
MACS 6695	36.67	11	36.33	9	42.00	6	38.33	10
DBW 93 (c)	40.00	6	33.00	11	38.67	11	37.22	11
HI 1605 (c)	39.67	7	35.33	10	40.67	10	38.56	9
MEAN	41.42		39.48		43.94		41.62	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.63		2.47		8.68	
Genotype (B)	**		0.63		1.79		4.56	
B within A	*		1.10		3.10			
A within B			1.22		3.60			
Date of Sowing:			01.11.2018					
Date of Harvesting:			20.02.2019		23.02.2019		26.02.2019	

Table 5.1.3. Peninsular Zone **RIR-TS-TAS** **Niphad** **2018-19**

Genotype	Irrigation level Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI 8805 (d)	14.25	7	16.81	9	21.59	8	17.55	9
HI 8802 (d)	15.39	4	19.44	6	20.39	9	18.40	6
MACS 4058 (d)	12.74	9	18.51	8	20.22	10	17.16	10
NIAW 3170	19.50	1	24.09	1	28.15	1	23.91	1
MACS 6696	12.04	11	20.62	3	22.40	6	18.35	7
UAS 446 (dc)	15.81	2	19.25	7	21.70	7	18.92	5
GW 1346 (d)	13.16	8	20.31	5	23.76	3	19.08	4
AKDW 2997-16 (dc)	15.53	3	21.94	2	25.78	2	21.08	2
MACS 6695	14.64	5	16.51	10	22.73	5	17.96	8
DBW 93 (c)	14.52	6	20.35	4	22.79	4	19.22	3
HI 1605 (c)	12.69	10	15.50	11	19.43	11	15.87	11
MEAN	14.57		19.39		22.63		18.86	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.97		3.82		29.61	
Genotype (B)	**		1.09		3.07		17.28	
B within A	NS		1.88		5.32			
A within B			2.04		6.02			
			Earheads/sqm					
HI 8805 (d)	195	3	293	9	341	10	276	10
HI 8802 (d)	175	6	291	10	372	7	280	9
MACS 4058 (d)	170	8	322	6	353	9	282	8
NIAW 3170	183	4	368	4	422	4	324	2
MACS 6696	173	7	294	8	452	2	306	6
UAS 446 (dc)	165	9	378	2	470	1	338	1
GW 1346 (d)	157	10	359	5	426	3	314	4
AKDW 2997-16 (dc)	157	11	261	11	329	11	249	11
MACS 6695	196	2	313	7	422	5	310	5
DBW 93 (c)	176	5	379	1	358	8	304	7
HI 1605 (c)	198	1	375	3	377	6	317	3
MEAN	177		330		393		300	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		3.23		12.68		6.18	
Genotype (B)	**		9.19		25.99		9.19	
B within A	**		15.92		45.02			
A within B			15.52		45.78			
			Grains/Earhead					
HI 8805 (d)	20.27	9	15.17	5	16.89	2	17.44	6
HI 8802 (d)	24.16	4	17.17	3	13.47	9	18.26	3
MACS 4058 (d)	21.73	8	14.92	6	14.49	5	17.05	8
NIAW 3170	27.39	2	16.27	4	15.64	4	19.76	2
MACS 6696	22.00	7	18.75	2	12.61	10	17.79	5
UAS 446 (dc)	25.45	3	13.24	10	11.86	11	16.85	9
GW 1346 (d)	22.64	6	14.46	7	14.05	6	17.05	7
AKDW 2997-16 (dc)	27.48	1	21.10	1	19.13	1	22.57	1
MACS 6695	19.30	10	14.09	8	13.71	8	15.70	10
DBW 93 (c)	23.79	5	14.02	9	16.12	3	17.98	4
HI 1605 (c)	17.64	11	11.09	11	13.75	7	14.16	11
MEAN	22.90		15.48		14.70		17.69	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.88		3.46		28.61	
Genotype (B)	*		1.33		3.77		22.61	
B within A	NS		2.31		6.53			
A within B			2.37		7.00			
			1000 Grains Weight, g					
HI 8805 (d)	36.29	8	38.02	10	37.70	10	37.34	10
HI 8802 (d)	36.72	5	39.00	5	40.70	3	38.81	4
MACS 4058 (d)	35.44	9	38.94	6	39.41	7	37.93	7
NIAW 3170	39.26	1	40.13	1	42.60	1	40.67	1
MACS 6696	33.73	11	39.08	4	39.67	4	37.49	9
UAS 446 (dc)	37.70	3	38.53	9	38.97	9	38.40	6
GW 1346 (d)	37.21	4	39.51	3	39.60	5	38.77	5
AKDW 2997-16 (dc)	36.54	7	39.60	2	40.93	2	39.02	2
MACS 6695	38.78	2	38.68	7	39.35	8	38.93	3
DBW 93 (c)	35.26	10	38.56	8	39.50	6	37.78	8
HI 1605 (c)	36.60	6	37.28	11	37.37	11	37.08	11
MEAN	36.68		38.85		39.62		38.38	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.47		1.84		7.00	
Genotype (B)	*		0.67		1.90		5.25	
B within A	NS		1.16		3.29			
A within B			1.20		3.55			
Date of Sowing:			02.11.2018					
Date of Harvesting:			12.02.2019		21.02.2019		28.02.2019	

Rejected due to high CV and low yield

Table 6.1.1 Northern Hill Zone **SPL-2** **Bajaura** **2018-19**

Wheat, P_2O_5, kg/ha	Maize, P_2O_5, kg/ha	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
0	0	326	12	39.15	11	34.70	1	44.18	11
0	30	336	9	39.02	12	33.57	3	43.87	12
30	0	368	7	42.45	4	31.18	10	48.73	8
30	30	361	8	42.18	6	32.40	5	49.23	7
60	0	387	3	42.60	3	31.53	8	51.90	3
60	30	381	5	42.15	8	31.88	6	51.09	4
0+PSB	0	333	10	41.70	9	33.06	4	45.68	9
0+PSB	30	329	11	41.20	10	33.63	2	45.37	10
30+PSB	0	376	6	42.17	7	31.71	7	50.23	6
30+PSB	30	383	4	42.27	5	31.28	9	50.51	5
60+PSB	0	393	1	43.10	2	30.79	12	51.98	2
60+PSB	30	389	2	43.42	1	31.10	11	52.42	1
Mean		363		41.78		32.24		48.77	
CD(0.05)		42.03		2.25		3.09		4.39	
CV(%)		6.83		3.18		5.66		5.31	
Date of Sowing :	18.11.2018			Date of Harvesting:		07.06.2019			

Table 6.1.2 Northern Hill Zone **SPL-2** **Malan** **2018-19**

Wheat, P_2O_5, kg/ha	Rice, P_2O_5, kg/ha	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
0	0	250	12	41.37	10	28.71	9	29.73	12
0	30	258	11	41.37	10	28.56	10	30.47	11
30	0	265	8	42.30	7	28.44	11	31.87	10
30	30	263	9	41.90	9	29.14	7	32.10	9
60	0	281	5	43.37	2	33.60	4	40.97	4
60	30	282	4	42.60	6	34.52	2	41.40	3
0+PSB	0	260	10	41.23	12	30.01	5	32.13	8
0+PSB	30	266	7	43.03	3	28.22	12	32.37	7
30+PSB	0	279	6	43.57	1	28.83	8	34.97	6
30+PSB	30	282	3	42.97	4	29.26	6	35.43	5
60+PSB	0	285	1	42.27	8	34.61	1	41.63	1
60+PSB	30	283	2	42.83	5	34.17	3	41.47	2
Mean		271		42.40		30.67		35.38	
CD(0.05)		6.31		1.65		3.30		3.32	
CV(%)		1.37		2.30		6.36		5.54	
Date of Sowing : 07.11.2018				Date of Harvesting: 11.05.2019					

Table 6.2.1 North Western Plains Zone **SPL-2** **Karnal** **2018-19**

Wheat, P_2O_5, kg/ha	Rice, P_2O_5, kg/ha	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
0	0	464	11	41.51	1	28.10	11	54.10	12
0	30	481	4	40.01	7	30.51	2	58.63	1
30	0	478	8	39.91	8	29.21	8	55.62	8
30	30	488	2	40.14	6	29.18	9	57.05	5
60	0	480	6	39.82	9	29.92	5	57.08	4
60	30	473	9	40.91	3	29.94	4	57.80	2
0+PSB	0	470	10	40.61	5	30.09	3	57.41	3
0+PSB	30	481	4	39.20	11	29.23	7	55.05	10
30+PSB	0	482	3	40.91	4	28.96	10	56.99	6
30+PSB	30	480	6	39.26	10	29.61	6	55.77	7
60+PSB	0	488	1	41.07	2	27.41	12	54.88	11
60+PSB	30	460	12	39.13	12	30.90	1	55.58	9
Mean		477		40.21		29.42		56.33	
CD(0.05)		29.84		1.64		2.06		2.67	
CV(%)		3.69		2.41		4.13		2.80	
Date of Sowing :		25.11.2018		Date of Harvesting:		07.05.2019			

Table 6.2.2 North Western Plains Zone **SPL-2** **Ludhiana** **2018-19**

Wheat, P_2O_5, kg/ha	Rice, P_2O_5, kg/ha	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/earhead	Rk	Yield, q/ha	Rk
0	0	337	11	34.24	12	46.39	4	53.32	12
0	30	335	12	36.98	9	45.42	6	56.06	11
30	0	339	10	36.96	10	45.88	5	57.29	9
30	30	340	9	38.27	7	44.38	8	57.27	10
60	0	346	8	37.72	8	47.83	2	61.67	4
60	30	348	7	38.50	6	46.76	3	62.30	3
0+PSB	0	350	5	34.50	11	48.76	1	58.56	6
0+PSB	30	349	6	38.66	5	44.17	9	59.08	5
30+PSB	0	357	4	39.68	3	40.96	12	57.94	8
30+PSB	30	357	3	39.70	2	41.23	11	58.33	7
60+PSB	0	361	2	40.24	1	43.05	10	62.50	2
60+PSB	30	362	1	39.65	4	44.54	7	63.94	1
Mean		348		37.93		44.95		59.02	
CD(0.05)		28.59		4.33		7.38		5.86	
CV(%)		4.85		6.75		9.70		5.86	
Date of Sowing:		15.11.2018		Date of Harvesting:		06.05.2019			

Table 6.4.1. Northern Hills Zone SPL-3 Bajaura 2018-19

Zinc treatments	Earheads/sqm	Rk	1000 GW, g	Rk	Grains/ Earhead	Rk	Yield, q/ha	Rk
No zinc	381	3	40.23	8	31.2	8	47.8	8
12.5 kg Zinc sulphate/ha	379	4	41.23	6	33.2	3	51.9	6
25.0 kg Zinc sulphate/ha	376	7	41.78	5	33.7	2	52.9	5
37.5 kg Zinc sulphate/ha	371	8	42.07	4	34.3	1	53.6	3
Foliar zinc	378	6	40.67	7	32.0	7	48.9	7
12.5 kg Zinc sulphate/ha+T5	379	4	42.58	3	32.9	4	53.0	4
25.0 kg Zinc sulphate/ha+T5	386	1	43.73	1	32.3	6	54.4	1
37.5 kg Zinc sulphate/ha+T5	385	2	43.05	2	32.8	5	54.1	2
CD(0.05)	40.59		1.86		3.46		3.02	
CV(%)	6.11		2.53		6.02		3.32	
Date of Sowing :	20.11.2018				Date of Harvesting:		08.06.2019	

Table 6.4.2. Northern Hills Zone SPL-3 Khudwani 2018-19

Zinc treatments	Earheads/sqm	Rk	1000 GW, g	Rk	Grains/ Earhead	Rk	Yield, q/ha	Rk
No zinc	333	8	33.56	8	30.0	1	33.6	8
12.5 kg Zinc sulphate/ha	362	6	34.87	6	27.2	3	34.2	6
25.0 kg Zinc sulphate/ha	370	4	35.55	5	26.7	6	35.1	4
37.5 kg Zinc sulphate/ha	373	2	36.73	1	25.7	8	35.1	3
Foliar zinc	337	7	34.72	7	29.2	2	34.0	7
12.5 kg Zinc sulphate/ha+T5	365	5	35.93	2	26.8	5	35.0	5
25.0 kg Zinc sulphate/ha+T5	370	3	35.87	3	27.1	4	35.9	1
37.5 kg Zinc sulphate/ha+T5	377	1	35.77	4	26.4	7	35.5	2
CD(0.05)	34.27		1.20		2.85		2.04	
CV(%)	5.42		1.94		5.96		3.35	
Date of Sowing :	08.11.2018				Date of Harvesting:		25.06.2019	

Table 6.4.3. Northern Hills Zone SPL-3 Malan 2018-19

Zinc treatments	Earheads/sqm	Rk	1000 GW, g	Rk	Grains/ Earhead	Rk	Yield, q/ha	Rk
No zinc	293	7	43.67	5	31.8	8	40.3	8
12.5 kg Zinc sulphate/ha	301	6	44.67	1	32.0	7	42.8	6
25.0 kg Zinc sulphate/ha	325	1	42.33	8	33.8	4	46.4	5
37.5 kg Zinc sulphate/ha	310	4	44.33	4	34.9	3	47.9	2
Foliar zinc	280	8	44.67	1	33.1	5	41.4	7
12.5 kg Zinc sulphate/ha+T5	312	3	43.33	6	35.2	2	47.5	3
25.0 kg Zinc sulphate/ha+T5	324	2	44.67	1	32.6	6	47.1	4
37.5 kg Zinc sulphate/ha+T5	310	4	43.33	6	38.8	1	52.1	1
CD(0.05)	24.09		2.82		4.41		5.12	
CV(%)	4.48		3.67		7.41		6.40	
Date of Sowing :	07.11.2018				Date of Harvesting:		04.05.2019	

Table 6.5.1. Peninsular Zone	SPL-4		Dharwad		2018-19			
	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
			Yield, q/ha					
75 kg/ha	36.14	3	38.06	3	34.87	3	36.36	3
100 kg/ha	39.12	2	44.32	1	35.29	2	39.58	2
125 kg/ ha	40.54	1	43.78	2	36.32	1	40.21	1
Mean	38.60		42.05		35.49		38.72	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		0.15		0.58		1.14	
Seed rate(B)	*		0.91		2.80		7.04	
B within A	NS		1.57		4.85			
A within B			1.29		3.99			
			Earheads/sqm					
75 kg/ha	245	3	250	3	239	3	244	3
100 kg/ha	252	2	260	1	242	2	252	2
125 kg/ ha	255	1	260	2	248	1	254	1
Mean	251		256		243		250	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		1.28		5.01		1.53	
Seed rate(B)	**		1.90		5.86		2.28	
B within A	NS		3.29		10.14			
A within B			2.98		9.17			
			Grains/Earhead					
75 kg/ha	37.78	2	38.07	3	38.40	1	38.08	3
100 kg/ha	37.76	3	39.20	2	37.33	2	38.10	2
125 kg/ ha	38.20	1	39.39	1	37.02	3	38.20	1
Mean	37.91		38.89		37.58		38.13	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	NS		0.28		1.10		2.21	
Seed rate(B)	NS		0.32		1.00		2.55	
B within A	NS		0.56		1.73			
A within B			0.54		1.66			
			1000 Grains Weight, g					
75 kg/ha	39.06	3	39.96	3	38.06	3	39.03	3
100 kg/ha	41.06	2	43.50	1	39.01	2	41.19	2
125 kg/ ha	41.56	1	42.79	2	39.54	1	41.30	1
Mean	40.56		42.08		38.87		40.50	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		0.03		0.11		0.21	
Seed rate(B)	NS		0.71		2.20		5.28	
B within A	NS		1.23		3.80			
A within B			1.01		3.11			
Date of Sowing:	18.11.2018				Date of Harvesting:		06.04.2019	

Table 6.5.2. Peninsular Zone	SPL-4	Niphad	2018-19

	Spacing							
Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
			Yield, q/ha					
75 kg/ha	33.31	3	40.66	3	41.20	2	38.39	3
100 kg/ha	35.00	2	42.87	2	41.71	1	39.86	2
125 kg/ ha	35.86	1	45.03	1	39.20	3	40.03	1
Mean	34.72		42.85		40.70		39.43	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	*		1.33		5.21		10.10	
Seed rate(B)	NS		1.08		3.32		8.20	
B within A	NS		1.87		5.75			
A within B			2.02		6.23			
			Earheads/sqm					
75 kg/ha	516	3	510	2	352	3	459	3
100 kg/ha	533	2	512	1	448	2	498	1
125 kg/ ha	543	1	390	3	487	1	473	2
Mean	531		471		429		477	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		8.99		35.29		5.66	
Seed rate(B)	*		8.46		26.08		5.33	
B within A	**		14.66		45.18			
A within B			14.97		46.13			
			Grains/Earhead					
75 kg/ha	16.75	3	24.34	2	29.40	1	23.50	1
100 kg/ha	18.02	1	21.61	3	25.27	2	21.63	3
125 kg/ ha	17.90	2	31.75	1	20.40	3	23.35	2
Mean	17.56		25.90		25.02		22.83	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		0.73		2.87		9.60	
Seed rate(B)	NS		0.76		2.34		10.00	
B within A	**		1.32		4.06			
A within B			1.30		4.01			
			1000 Grains Weight, g					
75 kg/ha	38.60	1	33.15	3	39.83	1	37.19	3
100 kg/ha	36.52	3	38.73	1	37.15	3	37.47	2
125 kg/ ha	37.07	2	36.60	2	39.63	2	37.77	1
Mean	37.40		36.16		38.87		37.48	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	NS		0.91		3.56		7.26	
Seed rate(B)	NS		0.76		2.34		6.07	
B within A	NS		1.31		4.05			
A within B			1.40		4.33			
Date of Sowing:	15.11.2018				Date of Harvesting:		18.04.2019	

Table 6.5.3. Peninsular Zone SPL-4 Pune 2018-19

	Spacing							

Seed rate	15 cm	Rk	20 cm	Rk	25 cm	Rk	Mean	Rk
			Yield, q/ha					
75 kg/ha	52.25	1	48.16	1	46.28	2	48.90	1
100 kg/ha	49.14	3	45.86	3	48.82	1	47.94	2
125 kg/ ha	51.81	2	47.32	2	43.17	3	47.43	3
Mean	51.07		47.11		46.09		48.09	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	*		0.90		3.54		5.63	
Seed rate(B)	NS		1.07		3.29		6.67	
B within A	NS		1.85		5.70			
A within B			1.76		5.42			
			Earheads/sqm					
75 kg/ha	626	1	572	1	486	2	561	1
100 kg/ha	562	3	525	2	484	3	524	2
125 kg/ ha	582	2	502	3	487	1	523	3
Mean	590		533		486		536	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	**		10.69		41.97		5.98	
Seed rate(B)	**		7.70		23.72		4.31	
B within A	NS		13.33		41.08			
A within B			15.26		47.01			
			Grains/Earhead					
75 kg/ha	23.61	3	24.83	3	25.89	3	24.77	3
100 kg/ha	26.52	1	25.25	2	27.34	1	26.37	1
125 kg/ ha	25.41	2	26.52	1	26.09	2	26.00	2
Mean	25.18		25.53		26.44		25.72	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	NS		0.49		1.92		5.71	
Seed rate(B)	NS		0.91		2.81		10.65	
B within A	NS		1.58		4.87			
A within B			1.38		4.25			
			1000 Grains Weight, g					
75 kg/ha	35.33	1	34.00	3	37.00	1	35.44	1
100 kg/ha	33.00	3	34.67	2	37.00	1	34.89	3
125 kg/ ha	35.33	1	36.33	1	34.00	3	35.22	2
Mean	34.56		35.00		36.00		35.19	
	F. Test		SEm		CD (0.05)		CV(%)	
Spacing (A)	NS		0.29		1.14		2.48	
Seed rate(B)	NS		0.51		1.58		4.38	
B within A	*		0.89		2.74			
A within B			0.78		2.41			
Date of Sowing:	13.11.2018				Date of Harvesting:		16.03.2019	

Table 6.6.1. North Eastern Plains Zone			**SPL-5**		**Coochbehar**		**2018-19**	
Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	134.7	8	34.5	8	29.3	8	13.5	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	260.0	2	41.9	3	47.0	1	51.2	2
60 kg basal +30 kg N/ha at CRI and Tillering	232.3	7	40.3	5	46.2	2	43.2	6
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	244.3	6	39.7	6	44.4	6	43.0	7
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	278.0	1	42.0	2	44.7	5	52.2	1
½ N basal and ½ at CRI	253.3	4	41.5	4	45.7	4	48.0	3
1/3rd N basal+1/3rd CRI +1/3rd First Node	257.0	3	39.4	7	42.9	7	43.4	5
Rich Plot-90 kg N/ha basal+90 at CRI	245.3	5	42.2	1	45.9	3	47.4	4
CD(0.05) (5%)	29.85		1.76		6.75		6.03	
	Date of Sowing:		24.11.2018		Date of Harvesting:		02.04.2019	

Table 6.6.2. North Eastern Plains Zone			**SPL-5**		**Ranchi**		**2018-19**	
Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	210	8	30.00	8	31.57	7	19.43	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	349	6	38.00	7	35.11	1	46.17	4
60 kg basal +30 kg N/ha at CRI and Tillering	343	7	39.00	6	32.58	5	43.10	7
30 basal+30 CRI +GS at 40-45 & 60-65 DAS	390	1	41.33	2	32.87	4	52.70	1
30 basal+60 CRI +GS at 40-45 & 60-65 DAS	382	2	42.00	1	32.90	3	51.77	2
½ N basal and ½ at CRI	370	4	40.33	4	30.68	8	44.90	6
1/3rd N basal+1/3rd CRI +1/3rd First Node	353	5	39.67	5	33.19	2	46.13	5
Rich Plot-90 kg N/ha basal+90 at CRI	380	3	41.00	3	31.78	6	49.33	3
CD(0.05) (5%)	79.51		2.34		8.46		5.78	
	Date of Sowing:		22.11.2018		Date of Harvesting:		10.04.2019	

Table 6.7.1. Peninsular Zone			**SPL-5**		**Dharwad**		**2018-19**	
Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	236	8	38.61	8	35.69	8	32.56	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	252	2	42.06	2	40.01	6	42.34	2
60 kg basal +30 kg N/ha at CRI and Tillering	241	6	38.93	7	42.05	1	39.46	5
30 basal+30 CRI +GS 54 40-45 & 60-65 DAS	249	3	41.58	3	39.88	7	41.25	3
30 basal+60 CRI +GS 28 40-45 & 60-65 DAS	247	4	40.03	5	41.16	2	40.68	4
½ N basal and ½ at CRI	238	7	39.45	6	40.39	5	37.93	7
1/3rd N basal+1/3rd CRI +1/3rd First Node	242	5	40.06	4	40.72	3	39.46	5
Rich Plot-90 kg N/ha basal+90 at CRI	256	1	42.98	1	40.69	4	44.79	1
CD(0.05)	5.67		2.63		3.47		4.84	
	Date of Sowing:		04.11.2018		Date of Harvesting:		02.03.2019	

Table 6.7.2. Peninsular Zone			**SPL-5**		**Pune**		**2018-19**	
Treatments	Earheads/sqm	Rk	1000 Grains Weight, g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	352	8	44.67	2	36.44	4	56.88	8
75 kg basal +37.5 kg N/ha at CRI and Tillering	442	2	43.00	7	35.95	5	68.10	1
60 kg basal +30 kg N/ha at CRI and Tillering	420	5	44.33	3	35.35	6	65.44	5
30 basal+30 CRI +GS 35 & 19 kg N/ha	358	7	46.33	1	39.33	2	65.07	6
30 basal+60 CRI +GS 42 & 16 kg N/ha	438	3	43.67	5	35.31	7	66.34	4
½ N basal and ½ at CRI	428	4	43.33	6	36.52	3	67.68	2
1/3rd N basal+1/3rd CRI +1/3rd First Node	373	6	44.00	4	39.52	1	64.26	7
Rich Plot-90 kg N/ha basal+90 at CRI	508	1	42.33	8	31.31	8	67.25	3
CD(0.05)	72.27		2.41		6.78		5.39	
	Date of Sowing:		13.11.2018		Date of Harvesting:		16.03.2019	

Table 6.8.1. Northern Hills Zone **SPL-6** **Bajaura** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	55.59	1	48.56	1	45.63	1	36.96	1	46.69	1
HD 2967	46.59	5	41.16	5	42.39	2	36.20	2	41.58	2
HD 3086	53.18	2	44.06	3	35.87	4	30.20	6	40.83	3
HI1544	52.02	3	40.39	6	35.30	5	31.72	4	39.86	5
MACS 6222	49.90	4	44.97	2	38.11	3	30.29	5	40.82	4
WR 544	42.11	6	41.63	4	34.53	6	33.68	3	37.99	6
Mean	49.90		43.46		38.64		33.18		41.29	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.75		2.58		7.67			
Variety (B)	**		1.12		3.20		9.39			
B within A	N.S.		2.24		6.40					
A within B			2.18		6.22					
			Earheads/sqm							
HS 562	416	1	404	2	386	2	362	1	392	1
HD 2967	398	3	396	3	398	1	358	2	388	2
HD 3086	401	2	364	6	368	6	313	5	361	6
HI1544	393	4	379	4	371	5	338	4	370	4
MACS 6222	387	5	413	1	386	2	301	6	372	3
WR 544	381	6	370	5	372	4	352	3	369	5
Mean	396		388		380		337		375	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		8.34		28.86		9.43			
Variety (B)	*		7.27		20.77		6.71			
B within A	N.S.		14.53		41.53					
A within B			15.67		44.78					
			Grains/Earhead							
HS 562	30.27	1	27.65	1	29.90	1	26.86	3	28.67	1
HD 2967	26.23	5	23.60	6	28.27	2	27.45	2	26.39	3
HD 3086	28.78	2	27.28	2	23.08	4	24.12	6	25.82	4
HI1544	28.51	3	23.89	5	22.27	6	25.11	4	24.94	5
MACS 6222	27.86	4	25.91	4	25.18	3	27.76	1	26.68	2
WR 544	24.55	6	26.97	3	22.87	5	24.75	5	24.78	6
Mean	27.70		25.88		25.26		26.01		26.21	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.23		0.80		3.76			
Variety (B)	**		0.54		1.54		7.11			
B within A	**		1.08		3.08					
A within B			1.01		2.89					
			1000 Grains Weight, g							
HS 562	44.23	6	43.37	4	39.60	4	38.00	3	41.30	4
HD 2967	44.68	5	44.05	3	37.70	6	36.85	5	40.82	6
HD 3086	46.03	3	44.95	1	42.28	2	39.98	1	43.31	1
HI1544	46.52	1	44.53	2	42.90	1	37.65	4	42.90	2
MACS 6222	46.28	2	41.97	5	39.17	5	36.23	6	40.91	5
WR 544	45.05	4	41.65	6	40.83	3	38.70	2	41.56	3
Mean	45.47		43.42		40.41		37.90		41.80	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.21		0.72		2.11			
Variety (B)	**		0.47		1.33		3.87			
B within A	N.S.		0.93		2.67					
A within B			0.88		2.51					
Date of Sowing:			11.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			25.05.2019		28.05.2019		02.06.2019		06.06.2019	

Table 6.8.2. Northern Hills Zone **SPL-6** **Malan** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	51.84	1	48.53	1	42.92	1	26.93	1	42.56	1
HD 2967	40.50	4	39.16	4	35.54	4	22.36	4	34.39	4
HD 3086	45.63	3	43.64	3	37.16	3	22.08	5	37.13	3
HI1544	38.64	5	36.79	6	33.92	5	22.65	3	33.00	5
MACS 6222	49.05	2	46.36	2	39.02	2	26.61	2	40.26	2
WR 544	37.70	6	37.41	5	32.51	6	20.13	6	31.94	6
Mean	43.89		41.98		36.84		23.46		36.54	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.54		1.86		6.25			
Variety (B)	**		0.49		1.41		4.67			
B within A	**		0.98		2.81					
A within B			1.05		2.99					
Earheads/sqm										
HS 562	292	1	270	1	276	1	221	1	265	1
HD 2967	271	4	249	4	244	4	159	3	231	4
HD 3086	290	2	264	2	251	3	155	5	240	3
HI1544	266	5	251	3	236	5	148	6	225	5
MACS 6222	286	3	247	5	255	2	207	2	249	2
WR 544	253	6	233	6	235	6	155	4	219	6
Mean	276		252		249		174		238	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		3.84		13.29		6.84			
Variety (B)	**		3.56		10.16		5.18			
B within A	**		7.11		20.33					
A within B			7.54		21.56					
Grains/Earhead										
HS 562	36.38	1	38.06	2	34.14	1	27.16	6	33.94	2
HD 2967	30.15	6	31.91	5	31.42	5	33.30	2	31.69	6
HD 3086	31.71	4	35.81	3	31.06	6	31.74	3	32.58	4
HI1544	30.72	5	30.55	6	32.61	4	34.67	1	32.14	5
MACS 6222	36.03	2	39.38	1	33.61	3	30.42	5	34.86	1
WR 544	32.88	3	33.72	4	33.92	2	30.42	4	32.74	3
Mean	32.98		34.91		32.80		31.28		32.99	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.63		2.17		8.07			
Variety (B)	N.S.		0.83		2.38		8.73			
B within A	**		1.66		4.75					
A within B			1.64		4.70					
1000 Grains Weight, g										
HS 562	49.00	3	47.67	4	45.67	3	45.00	1	46.83	3
HD 2967	49.67	1	49.33	1	46.33	2	42.33	5	46.92	2
HD 3086	49.67	1	46.33	6	47.67	1	45.00	1	47.17	1
HI1544	47.67	4	48.00	3	44.33	5	44.33	3	46.08	4
MACS 6222	47.67	4	48.33	2	45.67	3	42.33	5	46.00	5
WR 544	45.67	6	47.67	4	41.00	6	43.33	4	44.42	6
Mean	48.22		47.89		45.11		43.72		46.24	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.40		1.39		3.68			
Variety (B)	*		0.63		1.81		4.73			
B within A	N.S.		1.26		3.61					
A within B			1.22		3.49					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			01.05.2019		01.05.2019		14.05.2019		21.05.2019	

Table 6.9.1. North Western Plains Zone SPL-6 Durgapura 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	51.41	3	48.58	2	42.96	1	30.80	1	43.43	2
HD 2967	55.11	1	52.05	1	40.32	2	26.30	2	43.45	1
HD 3086	52.07	2	48.18	3	37.66	3	22.65	4	40.14	3
HI1544	50.34	4	47.82	4	36.20	4	24.13	3	39.62	4
MACS 6222	45.46	5	41.72	5	32.94	5	21.44	5	35.39	5
WR 544	41.96	6	41.24	6	31.13	6	18.42	6	33.19	6
Mean	49.39		46.60		36.87		23.96		39.20	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.62		2.13		6.66			
Variety (B)	**		0.62		1.76		5.43			
B within A	*		1.23		3.52					
A within B			1.28		3.66					
			Earheads/sqm							
HS 562	384	4	370	2	351	1	319	1	356	2
HD 2967	417	1	399	1	338	2	301	2	364	1
HD 3086	392	2	352	3	327	3	285	4	339	3
HI1544	388	3	342	4	315	4	293	3	335	4
MACS 6222	364	5	330	5	302	5	253	5	312	5
WR 544	348	6	324	6	293	6	222	6	297	6
Mean	382		353		321		279		334	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		4.01		13.87		5.09			
Variety (B)	**		4.50		12.85		4.67			
B within A	*		8.99		25.70					
A within B			9.13		26.11					
			Grains/Earhead							
HS 562	33.02	1	33.16	5	31.62	2	26.88	2	31.17	2
HD 2967	30.31	5	30.45	6	31.07	5	25.50	4	29.33	6
HD 3086	32.38	2	35.66	2	31.44	3	23.81	6	30.82	4
HI1544	29.07	6	33.97	4	30.87	6	25.33	5	29.81	5
MACS 6222	32.08	4	34.68	3	31.24	4	25.99	3	31.00	3
WR 544	32.29	3	36.39	1	33.10	1	26.98	1	32.19	1
Mean	31.53		34.05		31.56		25.75		30.72	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.93		3.22		12.85			
Variety (B)	N.S.		0.84		2.39		9.44			
B within A	N.S.		1.67		4.78					
A within B			1.79		5.11					
			1000 Grains Weight, g							
HS 562	40.67	4	39.80	3	38.67	1	36.12	1	38.82	3
HD 2967	43.67	2	42.99	1	38.37	2	34.67	2	39.92	1
HD 3086	41.00	3	38.50	4	37.02	4	33.65	3	37.54	4
HI1544	44.67	1	41.22	2	37.34	3	32.51	4	38.93	2
MACS 6222	39.00	5	36.77	5	35.07	5	32.49	5	35.83	5
WR 544	37.46	6	35.33	6	32.54	6	30.94	6	34.07	6
Mean	41.08		39.10		36.50		33.40		37.52	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.69		2.39		7.80			
Variety (B)	**		0.64		1.84		5.95			
B within A	N.S.		1.29		3.69					
A within B			1.36		3.90					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			19.03.2019		24.03.2019		28.03.2019		04.04.2019	

Table 6.9.2. North Western Plains Zone SPL-6 Gurdaspur 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	92.71	1	74.93	2	66.09	1	58.96	1	73.17	1
HD 2967	80.07	5	77.62	1	51.99	5	54.86	3	66.13	3
HD 3086	80.95	3	69.86	4	58.31	4	53.56	4	65.67	4
HI1544	80.46	4	68.10	5	47.73	6	47.96	6	61.06	6
MACS 6222	84.31	2	71.90	3	60.88	2	48.54	5	66.41	2
WR 544	65.90	6	62.22	6	59.21	3	57.96	2	61.33	5
Mean	80.73		70.77		57.37		53.64		65.63	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.89		3.09		5.78			
Variety (B)	**		1.06		3.04		5.62			
B within A	**		2.13		6.08					
A within B			2.14		6.11					
Earheads/sqm										
HS 562	433	2	461	1	387	5	355	4	409	4
HD 2967	438	1	460	2	427	2	414	1	435	1
HD 3086	417	4	436	4	431	1	371	2	414	2
HI1544	428	3	456	3	426	3	341	5	413	3
MACS 6222	380	5	418	5	404	4	358	3	390	5
WR 544	379	6	404	6	348	6	332	6	366	6
Mean	412		439		404		362		404	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		5.69		19.69		5.97			
Variety (B)	**		5.31		15.18		4.55			
B within A	**		10.62		30.36					
A within B			11.24		32.13					
Grains/Earhead										
HS 562	51.22	1	44.35	2	47.91	1	53.27	1	49.19	1
HD 2967	42.25	4	43.86	3	34.86	5	39.30	6	40.07	5
HD 3086	42.32	3	40.78	4	37.88	4	43.31	4	41.07	4
HI1544	41.68	5	38.52	5	32.38	6	44.09	3	39.17	6
MACS 6222	49.09	2	45.44	1	44.31	3	40.38	5	44.80	2
WR 544	39.18	6	36.87	6	44.84	2	48.67	2	42.39	3
Mean	44.29		41.63		40.36		44.84		42.78	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		0.78		2.69		7.72			
Variety (B)	**		0.95		2.72		7.71			
B within A	**		1.90		5.44					
A within B			1.90		5.44					
1000 Grains Weight, g										
HS 562	41.88	6	36.74	6	35.84	2	31.33	6	36.44	6
HD 2967	43.39	5	38.41	4	34.94	4	33.71	3	37.61	5
HD 3086	45.89	1	39.29	2	35.76	3	33.34	4	38.57	2
HI1544	45.23	3	38.76	3	34.74	5	31.95	5	37.67	4
MACS 6222	45.32	2	38.00	5	34.05	6	33.97	2	37.84	3
WR 544	44.47	4	41.89	1	38.13	1	35.96	1	40.11	1
Mean	44.36		38.85		35.58		33.38		38.04	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.37		1.27		4.08			
Variety (B)	**		0.40		1.14		3.64			
B within A	*		0.80		2.29					
A within B			0.82		2.33					
Date of Sowing:			05.11.2018		25.11.2018		16.12.2018		05.01.2019	
Date of harvesting:			13.05.2019		15.05.2019		17.05.2019		20.05.2019	

Table 6.9.3. North Western Plains Zone SPL-6 Hisar 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	61.39	4	52.74	5	43.81	3	37.82	5	48.94	5
HD 2967	60.56	5	55.60	4	42.82	5	38.13	4	49.28	4
HD 3086	65.87	2	60.00	1	50.08	1	41.83	1	54.44	1
HI1544	64.68	3	57.38	2	43.49	4	38.45	3	51.00	3
MACS 6222	66.27	1	57.22	3	44.88	2	40.48	2	52.21	2
WR 544	56.27	6	49.13	6	35.60	6	31.27	6	43.07	6
Mean	62.51		55.34		43.45		38.00		49.82	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.83		2.87		7.06			
Variety (B)	**		0.79		2.25		5.48			
B within A	N.S.		1.58		4.50					
A within B			1.66		4.74					
			Earheads/sqm							
HS 562	410	6	395	6	365	5	347	6	379	6
HD 2967	428	4	417	4	392	4	353	4	398	4
HD 3086	437	3	427	3	395	2	355	3	403	3
HI1544	443	2	438	1	403	1	357	2	410	1
MACS 6222	445	1	433	2	395	2	358	1	408	2
WR 544	415	5	412	5	358	6	350	5	384	5
Mean	430		420		385		353		397	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		5.92		20.47		6.32			
Variety (B)	**		6.41		18.33		5.59			
B within A	N.S.		12.82		36.65					
A within B			13.12		37.49					
			Grains/Earhead							
HS 562	33.86	2	31.37	3	31.38	2	32.99	3	32.40	3
HD 2967	31.68	5	30.83	4	28.11	5	31.21	5	30.46	5
HD 3086	33.63	3	33.00	1	33.34	1	34.93	1	33.72	1
HI1544	36.22	1	32.38	2	30.38	3	31.90	4	32.72	2
MACS 6222	32.72	4	29.73	5	30.00	4	33.16	2	31.40	4
WR 544	30.09	6	27.61	6	25.14	6	25.68	6	27.13	6
Mean	33.03		30.82		29.72		31.64		31.31	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		0.65		2.25		8.82			
Variety (B)	**		0.74		2.13		8.24			
B within A	N.S.		1.49		4.26					
A within B			1.51		4.31					
			1000 Grains Weight, g							
HS 562	44.37	5	42.63	5	38.52	3	33.18	6	39.68	5
HD 2967	44.68	4	43.35	3	39.07	2	34.64	2	40.44	3
HD 3086	44.97	3	42.75	4	38.10	4	33.80	5	39.90	4
HI1544	40.32	6	40.54	6	35.80	6	33.80	4	37.62	6
MACS 6222	45.60	1	44.45	1	37.91	5	34.16	3	40.53	2
WR 544	45.15	2	43.40	2	39.60	1	34.81	1	40.74	1
Mean	44.18		42.85		38.17		34.07		39.82	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.45		1.55		4.77			
Variety (B)	**		0.30		0.86		2.62			
B within A	*		0.60		1.72					
A within B			0.71		2.02					
Date of Sowing:			5.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			17.4.2019		21.04.2019		28.04.2019		30.04.2019	

Table 6.9.4. North Western Plains Zone SPL-6 Jammu 2018-19

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	45.51	5	43.05	4	39.44	1	33.38	1	40.34	2
HD 2967	47.83	4	47.35	1	36.25	3	24.22	5	38.91	3
HD 3086	51.90	2	46.19	3	38.83	2	28.57	2	41.37	1
HI1544	48.75	3	46.82	2	31.80	4	25.24	4	38.15	4
MACS 6222	52.56	1	42.19	5	30.77	5	26.16	3	37.92	5
WR 544	42.60	6	41.26	6	30.64	6	22.92	6	34.36	6
Mean	48.19		44.48		34.62		26.75		38.51	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		1.21		4.19		13.35			
Variety (B)	**		1.04		2.98		9.37			
B within A	*		2.08		5.95					
A within B			2.26		6.45					
			Earheads/sqm							
HS 562	395	2	371	1	345	5	299	4	352	4
HD 2967	385	3	367	5	362	3	322	1	359	2
HD 3086	397	1	367	4	378	1	307	3	362	1
HI1544	380	4	368	3	370	2	310	2	357	3
MACS 6222	366	6	371	2	361	4	297	5	349	5
WR 544	369	5	366	6	316	6	287	6	334	6
Mean	382		368		355		304		352	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		5.73		19.83		6.90			
Variety (B)	N.S.		10.74		30.70		10.56			
B within A	N.S.		21.48		61.40					
A within B			20.43		58.40					
			Grains/Earhead							
HS 562	29.57	6	29.34	6	31.81	1	30.62	1	30.34	2
HD 2967	33.64	4	34.07	2	27.38	2	22.57	5	29.42	3
HD 3086	34.82	2	33.36	3	27.17	4	26.18	2	30.38	1
HI1544	34.41	3	34.28	1	23.80	5	23.33	4	28.95	5
MACS 6222	36.75	1	31.95	4	23.27	6	24.50	3	29.12	4
WR 544	30.16	5	30.73	5	27.19	3	22.41	6	27.62	6
Mean	33.22		32.29		26.77		24.94		29.30	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		1.32		4.57		19.14			
Variety (B)	N.S.		1.02		2.91		12.03			
B within A	*		2.04		5.82					
A within B			2.28		6.52					
			1000 Grains Weight, g							
HS 562	38.98	2	39.46	1	36.13	4	36.86	1	37.86	1
HD 2967	37.08	6	37.74	3	36.61	2	33.62	6	36.26	6
HD 3086	37.75	4	37.69	4	38.04	1	35.89	4	37.34	2
HI1544	37.26	5	37.22	5	35.93	6	36.68	3	36.77	5
MACS 6222	39.38	1	36.07	6	36.60	3	36.79	2	37.21	3
WR 544	38.53	3	37.78	2	35.93	5	35.87	5	37.03	4
Mean	38.16		37.66		36.54		35.95		37.08	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		0.61		2.11		6.97			
Variety (B)	N.S.		0.48		1.38		4.50			
B within A	N.S.		0.96		2.76					
A within B			1.07		3.06					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			02.05.2019		07.05.2019		10.05.2019		13.05.2019	

Table 6.9.5. North Western Plains Zone SPL-6 Karnal 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	65.96	2	55.54	4	51.44	6	46.82	5	54.94	5
HD 2967	68.35	1	56.86	3	54.14	4	45.49	6	56.21	3
HD 3086	65.82	3	58.11	1	56.67	1	47.21	3	56.95	1
HI1544	63.17	5	55.31	5	54.84	3	47.09	4	55.10	4
MACS 6222	64.98	4	58.04	2	55.05	2	48.28	1	56.59	2
WR 544	56.83	6	52.65	6	52.71	5	47.88	2	52.52	6
Mean	64.18		56.08		54.14		47.13		55.38	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		1.43		4.95		10.96			
Variety (B)	**		0.73		2.10		4.59			
B within A	*		1.47		4.19					
A within B			1.96		5.60					
			Earheads/sqm							
HS 562	416	1	455	1	468	1	415	5	439	1
HD 2967	405	3	418	4	418	5	408	6	412	6
HD 3086	408	2	427	2	436	2	453	1	431	2
HI1544	405	3	419	3	436	2	418	4	419	3
MACS 6222	397	6	413	5	412	6	431	3	413	5
WR 544	403	5	401	6	430	4	443	2	419	4
Mean	406		422		433		428		422	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		7.51		26.00		7.55			
Variety (B)	N.S.		8.14		23.26		6.68			
B within A	N.S.		16.28		46.53					
A within B			16.65		47.60					
			Grains/Earhead							
HS 562	36.44	3	29.36	6	31.65	6	35.33	3	33.19	6
HD 2967	40.57	1	33.56	2	34.17	4	33.31	4	35.40	2
HD 3086	35.82	4	33.08	3	34.87	3	32.25	6	34.01	4
HI1544	34.13	5	32.08	5	35.69	2	35.82	2	34.43	3
MACS 6222	37.38	2	35.30	1	36.54	1	36.67	1	36.47	1
WR 544	33.04	6	33.06	4	34.05	5	32.90	5	33.26	5
Mean	36.23		32.74		34.49		34.38		34.46	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		1.06		3.67		13.05			
Variety (B)	*		0.70		2.01		7.05			
B within A	N.S.		1.40		4.01					
A within B			1.66		4.75					
			1000 Grains Weight, g							
HS 562	43.77	4	41.71	1	34.73	6	32.03	4	38.06	4
HD 2967	41.72	6	40.69	4	37.98	1	33.87	1	38.57	2
HD 3086	45.12	2	41.23	2	37.33	2	32.40	3	39.02	1
HI1544	45.75	1	41.15	3	35.35	5	31.58	5	38.46	3
MACS 6222	43.91	3	39.91	6	36.69	3	30.96	6	37.87	6
WR 544	42.66	5	39.93	5	36.03	4	32.85	2	37.87	5
Mean	43.82		40.77		36.35		32.28		38.31	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.25		0.87		2.79			
Variety (B)	*		0.28		0.79		2.50			
B within A	**		0.55		1.58					
A within B			0.56		1.61					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			08.05.2019							

Table 6.9.6. North Western Plains Zone SPL-6 Ludhiana 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	66.28	1	54.39	1	36.91	1	17.54	3	43.78	1
HD 2967	54.91	5	36.65	6	24.53	5	20.47	1	34.14	5
HD 3086	63.03	3	49.35	2	34.18	2	20.05	2	41.65	2
HI1544	55.00	4	46.17	3	24.37	6	15.20	5	35.19	4
MACS 6222	63.78	2	42.07	5	27.78	3	15.69	4	37.33	3
WR 544	50.32	6	42.17	4	25.28	4	13.78	6	32.89	6
Mean	58.89		45.13		28.84		17.12		37.49	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		1.14		3.96		12.94			
Variety (B)	**		1.32		3.78		12.21			
B within A	N.S.		2.64		7.56					
A within B			2.67		7.63					
Earheads/sqm										
HS 562	390	1	323	1	270	1	210	5	298	1
HD 2967	370	3	285	4	240	4	224	3	280	3
HD 3086	368	4	299	2	268	2	231	2	292	2
HI1544	365	5	288	3	233	6	208	6	274	5
MACS 6222	374	2	271	5	250	3	216	4	278	4
WR 544	320	6	262	6	240	5	245	1	266	6
Mean	365		288		250		222		281	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		11.80		40.83		17.80			
Variety (B)	*		6.52		18.64		8.03			
B within A	N.S.		13.04		37.28					
A within B			16.76		47.91					
Grains/Earhead										
HS 562	36.61	2	43.44	1	38.27	1	32.20	1	37.63	1
HD 2967	34.62	5	32.68	6	32.21	2	30.49	2	32.50	2
HD 3086	35.37	3	36.30	5	31.71	3	24.61	4	32.00	3
HI1544	32.98	6	37.54	3	31.02	4	24.75	3	31.57	5
MACS 6222	39.26	1	36.46	4	30.19	5	22.04	5	31.99	4
WR 544	34.94	4	38.44	2	28.92	6	17.19	6	29.87	6
Mean	35.63		37.48		32.05		25.21		32.59	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		1.79		6.21		23.36			
Variety (B)	*		1.60		4.58		17.02			
B within A	N.S.		3.20		9.15					
A within B			3.43		9.81					
1000 Grains Weight, g										
HS 562	46.72	2	39.59	5	35.83	3	26.98	6	37.28	5
HD 2967	42.96	6	39.25	6	31.00	6	29.94	4	35.79	6
HD 3086	48.93	1	45.68	1	41.03	1	35.16	1	42.70	1
HI1544	46.43	3	42.72	3	35.15	5	29.49	5	38.45	4
MACS 6222	44.16	5	42.56	4	35.79	4	33.03	2	38.89	3
WR 544	45.32	4	43.05	2	36.54	2	32.85	3	39.44	2
Mean	45.75		42.14		35.89		31.24		38.76	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.98		3.40		10.76			
Variety (B)	**		1.10		3.13		9.79			
B within A	N.S.		2.19		6.26					
A within B			2.23		6.37					
Date of Sowing:			5.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:										

Table 6.9.7. North Western Plains Zone SPL-6 Pantnagar 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	55.22	1	54.86	2	43.14	3	40.53	3	48.44	2
HD 2967	53.94	2	51.90	3	44.63	2	41.21	2	47.92	3
HD 3086	53.57	3	55.77	1	42.05	4	42.77	1	48.54	1
HI1544	49.89	5	50.22	5	35.40	6	35.02	5	42.63	5
MACS 6222	53.43	4	51.88	4	47.69	1	37.13	4	47.53	4
WR 544	43.95	6	41.47	6	35.96	5	34.13	6	38.88	6
Mean	51.67		51.02		41.48		38.46		45.66	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.74		2.58		6.92			
Variety (B)	**		0.96		2.75		7.30			
B within A	N.S.		1.92		5.50					
A within B			1.91		5.45					
Earheads/sqm										
HS 562	578	3	545	3	513	4	490	5	531	4
HD 2967	549	5	533	4	533	3	525	2	535	3
HD 3086	626	1	602	1	594	1	567	1	597	1
HI1544	559	4	527	5	503	5	501	3	522	5
MACS 6222	476	6	452	6	438	6	403	6	442	6
WR 544	625	2	591	2	579	2	492	4	572	2
Mean	569		542		527		496		533	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		13.71		47.46		10.91			
Variety (B)	**		12.52		35.79		8.13			
B within A	N.S.		25.04		71.58					
A within B			26.66		76.20					
Grains/Earhead										
HS 562	24.07	2	24.86	4	21.82	2	24.63	3	23.84	3
HD 2967	23.54	3	25.20	2	20.56	3	28.44	2	24.44	2
HD 3086	21.32	5	25.12	3	19.29	4	23.03	4	22.19	4
HI1544	22.64	4	24.45	5	18.99	5	20.79	5	21.72	5
MACS 6222	25.36	1	26.28	1	24.69	1	31.05	1	26.85	1
WR 544	19.26	6	19.79	6	15.88	6	19.48	6	18.60	6
Mean	22.70		24.28		20.21		24.57		22.94	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		1.37		4.75		25.39			
Variety (B)	**		1.05		3.01		15.91			
B within A	N.S.		2.11		6.02					
A within B			2.36		6.75					
1000 Grains Weight, g										
HS 562	40.30	3	40.93	2	39.00	4	34.40	2	38.66	2
HD 2967	42.00	2	40.50	3	40.83	2	27.87	6	37.80	3
HD 3086	40.27	4	37.10	5	37.23	6	33.10	4	36.93	6
HI1544	39.80	5	39.57	4	37.80	5	33.73	3	37.73	4
MACS 6222	44.77	1	44.00	1	44.33	1	30.63	5	40.93	1
WR 544	36.67	6	36.27	6	39.70	3	35.83	1	37.12	5
Mean	40.63		39.73		39.82		32.59		38.19	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.89		3.08		9.87			
Variety (B)	N.S.		1.03		2.94		9.33			
B within A	N.S.		2.06		5.88					
A within B			2.08		5.94					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			21.04.2019		23.04.2019		27.04.2019		30.04.2019	

Table 6.10.1. North Eastern Plains Zone **SPL-6** **Burdwan** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	41.90	2	47.97	5	39.37	3	24.79	3	38.51	3
HD 2967	44.76	1	49.79	4	34.35	6	21.67	6	37.64	5
HD 3086	40.60	5	50.62	3	37.29	5	22.50	5	37.75	4
HI1544	41.22	4	53.99	1	43.34	1	24.56	4	40.78	1
MACS 6222	41.64	3	52.11	2	41.36	2	27.16	2	40.57	2
WR 544	29.09	6	47.63	6	38.07	4	27.68	1	35.62	6
Mean	39.87		50.35		38.96		24.73		38.48	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.55		1.90		6.05			
Variety (B)	**		0.75		2.14		6.73			
B within A	**		1.49		4.27					
A within B			1.47		4.20					
			Earheads/sqm							
HS 562	270	5	290	6	278	3	238	6	269	5
HD 2967	275	4	300	4	265	5	257	4	274	4
HD 3086	282	2	320	1	265	5	247	5	278	3
HI1544	290	1	308	2	303	1	262	1	291	1
MACS 6222	277	3	308	2	287	2	258	3	283	2
WR 544	235	6	293	5	268	4	260	2	264	6
Mean	271		303		278		254		277	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		4.02		13.92		6.17			
Variety (B)	*		5.45		15.57		6.83			
B within A	N.S.		10.90		31.15					
A within B			10.73		30.67					
			Grains/Earhead							
HS 562	35.05	2	40.66	2	37.69	1	32.43	2	36.46	1
HD 2967	37.33	1	38.58	5	34.81	6	27.48	6	34.55	4
HD 3086	32.81	4	38.81	4	37.38	2	28.92	5	34.48	5
HI1544	32.09	5	43.23	1	37.04	4	30.09	3	35.61	3
MACS 6222	33.65	3	39.72	3	37.32	3	32.69	1	35.85	2
WR 544	30.52	6	38.24	6	35.10	5	29.33	4	33.30	6
Mean	33.58		39.88		36.56		30.16		35.04	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.54		1.86		6.49			
Variety (B)	**		0.49		1.39		4.82			
B within A	**		0.98		2.79					
A within B			1.04		2.97					
			1000 Grains Weight, g							
HS 562	44.31	2	40.96	4	37.67	4	32.13	3	38.77	3
HD 2967	43.64	5	43.11	1	37.26	6	30.69	6	38.67	5
HD 3086	43.93	4	40.76	5	37.64	5	31.52	4	38.46	6
HI1544	44.30	3	40.49	6	38.56	3	31.40	5	38.69	4
MACS 6222	44.79	1	42.57	2	38.66	2	32.18	2	39.55	2
WR 544	40.55	6	42.51	3	40.45	1	36.33	1	39.96	1
Mean	43.59		41.73		38.37		32.38		39.02	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.27		0.93		2.92			
Variety (B)	**		0.26		0.75		2.33			
B within A	**		0.52		1.50					
A within B			0.55		1.57					
Date of Sowing:			05.11.18		25.11.18		14.12.18		04.01.19	
Date of harvesting:			20.02-15.03.19		07-25.03.19		20-28.03.19		01-08.04.19	

Table 6.10.2. North Eastern Plains Zone SPL-6 Coochbehar 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	38.40	5	36.40	5	26.77	6	15.03	4	29.15	6
HD 2967	44.07	2	47.93	1	35.80	2	18.80	2	36.65	1
HD 3086	40.47	4	45.67	2	36.93	1	14.50	5	34.39	2
HI1544	44.20	1	41.40	4	34.67	3	16.53	3	34.20	3
MACS 6222	42.87	3	44.90	3	32.70	5	13.67	6	33.53	4
WR 544	34.60	6	34.00	6	33.30	4	20.93	1	30.71	5
Mean	40.77		41.72		33.36		16.58		33.11	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		1.45		5.00		18.53			
Variety (B)	**		1.06		3.02		11.06			
B within A	**		2.11		6.04					
A within B			2.41		6.89					
			Earheads/sqm							
HS 562	261	5	253	5	205	6	161	4	220	6
HD 2967	292	2	310	1	246	3	179	2	257	1
HD 3086	285	3	286	4	250	2	159	5	245	3
HI1544	299	1	308	2	251	1	166	3	256	2
MACS 6222	274	4	296	3	236	4	156	6	240	4
WR 544	243	6	199	6	229	5	222	1	223	5
Mean	276		275		236		174		240	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		4.97		17.21		8.79			
Variety (B)	**		6.65		19.02		9.59			
B within A	**		13.31		38.03					
A within B			13.13		37.52					
			Grains/Earhead							
HS 562	37.41	3	36.25	5	35.00	5	30.68	5	34.84	5
HD 2967	38.32	2	38.36	4	38.47	4	31.61	3	36.69	4
HD 3086	36.57	5	40.94	2	39.58	2	31.45	4	37.13	3
HI1544	36.59	4	31.56	6	33.81	6	28.70	6	32.66	6
MACS 6222	39.29	1	39.16	3	38.74	3	31.71	2	37.23	2
WR 544	36.07	6	42.72	1	41.21	1	33.60	1	38.40	1
Mean	37.37		38.16		37.80		31.29		36.16	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	N.S.		2.49		8.63		29.26			
Variety (B)	N.S.		1.94		5.56		18.63			
B within A	N.S.		3.89		11.11					
A within B			4.34		12.40					
			1000 Grains Weight, g							
HS 562	39.30	5	39.70	4	37.93	3	30.77	3	36.93	3
HD 2967	39.37	4	40.40	2	37.80	4	33.57	2	37.78	2
HD 3086	38.97	6	39.07	6	37.60	5	29.67	4	36.33	5
HI1544	40.50	1	42.47	1	40.83	1	35.23	1	39.76	1
MACS 6222	39.83	2	39.70	4	35.83	6	27.97	6	35.83	6
WR 544	39.63	3	40.37	3	38.40	2	28.23	5	36.66	4
Mean	39.60		40.28		38.07		30.91		37.21	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.24		0.82		2.70			
Variety (B)	**		0.25		0.73		2.36			
B within A	**		0.51		1.45					
A within B			0.52		1.49					
Date of Sowing:			15.11.2018		29.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			18.03.2019		02.04.2019		12.04.2019		22.04.2019	

Table 6.10.3. North Eastern Plains Zone SPL-6 Faizabad 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	51.02	2	49.39	2	39.88	6	22.96	5	40.81	5
HD 2967	53.57	1	50.33	1	40.35	5	21.80	6	41.51	3
HD 3086	50.79	3	47.31	5	43.14	2	23.66	4	41.22	4
HI1544	50.32	4	49.16	3	43.60	1	25.75	1	42.21	1
MACS 6222	49.16	5	48.47	4	42.90	3	25.51	2	41.51	2
WR 544	45.45	6	46.38	6	41.05	4	24.12	3	39.25	6
Mean	50.05		48.51		41.82		23.97		41.09	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.04		0.13		0.39			
Variety (B)	**		0.40		1.14		3.37			
B within A	**		0.80		2.28					
A within B			0.73		2.09					
			Earheads/sqm							
HS 562	410	3	465	2	375	5	271	4	381	4
HD 2967	422	2	477	1	366	6	262	6	382	3
HD 3086	448	1	451	4	410	1	267	5	394	1
HI1544	393	4	455	3	393	2	310	1	388	2
MACS 6222	385	5	443	5	381	4	288	3	374	5
WR 544	381	6	422	6	388	3	295	2	371	6
Mean	407		452		386		282		382	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		2.53		8.77		2.82			
Variety (B)	**		3.94		11.27		3.58			
B within A	**		7.89		22.54					
A within B			7.63		21.82					
			Grains/Earhead							
HS 562	29.34	3	28.25	1	30.41	1	28.64	3	29.16	2
HD 2967	27.83	5	26.05	5	30.19	2	29.40	1	28.37	3
HD 3086	26.45	6	27.62	3	28.52	4	26.35	5	27.24	5
HI1544	31.78	2	25.31	6	26.67	5	26.61	4	27.59	4
MACS 6222	32.35	1	28.19	2	30.18	3	29.07	2	29.95	1
WR 544	28.47	4	27.30	4	26.05	6	20.49	6	25.58	6
Mean	29.37		27.12		28.67		26.76		27.98	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.25		0.88		3.85			
Variety (B)	**		0.56		1.61		6.97			
B within A	**		1.13		3.22					
A within B			1.06		3.03					
			1000 Grains Weight, g							
HS 562	42.50	3	37.60	6	35.20	6	29.60	5	36.23	6
HD 2967	45.70	1	40.57	2	36.50	5	28.30	6	37.77	4
HD 3086	43.30	2	38.00	5	36.90	4	33.70	2	37.98	3
HI1544	40.40	5	42.70	1	41.63	1	31.20	3	38.98	2
MACS 6222	39.60	6	38.90	4	37.40	3	30.50	4	36.60	5
WR 544	41.90	4	40.30	3	40.70	2	40.00	1	40.73	1
Mean	42.23		39.68		38.06		32.22		38.05	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.25		0.87		2.80			
Variety (B)	**		0.50		1.43		4.55			
B within A	**		1.00		2.86					
A within B			0.95		2.70					
Date of Sowing:			05.11.18		25.11.18		15.12.18		05.01.19	
Date of harvesting:										

Table 6.10.4. North Eastern Plains Zone SPL-6 Kalyani 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	38.36	6	43.15	4	36.19	3	25.50	3	35.80	4
HD 2967	38.92	5	45.35	2	39.20	1	25.47	4	37.24	2
HD 3086	43.56	1	46.35	1	38.46	2	26.50	2	38.72	1
HI1544	40.96	3	40.94	5	30.35	6	21.78	6	33.51	6
MACS 6222	41.47	2	44.95	3	34.13	4	23.63	5	36.05	3
WR 544	39.49	4	33.14	6	31.76	5	30.44	1	33.71	5
Mean	40.46		42.31		35.01		25.55		35.84	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.78		2.70		9.24			
Variety (B)	*		1.20		3.42		11.57			
B within A	N.S.		2.39		6.84					
A within B			2.32		6.63					
			Earheads/sqm							
HS 562	304	2	326	2	258	3	199	4	272	2
HD 2967	305	1	339	1	250	5	207	2	276	1
HD 3086	301	4	308	3	256	4	202	3	267	3
HI1544	302	3	305	4	249	6	193	5	262	5
MACS 6222	298	5	302	5	264	1	185	6	262	6
WR 544	284	6	298	6	262	2	211	1	264	4
Mean	299		313		256		199		267	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		10.04		34.75		15.96			
Variety (B)	N.S.		7.87		22.49		10.21			
B within A	N.S.		15.74		44.98					
A within B			17.53		50.09					
			Grains/Earhead							
HS 562	40.36	2	35.27	3	39.08	3	41.25	2	38.99	2
HD 2967	38.33	5	35.25	4	44.84	1	36.66	5	38.77	3
HD 3086	38.04	6	38.82	2	41.27	2	38.15	4	39.07	1
HI1544	38.76	4	32.22	5	32.82	6	33.20	6	34.25	6
MACS 6222	41.09	1	38.84	1	35.08	4	38.24	3	38.31	4
WR 544	39.42	3	31.83	6	33.90	5	46.94	1	38.02	5
Mean	39.33		35.37		37.83		39.08		37.90	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	N.S.		1.76		6.08		19.65			
Variety (B)	N.S.		1.82		5.19		16.60			
B within A	N.S.		3.63		10.38					
A within B			3.75		10.72					
			1000 Grains Weight, g							
HS 562	34.33	4	37.83	5	36.33	5	31.00	6	34.88	6
HD 2967	33.67	6	38.17	4	35.33	6	34.17	3	35.33	4
HD 3086	38.17	1	38.83	2	36.50	4	34.67	2	37.04	2
HI1544	35.17	3	41.67	1	37.67	1	35.00	1	37.38	1
MACS 6222	34.33	4	38.33	3	37.67	1	33.83	4	36.04	3
WR 544	35.83	2	35.83	6	37.00	3	31.35	5	35.00	5
Mean	35.25		38.44		36.75		33.34		35.95	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	N.S.		1.35		4.66		15.88			
Variety (B)	N.S.		0.78		2.22		7.50			
B within A	N.S.		1.56		4.45					
A within B			1.96		5.59					
Date of Sowing:			05.11.18		25.11.18		15.12.18		05.01.19	
Date of harvesting:			12.03.19		22.03.19		05.04.19		15.04.19	

Table 6.10.5. North Eastern Plains Zone SPL-6 Ranchi 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	50.30	4	49.07	3	33.80	5	23.53	4	39.18	4
HD 2967	53.20	1	53.33	1	34.63	4	22.50	5	40.92	3
HD 3086	46.40	5	44.70	5	31.83	6	18.40	6	35.33	6
HI1544	51.40	3	52.13	2	39.00	1	28.10	2	42.66	1
MACS 6222	51.50	2	48.47	4	38.73	2	28.13	1	41.71	2
WR 544	46.03	6	40.90	6	34.67	3	23.73	3	36.33	5
Mean	49.81		48.10		35.44		24.07		39.35	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.82		2.85		8.88			
Variety (B)	**		1.07		3.07		9.44			
B within A	N.S.		2.15		6.13					
A within B			2.12		6.07					
			Earheads/sqm							
HS 562	370	4	397	1	323	3	243	3	333	3
HD 2967	373	3	383	2	357	1	237	4	338	2
HD 3086	383	2	367	3	352	2	250	2	338	1
HI1544	347	5	363	4	320	5	280	1	328	5
MACS 6222	340	6	350	5	310	6	218	6	305	6
WR 544	410	1	343	6	323	3	237	4	328	4
Mean	371		367		331		244		328	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		15.25		52.77		19.71			
Variety (B)	N.S.		11.46		32.77		12.10			
B within A	N.S.		22.93		65.53					
A within B			25.90		74.02					
			Grains/Earhead							
HS 562	33.79	4	32.33	4	27.26	4	26.53	4	29.98	4
HD 2967	35.72	2	34.83	2	24.45	5	26.29	5	30.32	3
HD 3086	27.99	6	31.04	5	23.17	6	20.50	6	25.68	6
HI1544	35.07	3	34.37	3	30.22	2	27.91	2	31.89	2
MACS 6222	35.82	1	34.92	1	31.06	1	35.66	1	34.36	1
WR 544	28.29	5	29.61	6	27.97	3	27.31	3	28.29	5
Mean	32.78		32.85		27.36		27.37		30.09	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	N.S.		1.76		6.10		24.87			
Variety (B)	**		1.31		3.74		15.08			
B within A	N.S.		2.62		7.49					
A within B			2.97		8.49					
			1000 Grains Weight, g							
HS 562	41.13	4	39.50	6	39.10	5	36.90	1	39.16	6
HD 2967	40.83	6	39.97	3	39.83	4	36.40	6	39.26	4
HD 3086	43.33	2	39.87	4	40.37	3	36.73	2	40.08	3
HI1544	42.40	3	41.80	1	40.73	2	36.67	4	40.40	1
MACS 6222	44.13	1	39.70	5	40.73	1	36.60	5	40.29	2
WR 544	41.07	5	40.47	2	38.73	6	36.73	3	39.25	5
Mean	42.15		40.22		39.92		36.67		39.74	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.47		1.63		5.02			
Variety (B)	N.S.		0.55		1.58		4.82			
B within A	N.S.		1.11		3.16					
A within B			1.11		3.19					
Date of Sowing:			10.11.2018		30.11.2018		20.12.2018		10.01.2019	
Date of harvesting:			06.04.2019		10.04.2019		20.04.2019		25.04.2019	

Table 6.10.6. North Eastern Plains Zone SPL-6 Sabour 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	44.87	2	42.66	3	39.16	2	34.26	3	40.24	2
HD 2967	43.99	3	44.77	2	35.56	5	35.21	2	39.88	4
HD 3086	45.85	1	44.83	1	36.07	4	33.63	4	40.10	3
HI1544	39.49	6	42.14	4	36.66	3	32.61	5	37.72	6
MACS 6222	43.26	5	41.36	5	35.23	6	32.02	6	37.97	5
WR 544	43.29	4	40.49	6	41.82	1	36.80	1	40.60	1
Mean	43.46		42.71		37.42		34.09		39.42	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.96		3.34		10.38			
Variety (B)	*		0.75		2.15		6.62			
B within A	N.S.		1.51		4.30					
A within B			1.68		4.80					
			Earheads/sqm							
HS 562	273	3	291	3	252	6	237	3	263	4
HD 2967	279	1	297	1	257	5	239	2	268	1
HD 3086	278	2	293	2	259	4	232	5	266	3
HI1544	269	6	284	5	262	2	234	4	262	5
MACS 6222	270	4	282	6	261	3	230	6	261	6
WR 544	269	5	289	4	265	1	241	1	266	2
Mean	273		289		259		235		264	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		2.17		7.51		3.48			
Variety (B)	**		1.04		2.98		1.37			
B within A	**		2.09		5.96					
A within B			2.89		8.25					
			Grains/Earhead							
HS 562	39.23	1	34.87	5	39.51	1	37.52	3	37.78	1
HD 2967	36.92	5	35.48	2	33.75	4	37.85	2	36.00	4
HD 3086	38.35	2	36.10	1	33.69	5	37.41	4	36.39	3
HI1544	34.98	6	35.36	3	34.07	3	36.40	6	35.20	6
MACS 6222	38.07	3	34.97	4	32.86	6	36.65	5	35.64	5
WR 544	37.67	4	32.63	6	38.88	2	39.22	1	37.10	2
Mean	37.54		34.90		35.46		37.51		36.35	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	N.S.		0.97		3.34		11.27			
Variety (B)	N.S.		0.69		1.97		6.55			
B within A	N.S.		1.38		3.93					
A within B			1.58		4.53					
			1000 Grains Weight, g							
HS 562	42.00	4	42.00	4	39.33	6	38.67	3	40.50	6
HD 2967	42.67	2	42.67	2	41.00	2	39.00	1	41.33	2
HD 3086	43.00	1	42.33	3	41.33	1	38.67	3	41.33	1
HI1544	42.00	4	42.00	4	41.00	2	38.33	5	40.83	4
MACS 6222	42.00	4	42.00	4	41.00	2	38.00	6	40.75	5
WR 544	42.67	2	43.00	1	40.67	5	39.00	1	41.33	2
Mean	42.39		42.33		40.72		38.61		41.01	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.53		1.84		5.51			
Variety (B)	N.S.		0.34		0.96		2.83			
B within A	N.S.		0.67		1.92					
A within B			0.81		2.32					
Date of Sowing:			05.11.2018		25.11.2018		14.12.2018		05.01.2019	
Date of harvesting:			13.04.2019		16.04.2019		21.04.2019		23.04.2019	

Table 6.10.7. North Eastern Plains Zone SPL-6 Shillongani 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	49.37	1	37.26	4	35.95	3	21.06	5	35.91	3
HD 2967	44.25	3	37.05	5	34.41	5	19.10	6	33.70	5
HD 3086	48.37	2	42.97	1	40.75	1	34.14	1	41.56	1
HI1544	39.80	5	37.58	3	36.20	2	30.85	2	36.11	2
MACS 6222	41.16	4	38.10	2	34.95	4	27.95	4	35.54	4
WR 544	36.70	6	33.04	6	32.61	6	30.01	3	33.09	6
Mean	43.27		37.67		35.81		27.18		35.98	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.72		2.49		8.47			
Variety (B)	**		0.72		2.05		6.89			
B within A	**		1.43		4.09					
A within B			1.49		4.26					
			Earheads/sqm							
HS 562	258	5	211	6	185	6	182	6	209	6
HD 2967	259	4	251	1	247	2	217	5	243	4
HD 3086	269	2	250	2	241	3	235	2	249	2
HI1544	260	3	248	3	249	1	239	1	249	1
MACS 6222	277	1	241	5	236	5	224	4	244	3
WR 544	254	6	246	4	240	4	231	3	243	5
Mean	263		241		233		221		239	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		2.77		9.58		4.90			
Variety (B)	**		3.27		9.34		4.73			
B within A	**		6.54		18.68					
A within B			6.58		18.80					
			Grains/Earhead							
HS 562	46.97	1	42.43	1	47.54	1	34.44	2	42.84	1
HD 2967	39.14	3	35.80	4	35.12	4	25.23	6	33.82	5
HD 3086	42.01	2	40.61	2	39.68	2	41.72	1	41.01	2
HI1544	36.25	4	35.49	5	34.12	5	32.89	4	34.69	4
MACS 6222	35.00	5	37.20	3	35.37	3	33.68	3	35.31	3
WR 544	31.17	6	28.94	6	28.45	6	30.54	5	29.77	6
Mean	38.42		36.74		36.71		33.08		36.24	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	*		0.79		2.72		9.19			
Variety (B)	**		0.84		2.39		7.98			
B within A	**		1.67		4.77					
A within B			1.72		4.90					
			1000 Grains Weight, g							
HS 562	40.84	6	41.61	5	40.99	5	33.62	6	39.26	6
HD 2967	43.72	2	41.30	6	39.65	6	35.02	4	39.92	5
HD 3086	42.81	3	42.37	4	42.67	3	35.00	5	40.71	4
HI1544	42.22	5	42.63	3	42.70	2	39.28	2	41.71	2
MACS 6222	42.48	4	42.66	2	42.27	4	37.08	3	41.12	3
WR 544	46.43	1	46.47	1	47.77	1	42.62	1	45.82	1
Mean	43.08		42.84		42.68		37.10		41.42	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.27		0.92		2.72			
Variety (B)	**		0.34		0.99		2.88			
B within A	**		0.69		1.97					
A within B			0.68		1.95					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			15-26.03.19		19.03-11.04.19		30.03-18.04.19		11-25.04.19	

Table 6.10.8. North Eastern Plains Zone SPL-6 Varanasi 2018-19

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	56.53	2	48.00	6	39.92	6	24.91	6	42.34	4
HD 2967	50.63	4	56.81	2	52.09	2	33.70	3	48.31	3
HD 3086	56.40	3	52.21	4	49.33	3	35.62	2	48.39	2
HI1544	40.14	5	55.13	3	41.90	4	31.41	5	42.14	5
MACS 6222	56.64	1	61.47	1	54.46	1	38.99	1	52.89	1
WR 544	30.38	6	48.33	5	41.13	5	32.20	4	38.01	6
Mean	48.45		53.66		46.47		32.81		45.35	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.65		2.23		6.04			
Variety (B)	**		0.60		1.71		4.58			
B within A	**		1.20		3.43					
A within B			1.27		3.63					
Earheads/sqm										
HS 562	329	3	368	3	364	2	364	2	356	1
HD 2967	358	1	379	2	326	6	350	3	353	2
HD 3086	271	5	356	5	354	3	339	4	330	5
HI1544	307	4	356	4	346	4	315	5	331	4
MACS 6222	259	6	388	1	369	1	366	1	346	3
WR 544	331	2	353	6	331	5	289	6	326	6
Mean	309		367		348		337		340	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		5.67		19.63		7.07			
Variety (B)	**		6.96		19.90		7.09			
B within A	**		13.92		39.79					
A within B			13.92		39.78					
Grains/Earhead										
HS 562	43.18	3	37.55	5	34.69	4	25.47	6	35.22	4
HD 2967	34.39	4	41.89	2	46.56	1	29.11	5	37.99	3
HD 3086	54.18	1	39.34	3	38.61	3	34.75	1	41.72	2
HI1544	32.53	5	38.25	4	33.02	5	30.92	4	33.68	5
MACS 6222	51.57	2	42.46	1	40.27	2	33.92	2	42.06	1
WR 544	21.96	6	32.20	6	31.37	6	31.88	3	29.35	6
Mean	39.63		38.62		37.42		31.01		36.67	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.96		3.32		11.10			
Variety (B)	**		0.92		2.63		8.70			
B within A	**		1.84		5.26					
A within B			1.94		5.53					
1000 Grains Weight, g										
HS 562	40.50	5	34.79	6	31.73	6	26.99	6	33.50	6
HD 2967	41.37	3	35.75	5	34.34	5	33.67	2	36.29	4
HD 3086	38.55	6	37.34	4	36.25	4	30.71	5	35.71	5
HI1544	40.55	4	40.59	2	36.72	2	32.35	3	37.55	2
MACS 6222	42.49	1	37.37	3	36.72	2	31.43	4	37.00	3
WR 544	42.17	2	42.53	1	40.03	1	35.03	1	39.94	1
Mean	40.94		38.06		35.96		31.70		36.67	
	F. Test		SEm		CD (0.05)		CV(%)			
Sowing (A)	**		0.38		1.32		4.43			
Variety (B)	**		0.52		1.49		4.93			
B within A	*		1.04		2.98					
A within B			1.03		2.94					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			07.04.2019		11.04.2019		14.04.2019		21.04.2019	

Table 6.11.1. Central Zone **SPL-6** **Bilaspur** **2018-19**

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	39.69	1	31.54	1	42.74	1
MACS 6222	47.83	4	42.36	4	34.89	4	26.79	4	37.97	4
WR 544	44.28	6	40.86	5	33.34	5	22.23	6	35.18	6
Mean	48.01		43.22		35.79		26.96		38.49	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.36		1.24		3.94			
Variety (B)	**		0.36		1.02		3.20			
B within A	*		0.71		2.03					
A within B			0.74		2.12					
			Earheads/sqm							
HS 562	389	2	338	3	325	3	253	3	326	2
HD 2967	370	5	318	5	372	1	230	5	323	3
HD 3086	384	3	340	2	306	4	259	2	322	4
HI1544	424	1	419	1	355	2	271	1	367	1
MACS 6222	371	4	331	4	290	6	248	4	310	5
WR 544	361	6	315	6	295	5	203	6	294	6
Mean	383		343		324		244		324	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		4.55		15.75		5.97			
Variety (B)	**		2.33		6.66		2.50			
B within A	**		4.66		13.33					
A within B			6.23		17.81					
			Grains/Earhead							
HS 562	29.74	1	32.36	2	31.24	1	31.19	3	31.13	1
HD 2967	29.20	4	31.74	3	22.90	6	27.88	6	27.93	5
HD 3086	28.91	5	29.91	5	31.01	2	31.66	2	30.37	3
HI1544	26.92	6	25.69	6	27.19	5	30.74	4	27.63	6
MACS 6222	29.72	2	31.25	4	29.34	3	30.30	5	30.15	4
WR 544	29.61	3	33.75	1	27.56	4	32.96	1	30.97	2
Mean	29.02		30.78		28.21		30.79		29.70	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		0.58		2.02		8.35			
Variety (B)	**		0.42		1.21		4.95			
B within A	**		0.85		2.42					
A within B			0.97		2.77					
			1000 Grains Weight, g							
HS 562	42.93	5	41.42	3	36.87	6	36.95	2	39.54	4
HD 2967	43.22	3	39.66	5	39.25	4	35.62	5	39.44	5
HD 3086	43.20	4	42.92	2	38.33	5	36.33	3	40.20	3
HI1544	45.43	1	44.73	1	41.45	1	38.19	1	42.45	1
MACS 6222	43.52	2	41.21	4	41.22	2	36.06	4	40.50	2
WR 544	41.52	6	38.58	6	41.12	3	33.30	6	38.63	6
Mean	43.30		41.42		39.71		36.07		40.13	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.30		1.05		3.20			
Variety (B)	**		0.36		1.03		3.11			
B within A	**		0.72		2.06					
A within B			0.72		2.07					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			06.03.2019		20.03.2019		12.04.2019		26.04.2019	

Table 6.11.2. Central Zone **SPL-6** **Gwalior** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	56.82	3	57.44	4	54.33	2	42.35	3	52.74	2
HD 2967	55.31	5	56.41	5	47.94	5	42.00	4	50.42	5
HD 3086	56.14	4	57.67	3	53.25	3	35.30	6	50.59	4
HI1544	58.55	2	58.74	1	48.83	4	44.22	2	52.59	3
MACS 6222	59.51	1	58.21	2	55.17	1	44.48	1	54.34	1
WR 544	53.05	6	55.11	6	47.60	6	36.04	5	47.95	6
Mean	56.57		57.26		51.19		40.73		51.44	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.23		0.80		1.90			
Variety (B)	**		0.31		0.88		2.08			
B within A	**		0.62		1.76					
A within B			0.61		1.74					
			Earheads/sqm							
HS 562	403	4	414	4	386	4	325	4	382	4
HD 2967	399	5	403	5	381	6	327	1	377	5
HD 3086	415	3	417	3	412	2	290	6	383	3
HI1544	418	2	424	2	393	3	326	2	390	2
MACS 6222	427	1	426	1	426	1	326	3	401	1
WR 544	396	6	401	6	381	5	292	5	367	6
Mean	410		414		396		314		384	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		1.48		5.14		1.64			
Variety (B)	**		2.42		6.91		2.18			
B within A	**		4.83		13.82					
A within B			4.66		13.31					
			Grains/Earhead							
HS 562	35.25	1	41.49	1	38.97	1	48.37	1	41.02	1
HD 2967	30.15	5	30.58	6	33.27	4	41.97	4	33.99	6
HD 3086	26.47	6	37.74	2	36.27	2	38.94	5	34.85	4
HI1544	31.41	4	35.21	4	33.21	5	44.22	2	36.01	3
MACS 6222	32.28	3	36.60	3	33.71	3	43.68	3	36.57	2
WR 544	33.10	2	34.16	5	32.95	6	37.27	6	34.37	5
Mean	31.44		35.96		34.73		42.41		36.14	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.37		1.27		4.32			
Variety (B)	**		0.53		1.53		5.13			
B within A	**		1.07		3.06					
A within B			1.04		2.98					
			1000 Grains Weight, g							
HS 562	40.05	6	33.45	6	36.14	5	26.98	6	34.15	6
HD 2967	45.96	2	45.80	1	37.88	3	30.69	4	40.08	1
HD 3086	53.90	1	36.67	5	35.65	6	31.27	3	39.37	2
HI1544	44.59	3	39.38	3	37.39	4	30.69	5	38.01	4
MACS 6222	43.25	4	37.38	4	38.45	1	31.30	2	37.59	5
WR 544	40.73	5	40.28	2	37.95	2	33.13	1	38.02	3
Mean	44.75		38.83		37.24		30.68		37.87	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.90		3.11		10.06			
Variety (B)	**		1.05		3.00		9.61			
B within A	*		2.10		6.00					
A within B			2.12		6.05					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			31.03.2019		14.04.2019		17.04.2019		20.04.2019	

Table 6.11.3. Central Zone **SPL-6** **Indore** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	56.37	5	40.97	6	34.93	6	26.27	4	39.63	6
HD 2967	56.47	4	42.90	5	39.80	4	25.37	5	41.13	5
HD 3086	57.27	3	51.73	4	36.67	5	21.10	6	41.69	4
HI1544	70.20	1	61.63	1	51.67	1	38.50	1	55.50	1
MACS 6222	63.30	2	53.37	3	41.63	3	35.27	2	48.39	2
WR 544	40.77	6	56.27	2	42.80	2	34.37	3	43.55	3
Mean	57.39		51.14		41.25		30.14		44.98	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.57		1.98		5.41			
Variety (B)	**		0.84		2.39		6.44			
B within A	**		1.67		4.78					
A within B			1.63		4.66					
Earheads/sqm										
HS 562	330	3	301	5	341	3	293	2	316	2
HD 2967	346	2	293	6	343	2	237	5	305	4
HD 3086	297	5	352	2	341	4	240	4	307	3
HI1544	367	1	381	1	347	1	281	3	344	1
MACS 6222	315	4	302	4	303	6	236	6	289	6
WR 544	262	6	331	3	314	5	298	1	301	5
Mean	319		327		331		264		310	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		4.33		14.97		5.91			
Variety (B)	**		4.55		13.02		5.08			
B within A	**		9.11		26.03					
A within B			9.37		26.79					
Grains/Earhead										
HS 562	40.39	3	47.61	1	35.21	5	32.20	6	38.85	5
HD 2967	39.43	5	42.70	3	36.67	3	36.84	4	38.91	4
HD 3086	43.07	2	39.87	5	36.53	4	38.30	2	39.44	3
HI1544	40.01	4	40.73	4	40.66	1	38.05	3	39.86	2
MACS 6222	43.74	1	43.11	2	36.95	2	41.73	1	41.38	1
WR 544	33.33	6	38.10	6	34.61	6	35.03	5	35.27	6
Mean	40.00		42.02		36.77		37.02		38.95	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.40		1.37		4.32			
Variety (B)	**		0.49		1.41		4.40			
B within A	**		0.99		2.83					
A within B			0.99		2.82					
1000 Grains Weight, g										
HS 562	42.33	5	28.63	6	29.03	6	27.87	5	31.97	6
HD 2967	41.57	6	34.37	5	31.63	4	29.10	4	34.17	4
HD 3086	44.87	4	36.90	4	29.47	5	23.07	6	33.58	5
HI1544	47.80	1	39.70	3	36.73	3	36.00	1	40.06	2
MACS 6222	46.03	3	41.07	2	37.17	2	35.73	2	40.00	3
WR 544	46.60	2	44.63	1	39.43	1	32.87	3	40.88	1
Mean	44.87		37.55		33.91		30.77		36.78	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.25		0.86		2.88			
Variety (B)	**		0.30		0.85		2.81			
B within A	**		0.60		1.70					
A within B			0.60		1.71					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			25.03.2019		11.04.2019		20.04.2019		26.04.2019	

Table 6.11.4. Central Zone **SPL-6** **Jabalpur** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	41.66	5	41.50	6	40.44	2	32.01	6	38.90	5
HD 2967	42.59	4	44.66	2	37.12	5	35.31	4	39.92	3
HD 3086	42.70	3	42.86	5	38.39	3	35.24	5	39.80	4
HI1544	45.93	1	49.21	1	43.21	1	38.02	1	44.09	1
MACS 6222	43.65	2	44.26	3	38.13	4	36.31	3	40.59	2
WR 544	36.86	6	43.28	4	35.44	6	36.97	2	38.14	6
Mean	42.23		44.30		38.79		35.64		40.24	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.31		1.09		3.32			
Variety (B)	**		0.28		0.80		2.40			
B within A	**		0.56		1.59					
A within B			0.60		1.71					
			Earheads/sqm							
HS 562	294	1	293	1	285	4	281	1	288	1
HD 2967	289	3	287	3	284	5	273	5	283	3
HD 3086	285	6	279	6	289	1	278	3	283	4
HI1544	286	5	287	4	285	3	272	6	282	5
MACS 6222	289	3	287	2	287	2	279	2	285	2
WR 544	290	2	286	5	276	6	277	4	282	5
Mean	289		286		284		277		284	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.41		1.42		0.62			
Variety (B)	**		0.38		1.08		0.46			
B within A	**		0.76		2.17					
A within B			0.81		2.30					
			Grains/Earhead							
HS 562	38.10	4	39.77	3	48.17	1	45.14	3	42.79	1
HD 2967	40.44	2	34.84	6	44.31	2	37.92	5	39.38	4
HD 3086	37.28	5	36.45	5	36.06	4	35.33	6	36.28	6
HI1544	38.16	3	42.82	2	33.82	6	49.50	1	41.07	3
MACS 6222	42.40	1	42.97	1	39.74	3	40.41	4	41.38	2
WR 544	28.85	6	37.89	4	34.86	5	47.76	2	37.34	5
Mean	37.54		39.12		39.49		42.68		39.71	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	*		0.80		2.77		8.55			
Variety (B)	**		0.43		1.23		3.76			
B within A	**		0.86		2.46					
A within B			1.12		3.21					
			1000 Grains Weight, g							
HS 562	37.23	4	35.59	6	29.56	6	25.30	6	31.92	6
HD 2967	36.52	5	44.71	1	29.61	5	34.17	2	36.25	4
HD 3086	40.27	3	42.14	2	36.90	2	35.90	1	38.80	2
HI1544	42.18	2	40.13	3	44.87	1	28.27	4	38.86	1
MACS 6222	35.70	6	35.89	5	33.49	4	32.25	3	34.34	5
WR 544	44.06	1	39.94	4	36.81	3	27.99	5	37.20	3
Mean	39.33		39.74		35.21		30.65		36.23	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.39		1.37		4.62			
Variety (B)	**		0.24		0.67		2.25			
B within A	**		0.47		1.34					
A within B			0.58		1.67					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			15.03.2019		30.03.2019		05.04.2019		10.04.2019	

Table 6.11.5. Central Zone **SPL-6** **Powarkheda** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
Yield, q/ha										
HS 562	41.07	4	42.46	2	41.07	2	32.74	4	39.34	3
HD 2967	37.30	6	40.87	3	36.90	4	30.36	5	36.36	4
HD 3086	43.65	3	36.71	6	32.14	5	32.94	3	36.36	4
HI1544	43.85	2	39.68	4	37.70	3	38.49	2	39.93	2
MACS 6222	58.33	1	51.19	1	46.23	1	42.66	1	49.60	1
WR 544	38.89	5	36.90	5	30.95	6	23.81	6	32.64	6
Mean	43.85		41.30		37.50		33.50		39.04	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.62		2.14		6.73			
Variety (B)	**		1.15		3.28		10.19			
B within A	N.S.		2.30		6.57					
A within B			2.19		6.25					
Earheads/sqm										
HS 562	434	3	418	2	373	3	336	2	390	2
HD 2967	450	2	418	1	376	2	272	6	379	3
HD 3086	410	5	396	3	351	6	283	5	360	5
HI1544	424	4	368	6	357	5	350	1	375	4
MACS 6222	382	6	377	5	358	4	296	4	353	6
WR 544	534	1	383	4	379	1	329	3	406	1
Mean	439		393		366		311		377	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		3.17		10.98		3.57			
Variety (B)	*		10.51		30.05		9.65			
B within A	*		21.03		60.09					
A within B			19.45		55.60					
Grains/Earhead										
HS 562	25.59	3	29.85	2	33.38	2	31.77	4	30.15	2
HD 2967	22.74	5	29.47	3	31.58	3	36.40	2	30.05	3
HD 3086	27.80	2	25.99	5	26.56	5	34.30	3	28.66	4
HI1544	25.00	4	27.13	4	28.58	4	30.96	5	27.92	5
MACS 6222	39.60	1	35.38	1	34.23	1	39.82	1	37.26	1
WR 544	17.75	6	24.23	6	23.05	6	21.19	6	21.56	6
Mean	26.41		28.67		29.56		32.41		29.26	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.65		2.23		9.36			
Variety (B)	**		1.30		3.73		15.45			
B within A	N.S.		2.61		7.46					
A within B			2.47		7.06					
1000 Grains Weight, g										
HS 562	37.20	5	34.13	5	33.07	5	31.13	5	33.88	5
HD 2967	36.67	6	33.40	6	31.47	6	30.87	6	33.10	6
HD 3086	38.80	4	35.93	4	35.00	4	34.13	4	35.97	4
HI1544	41.73	1	41.00	1	36.93	2	35.60	2	38.82	1
MACS 6222	38.93	3	38.53	3	37.80	1	36.20	1	37.87	3
WR 544	41.00	2	40.07	2	35.53	3	35.00	3	37.90	2
Mean	39.06		37.18		34.97		33.82		36.26	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.43		1.49		5.04			
Variety (B)	**		0.46		1.33		4.44			
B within A	N.S.		0.93		2.66					
A within B			0.95		2.72					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			15.03.2019		05.04.2019		16.04.2019		09.05.2019	

Table 6.11.6. Central Zone **SPL-6** **Udaipur** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	53.21	3	49.88	3	38.59	4	31.79	3	43.37	3
HD 2967	53.72	2	49.50	4	40.09	2	32.13	2	43.86	2
HD 3086	46.72	4	52.56	1	39.00	3	30.57	4	42.21	4
HI1544	56.00	1	50.15	2	40.12	1	34.58	1	45.21	1
MACS 6222	45.36	5	42.23	5	37.13	5	28.73	5	38.36	5
WR 544	45.22	6	40.32	6	32.47	6	28.19	6	36.55	6
Mean	50.04		47.44		37.90		31.00		41.59	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.74		2.56		7.55			
Variety (B)	**		1.03		2.94		8.58			
B within A	N.S.		2.06		5.89					
A within B			2.02		5.78					
			Earheads/sqm							
HS 562	454	3	457	3	377	3	267	3	389	3
HD 2967	463	2	459	2	383	2	282	2	397	2
HD 3086	450	4	447	4	377	3	262	4	384	4
HI1544	473	1	466	1	400	1	295	1	409	1
MACS 6222	378	5	366	6	333	5	255	5	333	5
WR 544	374	6	371	5	313	6	228	6	321	6
Mean	432		428		364		265		372	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		3.85		13.33		4.39			
Variety (B)	**		4.59		13.11		4.27			
B within A	*		9.17		26.21					
A within B			9.22		26.34					
			Grains/Earhead							
HS 562	26.40	3	25.26	3	25.63	5	31.61	2	27.23	3
HD 2967	26.47	2	24.75	5	26.34	2	29.98	5	26.89	4
HD 3086	23.46	6	26.78	2	25.75	3	30.44	3	26.61	5
HI1544	26.32	4	24.46	6	25.20	6	30.36	4	26.58	6
MACS 6222	26.29	5	26.97	1	28.42	1	29.66	6	27.83	2
WR 544	27.76	1	25.23	4	25.71	4	33.01	1	27.93	1
Mean	26.11		25.58		26.18		30.84		27.18	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.43		1.47		6.65			
Variety (B)	N.S.		0.70		2.01		8.97			
B within A	N.S.		1.41		4.02					
A within B			1.35		3.87					
			1000 Grains Weight, g							
HS 562	44.44	3	43.21	4	40.00	3	37.80	5	41.36	4
HD 2967	43.83	6	43.60	3	39.72	5	38.03	4	41.30	6
HD 3086	44.32	4	44.00	2	40.30	2	38.57	2	41.80	2
HI1544	45.07	2	44.07	1	39.83	4	38.73	1	41.93	1
MACS 6222	45.67	1	42.84	6	39.40	6	38.12	3	41.51	3
WR 544	43.90	5	43.17	5	40.42	1	37.73	6	41.31	5
Mean	44.54		43.48		39.94		38.16		41.53	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.31		1.06		3.13			
Variety (B)	N.S.		0.30		0.87		2.53			
B within A	N.S.		0.61		1.73					
A within B			0.63		1.81					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			26.03.2019		02.04.2019		08.04.2019		15.04.2019	

Table 6.12.1. Peninsular Zone **SPL-6** **Dharwad** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	45.92	1	37.26	5	25.32	6	20.57	4	32.27	4
HD 2967	45.75	2	39.34	3	37.04	1	22.34	3	36.12	1
HD 3086	36.87	6	38.98	4	28.84	5	20.16	5	31.21	6
HI1544	38.88	4	39.67	2	32.69	4	25.49	2	34.18	3
MACS 6222	39.43	3	36.15	6	34.48	2	18.28	6	32.09	5
WR 544	37.50	5	40.39	1	33.39	3	28.36	1	34.91	2
Mean	40.73		38.63		31.96		22.53		33.46	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.19		0.66		2.42			
Variety (B)	**		0.91		2.61		9.44			
B within A	**		1.82		5.21					
A within B			1.68		4.79					
			Earheads/sqm							
HS 562	274	1	242	5	221	6	215	5	238	5
HD 2967	272	2	261	3	238	1	218	3	247	1
HD 3086	256	6	258	4	225	5	214	6	238	4
HI1544	262	4	264	2	228	4	222	2	244	3
MACS 6222	265	3	238	6	232	2	216	4	238	6
WR 544	258	5	268	1	230	3	225	1	245	2
Mean	265		255		229		219		242	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.18		0.62		0.31			
Variety (B)	**		0.95		2.71		1.36			
B within A	**		1.89		5.41					
A within B			1.74		4.97					
			Grains/Earhead							
HS 562	41.38	2	39.53	1	30.11	6	24.90	5	33.98	5
HD 2967	41.69	1	37.55	4	40.29	1	26.79	3	36.58	1
HD 3086	36.38	5	37.78	3	34.58	5	25.03	4	33.44	6
HI1544	37.10	4	37.23	5	37.68	4	30.06	2	35.52	3
MACS 6222	37.14	3	39.31	2	38.97	3	22.80	6	34.56	4
WR 544	36.33	6	36.77	6	39.11	2	32.03	1	36.06	2
Mean	38.34		38.03		36.79		26.93		35.02	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.25		0.86		2.99			
Variety (B)	**		0.53		1.52		5.28			
B within A	**		1.07		3.05					
A within B			1.00		2.87					
			1000 Grains Weight, g							
HS 562	40.51	1	38.88	5	38.01	4	37.98	4	38.85	4
HD 2967	40.32	2	40.16	3	38.65	1	38.06	3	39.30	2
HD 3086	39.54	6	40.03	4	37.06	6	37.35	5	38.50	5
HI1544	39.98	4	40.38	2	38.09	3	38.11	2	39.14	3
MACS 6222	40.06	3	38.51	6	38.14	2	37.17	6	38.47	6
WR 544	39.95	5	40.91	1	37.16	5	39.43	1	39.36	1
Mean	40.06		39.81		37.85		38.02		38.94	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.32		1.10		3.48			
Variety (B)	NS		0.75		2.14		6.65			
B within A	NS		1.49		4.27					
A within B			1.40		4.00					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			04.03.2019		10.03.2019		31.03.2019		05.04.2019	

Table 6.12.2. Peninsular Zone **SPL-6** **Niphad** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	46.33	1	41.91	1	35.28	3	25.56	5	37.27	2
HD 2967	43.60	2	40.40	4	31.63	6	25.70	4	35.33	5
HD 3086	41.17	6	38.77	6	33.63	4	33.77	1	36.83	4
HI1544	42.73	3	39.77	5	37.15	2	28.85	3	37.13	3
MACS 6222	42.33	4	41.30	3	38.40	1	33.47	2	38.88	1
WR 544	42.27	5	41.45	2	32.70	5	21.60	6	34.50	6
Mean	43.07		40.60		34.80		28.16		36.66	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.55		1.90		6.37			
Variety (B)	**		0.74		2.13		7.03			
B within A	**		1.49		4.25					
A within B			1.47		4.19					
			Earheads/sqm							
HS 562	350	2	358	1	338	4	296	6	336	3
HD 2967	318	6	311	6	332	6	302	5	316	6
HD 3086	364	1	349	2	357	1	338	2	352	1
HI1544	340	3	314	5	345	2	341	1	335	4
MACS 6222	333	5	342	3	341	3	336	3	338	2
WR 544	337	4	333	4	334	5	318	4	330	5
Mean	340		335		341		322		334	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		2.65		9.17		3.36			
Variety (B)	NS		7.70		22.02		7.98			
B within A	NS		15.41		44.03					
A within B			14.31		40.90					
			Grains/Earhead							
HS 562	33.17	2	29.68	5	28.49	2	24.35	4	28.93	4
HD 2967	37.52	1	34.76	1	27.31	4	25.46	3	31.26	1
HD 3086	28.87	6	28.46	6	25.20	6	28.04	1	27.64	6
HI1544	32.70	3	32.27	3	27.49	3	23.42	5	28.97	3
MACS 6222	31.49	4	30.15	4	28.60	1	26.79	2	29.26	2
WR 544	31.49	5	34.22	2	26.57	5	19.15	6	27.86	5
Mean	32.54		31.59		27.28		24.54		28.99	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.45		1.56		6.61			
Variety (B)	NS		1.01		2.89		12.07			
B within A	NS		2.02		5.77					
A within B			1.90		5.43					
			1000 Grains Weight, g							
HS 562	39.95	3	39.54	3	36.78	5	35.57	4	37.96	4
HD 2967	36.62	6	37.86	5	35.23	6	33.41	6	35.78	6
HD 3086	39.85	4	39.52	4	38.02	3	35.73	3	38.28	3
HI1544	38.54	5	39.65	2	39.59	2	36.54	2	38.58	2
MACS 6222	40.40	1	40.30	1	39.97	1	37.34	1	39.50	1
WR 544	40.00	2	36.46	6	37.31	4	35.50	5	37.32	5
Mean	39.23		38.89		37.82		35.68		37.90	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	*		0.56		1.94		6.28			
Variety (B)	**		0.51		1.46		4.67			
B within A	NS		1.02		2.92					
A within B			1.09		3.11					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			13.03.2019		26.03.2019		11.04.2019		15.04.2019	

Table 6.12.3. Peninsular Zone **SPL-6** **Pune** **2018-19**

Variety	Sowing time: 05th Nov	Rk	25th Nov	Rk	15th Dec	Rk	05th Jan	Rk	Mean	Rk
			Yield, q/ha							
HS 562	59.15	1	36.33	5	32.57	1	16.55	3	36.15	2
HD 2967	54.47	3	34.52	6	28.11	5	16.64	2	33.43	4
HD 3086	43.03	5	37.20	4	28.68	4	13.74	6	30.66	6
HI1544	58.94	2	48.68	1	31.13	2	16.16	4	38.73	1
MACS 6222	51.26	4	42.36	2	29.33	3	15.36	5	34.58	3
WR 544	40.28	6	41.27	3	26.37	6	18.83	1	31.69	5
Mean	51.19		40.06		29.37		16.21		34.21	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.80		2.76		9.88			
Variety (B)	**		1.12		3.21		11.39			
B within A	**		2.25		6.43					
A within B			2.20		6.30					
			Earheads/sqm							
HS 562	321	2	257	5	277	3	217	5	268	4
HD 2967	293	4	196	6	269	4	213	6	243	6
HD 3086	287	5	261	4	335	1	252	3	284	3
HI1544	349	1	425	1	269	4	252	3	324	1
MACS 6222	267	6	271	3	233	6	268	2	260	5
WR 544	303	3	354	2	303	2	311	1	318	2
Mean	303		294		281		252		283	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		4.14		14.32		6.21			
Variety (B)	**		5.43		15.53		6.66			
B within A	**		10.87		31.06					
A within B			10.75		30.72					
			Grains/Earhead							
HS 562	44.79	2	47.28	2	34.99	3	25.11	2	38.04	2
HD 2967	46.42	1	65.56	1	32.35	5	25.55	1	42.47	1
HD 3086	33.05	5	41.21	4	28.01	6	15.34	5	29.40	5
HI1544	36.51	4	33.11	5	44.36	1	16.41	4	32.60	4
MACS 6222	41.85	3	43.42	3	38.50	2	15.19	6	34.74	3
WR 544	30.48	6	28.41	6	33.82	4	16.96	3	27.42	6
Mean	38.85		43.17		35.34		19.09		34.11	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		1.11		3.84		13.81			
Variety (B)	**		1.25		3.57		12.69			
B within A	**		2.50		7.14					
A within B			2.54		7.25					
			1000 Grains Weight, g							
HS 562	41.33	5	30.00	5	33.67	1	30.33	6	33.83	5
HD 2967	40.33	6	27.00	6	32.33	3	30.67	5	32.58	6
HD 3086	46.00	2	34.67	4	30.67	4	35.33	4	36.67	2
HI1544	46.33	1	35.00	3	26.00	5	39.00	1	36.58	3
MACS 6222	46.00	2	36.33	2	32.67	2	37.33	2	38.08	1
WR 544	43.67	4	41.00	1	26.00	5	35.67	3	36.58	4
Mean	43.94		34.00		30.22		34.72		35.72	
	F. Test		SEm		CD(0.05)		CV(%)			
Sowing (A)	**		0.60		2.07		7.12			
Variety (B)	**		0.50		1.43		4.86			
B within A	**		1.00		2.86					
A within B			1.09		3.12					
Date of Sowing:			05.11.2018		25.11.2018		15.12.2018		05.01.2019	
Date of harvesting:			15.03.2019		21.03.2019		29.03.2019		15.04.2019	

Table 6.13.1. Northern Hills Zone **SPL-7** **Almora** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	282	7	39.91	7	11.63	6	13.04	7
RDF	435	5	41.96	5	20.00	2	36.56	5
150% RDF	478	2	45.61	2	19.76	3	42.97	2
150% PK	385	6	41.86	6	10.77	7	17.31	6
150% NK	473	4	43.09	3	20.65	1	42.26	3
150% NP	475	3	42.72	4	18.58	5	37.58	4
NE	505	1	46.29	1	18.88	4	44.19	1
CD(0.05)	37.48		3.51		3.41		7.43	
CV(%)	4.86		4.58		11.15		12.50	
Date of Sowing:	25.11.2018				Date of Harvesting:		14.05.2019	
Nutrient expert- N: P_2O_5:K_2O								

Table 6.13.2. Northern Hills Zone **SPL-7** **Bajaura** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	208	6	37.91	7	17.75	7	13.98	7
RDF	383	4	44.23	2	27.82	5	47.01	4
150% RDF	429	1	45.26	1	28.53	4	55.26	1
150% PK	202	7	38.19	6	21.55	6	16.62	6
150% NK	288	5	41.41	5	32.08	1	38.25	5
150% NP	400	2	43.73	3	29.79	2	51.83	2
NE	394	3	43.51	4	29.76	3	50.96	3
CD(0.05)	48.77		1.93		2.38		3.86	
CV(%)	8.33		2.59		5.00		5.55	
Date of Sowing:	18.11.2018				Date of Harvesting:		03.06.2019	
Nutrient expert- N: P_2O_5:K_2O	140:60:68							

Table 6.13.3. Northern Hills Zone **SPL-7** **Khudwani** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	311	7	33.50	7	20.69	7	21.60	7
RDF	376	4	34.50	6	26.11	4	33.79	5
150% RDF	387	3	34.90	5	26.89	2	36.22	2
150% PK	343	6	35.93	2	21.66	6	26.71	6
150% NK	366	5	35.20	4	27.78	1	35.73	3
150% NP	408	1	35.30	3	24.28	5	34.84	4
Nutrient Expert	393	2	36.23	1	26.55	3	37.73	1
CD(0.05)	17.10		0.90		3.25		4.09	
CV(%)	2.60		1.45		7.35		7.10	
Date of Sowing:	15.11.2018				Date of Harvesting:		18.06.2019	
Nutrient expert- N: P_2O_5:K_2O	130:50:17							

Table 6.13.4. Northern Hills Zone **SPL-7** **Malan** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	228	7	40.73	7	20.89	7	19.43	7
RDF	290	3	42.43	3	34.69	2	42.68	3
150% RDF	296	2	42.30	4	35.49	1	44.51	1
150% PK	248	6	41.40	6	20.94	6	21.47	6
150% NK	268	4	42.60	2	30.69	4	35.07	4
150% NP	266	5	42.18	5	29.90	5	33.50	5
Nutrient Expert	304	1	42.69	1	33.96	3	44.10	2
CD(0.05)	20.28		1.46		3.75		4.81	
CV(%)	4.20		1.95		7.15		7.86	
Date of Sowing:	05.11.2018				Date of Harvesting:		09.05.2019	
Nutrient expert- N: P_2O_5:K_2O								

Table 6.14.1. North Western Plains Zone **SPL-7** **Hisar** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	240	7	41.49	1	41.67	6	41.43	7
RDF	392	5	40.62	3	45.15	4	71.51	5
150% RDF	427	1	39.03	7	46.52	1	77.30	1
150% PK	250	6	41.28	2	41.06	7	42.42	6
150% NK	408	4	40.20	4	45.13	5	73.89	4
150% NP	413	3	39.52	5	45.39	3	74.05	3
Nutrient Expert	417	2	39.36	6	46.10	2	75.36	2
CD(0.05)	32.38		2.42		6.27		5.68	
CV(%)	5.00		3.39		7.93		4.90	
Date of Sowing:	14.11.2018				Date of Harvesting:		11.04.2019	
Nutrient expert- N: P_2O_5:K_2O		200:71:75						

Table 6.14.2. North Western Plains Zone **SPL-7** **Karnal** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	290	7	37.57	3	15.98	6	17.38	7
RDF	408	5	41.07	1	30.54	4	51.08	5
150% RDF	472	1	37.25	4	30.88	3	54.15	1
150% PK	332	6	36.87	6	14.29	7	17.45	6
150% NK	410	4	36.99	5	34.52	1	52.34	3
150% NP	432	3	36.63	7	32.35	2	51.13	4
Nutrient Expert	468	2	38.37	2	29.83	5	53.52	2
CD(0.05)	24.25		1.59		2.83		2.43	
CV(%)	3.39		2.36		5.91		3.21	
Date of Sowing:	23.11.2018				Date of Harvesting:		07.05.2019	
Nutrient expert- N: P_2O_5:K_2O		200:86:95						

Table 6.14.3. North Western Plains Zone **SPL-7** **Ludhiana** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	223	7	45.51	7	15.71	7	15.89	7
RDF	319	4	47.15	5	31.47	5	47.33	4
150% RDF	338	2	50.14	1	34.22	3	57.33	2
150% PK	229	6	45.94	6	32.64	4	34.37	6
150% NK	321	3	49.06	4	29.88	6	47.07	5
150% NP	347	1	49.75	2	34.71	2	59.93	1
Nutrient Expert	301	5	49.43	3	37.77	1	56.00	3
CD(0.05)	16.89		6.66		4.81		8.37	
CV(%)	3.20		7.78		8.75		10.36	
Date of Sowing:	10.11.2018				Date of Harvesting:		30.04.2019	
Nutrient expert- N: P_2O_5:K_2O		170:68:80						

Table 6.14.4. North Western Plains Zone **SPL-7** **Pantnagar** **2018-19**

Fertilization	Earheads/sqm	Rk	1000 Grains Wt., g	Rk	Grains/Earhead	Rk	Yield, q/ha	Rk
Absolute Control	455	6	32.20	7	20.36	6	29.78	7
RDF	580	2	37.05	3	24.75	4	52.91	2
150% RDF	586	1	36.12	4	25.51	2	53.88	1
150% PK	504	5	40.34	1	17.61	7	35.74	6
150% NK	549	3	34.63	5	25.26	3	47.45	4
150% NP	528	4	34.19	6	24.26	5	43.01	5
Nutrient Expert	449	7	38.04	2	28.85	1	49.19	3
CD(0.05)	49.40		4.38		4.45		3.22	
CV(%)	5.32		6.83		10.50		4.06	
Date of Sowing:	28.11.2018				Date of Harvesting:		22.04.2019	
Nutrient expert- N: P_2O_5:K_2O		94:58:80						

ANNEXURE -II

METEOROLOGICAL INFORMATION: 2018-2019

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)	28.9	13.4	73.4	44.4	0.0	3.2		8.7
41 (08-14 Oct)	26.3	17.6	84.4	42.3	0.0	2.8		7.6
42 (15-21 Oct)	27.6	13.7	75.7	41.4	0.0	2.7		8.7
43 (22-28 Oct)	26.4	3.6	76.9	41.9	0.0	2.5		9.0
44 (29-04 Nov)	25.3	4.4	78.8	42.9	22.5	2.1		9.1
45 (05-11 Nov)	24.2	2.8	84.9	44.5	0.0	2.1		7.3
46 (12-18 Nov)	23.5	4.9	83.3	46.7	0.0	1.8		7.2
47 (19-25 Nov)	24.6	4.4	92.0	34.9	0.0	1.6		7.7
48 (26-02 Dec)	23.2	5.2	97.0	40.5	0.0	1.5		6.4
49 (03-09 Dec)	21.9	1.6	91.1	43.3	0.0	1.3		6.5
50 (10-16 Dec)	16.1	-0.8	85.5	49.3	0.0	1.1		6.7
51 (17-23 Dec)	20.5	-3.1	82.0	29.0	0.0	1.2		7.8
52 (24-31 Dec)	19.5	-3.4	88.5	41.3	0.0	1.2		7.2
1 (01-07 Jan)	19.4	-1.7	71.9	34.8	0.0	1.2		6.4
2 (08-14 Jan)	19.7	-1.4	82.2	33.4	0.0	1.2		7.4
3 (15-21 Jan)	20.9	-0.1	88.3	31.9	22.5	1.3		6.3
4 (22-28 Jan)	12.2	2.0	95.5	67.9	17.5	1.3		2.8
5 (29-04 Feb)	18.6	1.2	86.1	37.1	0.0	1.3		6.2
6 (05-11 Feb)	17.3	3.9	82.0	54.1	30.8	1.1		5.0
7 (12-18 Feb)	17.8	5.6	94.2	57.0	39.9	1.2		4.2
8 (19-25 Feb)	18.5	5.6	98.9	50.3	8.0	1.4		5.8
9 (26-04 Mar)	15.6	5.5	93.7	56.6	37.4	1.1		4.5
10 (05-11 Mar)	22.9	4.1	99.0	37.9	10.0	2.0		7.9
11 (12-18 Mar)	22.9	5.8	90.1	38.6	11.7	1.9		5.1
12 (19-25 Mar)	23.8	5.4	93.2	38.1	0.0	2.4		8.3
13 (26-01 Apr)	28.1	8.4	85.4	35.5	0.0	2.9		9.4
14 (02-08 Apr)	27.7	9.7	85.6	38.5	1.8	2.8		7.9
15 (09-15 Apr)	30.3	10.1	88.1	32.0	0.0	3.3		9.7
16 (16-22 Apr)	25.4	10.1	87.7	58.0	68.5	2.0		4.7
17 (23-29 Apr)	32.0	11.6	79.6	38.6	0.0	3.7		10.4
18 (30-06 May)	32.1	11.6	76.2	33.5	5.3	3.8		8.8
19 (7-13 May)	32.9	9.8	65.4	28.1	8.5	3.9		9.0
20 (14-20 May)	31.6	10.8	89.0	32.9	4.5	3.5		6.9
21 (21-27 May)	33.5	12.4	75.4	38.1	0.0	4.9		8.0

BAJAURA	**Latitude 31^{0}48' N**		**Longitude 77^{0}00' E**			**Height above MSL 1090 m**		
44 (29-04 Nov)	21.8	6.2	91.0	58.0	35.4	13.3		
45 (05-11 Nov)	21.9	2.1	89.0	37.0	0.0	11.1		
46 (12-18 Nov)	18.4	2.6	90.0	51.0	29.9	10.7		
47 (19-25 Nov)	22.3	1.4	93.0	36.0	0.0	10.5		
48 (26-02 Dec)	21.1	1.5	90.0	41.0	0.0	9.4		
49 (03-09 Dec)	20.0	-0.7	90.0	32.0	0.0	8.1		
50 (10-16 Dec)	15.3	1.3	92.0	45.0	3.6	7.0		
51 (17-23 Dec)	19.9	-3.5	92.0	26.0	0.0	8.8		
52 (24-31 Dec)	17.2	-3.2	92.0	27.0	0.0	7.8		
1 (01-07 Jan)	14.0	0.9	90.0	50.0	12.2	7.4		
2 (08-14 Jan)	14.4	0.4	92.0	49.0	19.4	7.0		
3 (15-21 Jan)	16.4	1.8	90.0	42.0	0.0	7.2		
4 (22-28 Jan)	11.1	0.4	93.0	59.0	48.8	6.3		

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)	14.0	0.9	93.0	49.0	21.8	9.2		
6 (05-11 Feb)	15.4	2.6	92.0	46.0	49.6	7.9		
7 (12-18 Feb)	16.5	4.9	89.0	65.0	31.2	8.1		
8 (19-25 Feb)	15.1	4.2	92.0	59.0	80.0	7.0		
9 (26-04 Mar)	14.2	3.8	88.0	53.0	19.6	11.2		
10 (05-11 Mar)	20.1	4.0	91.0	38.0	12.6	14.1		
11 (12-18 Mar)	17.9	4.4	89.0	45.0	23.6	11.8		
12 (19-25 Mar)	21.8	6.6	87.0	45.0	18.8	13.1		
13 (26-01 Apr)	25.9	7.8	91.0	30.0	9.6	16.7		
14 (02-08 Apr)	29.5	9.0	93.0	40.0	3.4	19.0		
15 (09-15 Apr)	25.9	9.3	92.0	39.0	9.8	18.6		
16 (16-22 Apr)	24.2	10.5	90.0	63.0	18.0	19.6		
17 (23-29 Apr)	30.8	11.8	92.0	42.0	10.2	21.6		
18 (30-06 May)	28.9	10.5	92.0	44.0	5.6	21.5		
19 (7-13 May)	29.6	10.1	90.0	40.0	7.4	22.5		
20 (14-20 May)	28.2	12.6	88.0	37.0	14.8	19.0		
21 (21-27 May)	28.6	11.2	87.0	44.0	11.4	22.8		

KHUDWANI	Latitude 34^0 N		Longitude 74^0 E			Height above MSL 1560 m		
45 (05-11 Nov)	12.1	-0.5	90.6	66.0	1.0			8.2
46 (12-18 Nov)	11.1	1.4	88.4	74.7	8.6			6.6
47 (19-25 Nov)	13.9	-0.2	87.0	67.1	0.0			6.9
48 (26-02 Dec)	13.3	-2.3	91.6	63.6	0.0			5.1
49 (03-09 Dec)	9.8	-3.4	93.3	66.7	0.0			6.1
50 (10-16 Dec)	8.0	-1.0	90.7	69.6	5.6			7.2
51 (17-23 Dec)	9.8	-6.2	94.9	55.3	0.0			0.8
52 (24-31 Dec)	8.6	-7.6	94.9	54.6	0.0			1.7
1 (01-07 Jan)	5.9	-3.1	94.9	75.6	46.0			1.8
2 (08-14 Jan)	4.1	-2.3	93.1	84.9	11.0			1.0
3 (15-21 Jan)	3.9	-4.0	92.7	78.6	48.6			0.0
4 (22-28 Jan)	4.1	-2.3	89.9	81.0	6.1			2.7
5 (29-04 Feb)	5.4	-2.9	82.6	72.6	32.0			2.2
6 (05-11 Feb)	6.6	-2.9	88.0	74.6	95.2			1.5
7 (12-18 Feb)	6.0	-1.2	90.4	73.3	17.8			2.5
8 (19-25 Feb)	8.9	0.1	91.4	72.4	19.5			1.7
9 (26-04 Mar)	7.7	-1.8	88.3	62.6	16.2			1.7
10 (05-11 Mar)	12.9	-0.1	89.4	46.6	7.8			1.7
11 (12-18 Mar)	12.9	1.8	84.4	61.4	15.4			1.0
12 (19-25 Mar)	13.6	2.2	79.6	57.6	30.6			2.2
13 (26-01 Apr)	19.8	4.7	73.7	47.6	3.6			0.8
14 (02-08 Apr)	23.6	4.4	63.4	34.1	0.0			1.7
15 (09-15 Apr)	20.9	8.4	79.9	58.9	11.4			2.9
16 (16-22 Apr)	20.8	7.1	81.1	57.0	7.4			2.2
17 (23-29 Apr)	22.5	8.2	78.9	57.7	30.2			4.6

MALAN	Latitude 32^{0}1' N		Longitude 76^{0}2' E			Height above MSL 950 m		
41 (08-14 Oct)	30.3	14.3	78.0	76.9	0.0			
42 (15-21 Oct)	27.9	11.0	74.1	73.9	0.0			
43 (22-28 Oct)	27.3	10.8	69.3	77.7	0.0			
44 (29-04 Nov)	26.1	9.9	73.0	76.7	0.0			
45 (05-11 Nov)	25.5	8.6	74.3	75.3	5.0			
46 (12-18 Nov)	23.8	8.7	75.3	76.0	12.2			
47 (19-25 Nov)	22.1	9.1	74.0	77.9	0.0			
48 (26-02 Dec)	21.7	8.7	70.4	81.6	0.0			
49 (03-09 Dec)	21.4	7.4	71.7	81.1	0.0			
50 (10-16 Dec)	21.4	6.7	69.7	77.7	8.4			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
51 (17-23 Dec)	21.9	7.5	61.3	57.4	0.0			
52 (24-31 Dec)	22.1	7.6	53.9	50.0	0.0			
1 (01-07 Jan)	22.3	7.5	68.7	68.7	15.5			
2 (08-14 Jan)	22.8	7.1	67.7	73.9	4.1			
3 (15-21 Jan)	22.1	5.8	69.1	75.3	0.0			
4 (22-28 Jan)	22.6	6.1	69.4	75.7	60.0			
5 (29-04 Feb)	25.3	5.5	69.7	79.0	24.3			
6 (05-11 Feb)	21.9	7.3	72.3	68.3	70.2			
7 (12-18 Feb)	24.0	6.1	73.7	68.3	36.4			
8 (19-25 Feb)	23.0	6.5	72.3	71.3	41.8			
9 (26-04 Mar)	23.8	6.5	73.1	67.7	20.9			
10 (05-11 Mar)	25.9	6.6	71.1	66.6	10.1			
11 (12-18 Mar)	24.5	7.9	70.6	67.1	7.3			
12 (19-25 Mar)	25.3	7.8	73.1	68.6	0.0			
13 (26-01 Apr)	27.7	10.8	72.3	67.4	0.0			
14 (02-08 Apr)	29.0	12.3	72.9	65.6	6.1			
15 (09-15 Apr)	29.4	13.1	75.0	68.6	16.0			
16 (16-22 Apr)	27.9	12.0	75.6	69.9	20.0			
17 (23-29 Apr)	33.5	15.3	77.0	65.7	3.2			
18 (30-06 May)	32.1	17.0	73.3	65.1	0.0			
19 (7-13 May)	32.8	15.4	76.7	69.4	0.0			
20 (14-20 May)	33.3	14.5	78.3	73.9	19.0			
21 (21-27 May)	32.8	15.7	78.1	70.7	14.4			
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)	36.7	22.3	84.9	58.7	5.0	4.5		
41 (08-14 Oct)	35.6	20.0	85.1	57.6	0.0	3.3		
42 (15-21 Oct)	33.3	20.0	83.0	45.8	0.0	3.0		
43 (22-28 Oct)	33.9	16.2	89.0	49.9	0.0	4.4		
44 (29-04 Nov)	32.8	16.3	90.9	47.1	0.0	2.4		
45 (05-11 Nov)	29.9	11.9	87.6	49.1	0.0	2.1		
46 (12-18 Nov)	28.6	15.0	86.4	49.0	0.0	2.3		
47 (19-25 Nov)	27.3	12.8	81.7	54.3	0.0	1.9		
48 (26-02 Dec)	22.0	10.5	89.1	57.9	0.0	1.3		
49 (03-09 Dec)	21.5	8.3	100.0	51.6	0.0	1.4		
50 (10-16 Dec)	21.9	7.9	100.0	66.6	0.0	1.0		
51 (17-23 Dec)	21.1	4.6	96.4	58.1	0.0	1.1		
52 (24-31 Dec)	23.1	2.8	96.6	68.3	0.0	1.3		
1 (01-07 Jan)	20.2	6.6	86.7	61.9	0.0	1.0		
2 (08-14 Jan)	20.3	5.9	86.6	55.1	0.0	1.1		
3 (15-21 Jan)	22.1	5.4	91.6	61.9	0.0	1.4		
4 (22-28 Jan)	23.8	7.2	91.6	68.6	15.0	1.7		
5 (29-04 Feb)	25.5	7.9	90.4	69.2	0.0	1.4		
6 (05-11 Feb)	25.6	10.2	89.4	64.4	3.5	1.4		
7 (12-18 Feb)	26.7	10.2	87.4	68.0	0.0	1.7		
8 (19-25 Feb)	28.7	12.2	88.6	78.0	1.8	2.1		
9 (26-04 Mar)	33.0	9.5	82.4	63.6	1.7	1.4		
10 (05-11 Mar)	26.7	10.3	83.3	47.9	0.0	3.1		
11 (12-18 Mar)	28.7	13.4	82.0	49.4	0.0	3.0		
12 (19-25 Mar)	33.0	16.2	88.7	49.3	0.5	4.3		
13 (26-01 Apr)	35.6	17.2	87.7	39.7	0.0	4.4		
14 (02-08 Apr)	39.6	20.2	86.2	31.4	0.0	9.4		
15 (09-15 Apr)	40.1	23.9	92.0	33.4	0.0	6.3		
16 (16-22 Apr)	33.9	20.4	88.6	53.3	22.0	4.6		
17 (23-29 Apr)	42.1	24.7	89.7	23.3	0.0	7.4		

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
DELHI	**Latitude 28^0 40' N**		**Longitude 70^0 79' E**			**Height above MSL 228 m**		
40 (01-07 Oct)	34.4	10.5	93.0	51.0	0.0	4.2	2.2	7.0
41 (08-14 Oct)	32.3	17.1	85.0	53.0	0.0	4.3	2.5	8.0
42 (15-21 Oct)	33.0	14.3	81.0	44.0	0.0	4.0	1.8	7.4
43 (22-28 Oct)	31.2	11.1	95.0	48.0	0.0	3.8	1.6	7.6
44 (29-04 Nov)	30.4	13.3	87.0	56.0	0.0	3.7	2.2	7.2
45 (05-11 Nov)	27.0	12.0	78.0	48.0	0.0	3.4	2.7	4.0
46 (12-18 Nov)	27.5	12.5	91.0	59.0	0.0	3.1	2.8	5.1
47 (19-25 Nov)	27.1	10.9	89.0	57.0	0.0	3.0	2.9	5.8
48 (26-02 Dec)	26.2	9.0	96.0	60.0	0.0	2.2	2.2	5.3
49 (03-09 Dec)	24.2	6.8	94.0	59.0	0.0	2.4	1.4	5.1
50 (10-16 Dec)	21.5	8.1	95.0	71.0	0.0	1.9	2.2	2.9
51 (17-23 Dec)	21.4	2.7	95.0	65.0	0.0	2.0	1.9	5.7
52 (24-31 Dec)	19.7	2.0	94.0	61.0	0.0	1.6	2.0	3.6
1 (01-07 Jan)	20.3	5.5	94.0	71.0	5.0	1.5	2.3	2.6
2 (08-14 Jan)	20.2	6.5	92.0	67.0	0.0	1.6	3.0	3.8
3 (15-21 Jan)	21.2	5.9	92.0	68.0	0.0	1.7	2.9	3.4
4 (22-28 Jan)	18.6	8.1	94.0	76.0	47.0	1.8	4.5	3.4
5 (29-04 Feb)	19.0	7.0	80.0	73.0	0.0	1.6	4.3	3.7
6 (05-11 Feb)	19.5	7.0	94.0	76.0	55.8	3.5	4.5	4.3
7 (12-18 Feb)	22.8	4.7	90.0	79.0	7.2	1.6	3.9	2.6
8 (19-25 Feb)	22.9	12.6	94.0	72.0	4.6	1.9	4.9	5.0
9 (26-04 Mar)	20.8	8.9	96.0	76.0	14.6	1.6	3.7	4.6
10 (05-11 Mar)	24.4	9.8	94.0	69.0	0.0	2.1	4.2	7.7
11 (12-18 Mar)	25.6	11.4	93.0	62.0	0.0	2.3	4.4	5.8
12 (19-25 Mar)	29.9	14.1	63.0	36.0	0.0	4.1	4.9	8.9
13 (26-01 Apr)	33.0	16.4	85.0	50.0	0.0	5.2	3.9	8.1
14 (02-08 Apr)	35.1	17.1	72.0	47.0	1.4	4.8	4.0	8.4
15 (09-15 Apr)	36.7	22.5	74.0	38.0	0.0	5.3	5.3	8.3
16 (16-22 Apr)	34.5	22.0	76.0	50.0	4.3	4.0	6.2	7.3
17 (23-29 Apr)	42.2	23.5	58.0	31.0	0.0	6.5	5.6	6.7
18 (30-06 May)	40.5	23.1	57.0	39.0	0.0	5.3	5.6	9.0

DURGAPURA	**Latitude 26^{0}51' N**		**Longitude 75^{0}47' E**			**Height above MSL 390 m**		
40 (01-07 Oct)	36.8	21.5	60.0	22.0	0.0	9.3	3.0	4.9
41 (08-14 Oct)	36.2	18.8	48.0	16.0	0.0	9.0	3.8	5.8
42 (15-21 Oct)	35.5	18.9	44.0	15.0	0.0	8.5	3.5	4.5
43 (22-28 Oct)	33.7	18.7	38.0	17.0	0.0	8.6	3.4	4.6
44(29-04 Nov)	33.1	16.7	49.0	22.0	0.0	8.2	3.1	3.7
45(05-11 Nov)	30.2	11.4	64.0	13.0	0.0	8.5	2.7	3.4
46(12-18 Nov)	30.7	14.0	65.0	23.0	0.0	8.2	3.2	3.6
47(19-25 Nov)	30.5	13.1	61.0	14.0	0.0	8.6	3.4	3.1
48(26-02 Dec)	27.4	12.4	75.0	28.0	0.0	8.1	2.5	2.6
49(03-09 Dec)	25.7	9.5	87.0	19.0	0.0	8.7	2.6	1.9
50(10-16 Dec)	24.5	8.0	88.0	24.0	9.6	8.5	3.3	1.4
51(17-23 Dec)	24.7	7.9	84.0	26.0	0.0	8.9	2.7	1.4
52(24-31 Dec)	22.5	5.8	81.0	18.0	0.0	8.6	3.0	1.9
1(01-07 Jan)	23.1	8.4	76.0	30.0	0.0	6.8	4.0	1.9
2(08-14 Jan)	22.0	8.4	67.0	28.0	0.0	8.0	3.4	2.2
3(15-21 Jan)	24.2	7.2	69.0	24.0	0.0	8.4	3.1	3.2
4(22-28 Jan)	19.8	7.2	83.0	44.0	7.0	5.9	4.8	1.8
5(29-04 Feb)	20.7	7.0	73.0	29.0	0.0	8.2	4.1	2.4
6(05-11 Feb)	22.4	8.7	54.0	30.0	0.0	7.8	4.3	3.1
7(12-18 Feb)	24.1	12.3	70.0	31.0	0.0	7.8	5.9	3.6
8(19-25 Feb)	26.5	14.1	70.0	34.0	0.0	7.9	6.9	4.2
9(26-04 Mar)	23.5	11.8	65.0	32.0	0.0	6.1	6.7	4.0

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)	27.7	14.7	59.0	19.0	0.0	8.8	6.0	4.9
11(12-18 Mar)	27.6	15.3	59.0	30.0	0.0	7.5	5.7	4.8
12(19-25 Mar)	32.3	17.2	55.0	24.0	0.0	9.3	5.5	6.7
13(26-01 Apr)	36.1	19.0	45.0	12.0	0.0	9.1	4.9	7.1
14(02-08 Apr)	37.8	22.1	31.0	14.0	0.0	9.4	5.8	9.3
15(09-15 Apr)	38.4	25.1	34.0	18.0	0.0	9.5	4.7	9.8
16(16-22 Apr)	33.1	20.3	56.0	30.0	13.8	8.7	6.5	6.7
17(23-29 Apr)	40.7	26.8	27.0	14.0	0.0	10.6	5.0	9.8

Gurdaspur	Latitude 32º3'5.85" N			Longitude 75º25'27.10" E			Height Above MSL 878 m	
40 (01-07 Oct)	31.6	18.5	89.0	57.0	0.0	4.6	1.7	8.4
41 (08-14 Oct)	30.4	17.1	92.0	56.0	15.5	3.0	3.0	7.8
42 (15-21 Oct)	29.7	15.5	91.0	49.0	0.0	4.6	1.9	9.1
43 (22-28 Oct)	29.2	14.0	95.0	38.0	0.0	4.3	1.5	9.0
44 (29-04 Nov)	27.1	14.0	94.0	45.0	3.3	3.3	2.3	2.4
45 (05-11 Nov)	26.2	14.1	94.0	55.0	0.0	3.3	1.8	6.5
46 (12-18 Nov)	23.1	12.7	95.0	75.0	5.6	2.7	2.4	2.2
47 (19-25 Nov)	23.2	11.0	92.0	62.0	0.0	3.1	1.8	7.2
48 (26-02 Dec)	22.5	9.8	96.0	69.0	0.0	2.8	0.7	5.8
49 (03-09 Dec)	22.2	8.0	95.0	59.0	0.0	3.1	1.2	5.5
50 (10-16 Dec)	20.9	7.4	95.0	64.0	1.1	3.1	2.6	4.9
51 (17-23 Dec)	19.6	5.0	96.0	59.0	0.0	3.3	1.3	6.8
52 (24-31 Dec)	16.8	3.0	98.0	61.0	0.0	2.4	1.4	6.3
1 (01-07 Jan)	15.9	3.6	96.0	79.0	10.3	1.8	2.7	2.1
2 (08-14 Jan)	16.1	4.7	96.0	76.0	3.8	1.8	2.4	3.9
3 (15-21 Jan)	15.5	4.4	96.0	79.0	0.1	2.1	2.6	2.5
4 (22-28 Jan)	16.5	5.9	96.0	73.0	97.3	1.8	2.8	6.2
5 (29-04 Feb)	15.2	5.9	95.0	72.0	3.0	1.7	2.9	3.0
6 (05-11 Feb)	16.9	6.2	95.0	66.0	126.4	1.5	3.6	3.7
7 (12-18 Feb)	17.3	6.5	95.0	75.0	41.5	1.3	3.0	2.4
8 (19-25 Feb)	20.6	8.1	94.0	62.0	40.2	1.6	3.1	5.6
9 (26-04 Mar)	18.6	8.3	93.0	68.0	4.8	2.1	3.6	5.8
10 (05-11 Mar)	22.6	10.0	91.0	58.0	0.0	3.0	3.6	6.2
11 (12-18 Mar)	23.3	10.5	89.0	52.0	9.0	3.0	2.7	5.3
12 (19-25 Mar)	25.1	13.0	87.0	53.0	0.1	4.9	4.2	4.8
13 (26-01 Apr)	29.5	15.1	83.0	55.0	0.0	6.0	2.4	7.1
14 (02-08 Apr)	32.8	16.0	79.0	46.0	2.9	7.3	3.3	8.0
15 (09-15 Apr)	32.0	17.1	70.0	40.0	0.8	6.8	3.5	6.1
16 (16-22 Apr)	31.7	16.9	70.0	52.0	14.5	7.7	3.2	5.5
17 (23-29 Apr)	37.1	17.9	62.0	34.0	0.0	9.3	5.0	7.1
18 (30-06 May)	36.2	16.6	62.0	23.0	0.0	8.6	5.5	6.3
19 (7-13 May)	37.3	19.3	54.0	30.0	0.9	7.8	3.7	6.2
20 (14-20 May)	33.1	20.2	57.0	43.0	13.7	5.5	4.2	4.0

HISAR	Latitude 29º10'N			Longitude 75º 46'E			Height above MSL 215.2 m	
40 (01-07 Oct)	34.4	20.0	90.0	40.0	0.0	4.2	3.3	7.9
41 (08-14 Oct)	32.5	15.2	86.0	43.0	0.0	3.7	4.6	6.8
42 (15-21 Oct)	33.4	16.5	72.0	30.0	0.0	3.7	3.4	7.1
43 (22-28 Oct)	31.4	14.4	84.0	36.0	0.0	2.9	2.4	7.1
44 (29-04 Nov)	31.0	15.4	92.0	44.0	0.0	2.4	2.9	2.1
45 (05-11 Nov)	27.4	10.1	90.0	41.0	0.0	2.1	2.5	3.3
46 (12-18 Nov)	27.5	12.7	91.0	53.0	0.0	1.9	3.1	3.5
47 (19-25 Nov)	27.4	10.9	87.0	44.0	0.0	2.3	3.4	5.8
48 (26-02 Dec)	27.2	9.4	93.0	46.0	0.0	1.7	1.9	5.5
49 (03-09 Dec)	24.9	7.5	96.0	45.0	0.0	1.2	1.2	5.1
50 (10-16 Dec)	21.0	7.7	91.0	57.0	0.0	1.4	3.7	3.6

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
51 (17-23 Dec)	20.7	2.0	93.0	50.0	0.0	1.2	1.4	6.3
52 (24-31 Dec)	19.8	1.9	94.0	49.0	0.0	0.9	1.8	4.4
1 (01-07 Jan)	18.9	5.7	95.0	66.0	0.0	0.9	3.4	3.3
2 (08-14 Jan)	19.3	5.6	93.0	60.0	0.0	0.9	2.4	4.4
3 (15-21 Jan)	20.4	4.9	90.0	55.0	0.0	1.0	2.3	5.0
4 (22-28 Jan)	18.2	4.8	99.0	63.0	6.5	1.1	3.1	4.6
5 (29-04 Feb)	17.1	5.3	96.0	65.0	0.0	1.1	3.6	3.9
6 (05-11 Feb)	21.0	6.9	92.0	56.0	0.0	1.6	3.9	5.7
7 (12-18 Feb)	20.0	9.7	94.0	66.0	0.0	1.2	4.0	3.1
8 (19-25 Feb)	22.2	9.0	89.0	50.0	0.0	2.1	5.1	5.6
9 (26-04 Mar)	20.9	8.0	93.0	53.0	14.8	1.9	5.0	5.8
10 (05-11 Mar)	24.2	8.5	88.0	38.0	0.0	2.7	3.8	8.2
11 (12-18 Mar)	24.9	9.1	91.0	48.0	0.0	2.6	3.7	6.1
12 (19-25 Mar)	28.9	11.8	80.0	42.0	0.0	4.0	4.2	7.2
13 (26-01 Apr)	32.6	13.5	81.0	28.0	0.0	3.7	3.2	7.3
14 (02-08 Apr)	36.0	16.0	74.0	28.0	0.0	5.4	3.8	8.0
15 (09-15 Apr)	36.9	20.0	69.0	27.0	0.0	6.4	5.6	7.0
16 (16-22 Apr)	32.9	17.2	81.0	37.0	8.2	5.8	5.2	7.2
17 (23-29 Apr)	40.7	20.6	56.0	18.0	0.0	8.3	5.3	8.5

JAMMU	Latitude 32º44' N			Longitude 74º54" E			Height Above MSL 356 m	
40 (01-07 Oct)	31.8	18.3	84.0	51.0	0.0	5.1	1.7	8.3
41 (08-14 Oct)	29.9	16.4	74.0	44.0	2.8	5.2	2.9	8.1
42 (15-21 Oct)	30.8	13.9	83.0	36.0	0.8	5.4	1.8	9.1
43 (22-28 Oct)	29.6	12.4	81.0	34.0	0.0	4.9	1.5	9.1
44 (29-04 Nov)	27.9	14.8	89.0	49.0	14.0	4.2	3.2	4.7
45 (05-11 Nov)	26.1	10.0	93.0	45.0	0.0	3.9	1.5	7.2
46 (12-18 Nov)	23.9	9.3	90.0	47.0	0.8	3.5	2.4	4.8
47 (19-25 Nov)	26.6	8.5	94.0	36.0	0.0	4.4	1.3	7.2
48 (26-02 Dec)	24.5	9.0	95.0	44.0	0.0	3.6	1.0	5.3
49 (03-09 Dec)	21.7	6.2	95.0	49.0	0.0	2.9	1.1	4.5
50 (10-16 Dec)	19.3	6.5	94.0	53.0	11.8	2.7	4.0	5.5
51 (17-23 Dec)	20.7	2.9	94.0	39.0	0.0	3.2	1.3	7.2
52 (24-31 Dec)	18.8	1.7	95.0	39.0	0.0	2.3	1.6	6.3
1 (01-07 Jan)	17.6	5.4	93.3	50.4	11.0	11.6	2.8	2.3
2 (08-14 Jan)	18.2	5.2	92.4	49.9	5.2	10.1	2.5	4.5
3 (15-21 Jan)	17.4	5.4	91.7	64.4	5.4	8.0	2.9	2.9
4 (22-28 Jan)	16.6	4.4	93.4	53.4	41.6	9.3	3.8	6.6
5 (29-04 Feb)	18.3	6.0	90.4	55.4	8.8	9.1	3.0	3.8
6 (05-11 Feb)	18.4	8.0	91.3	57.0	59.2	8.5	3.8	4.5
7 (12-18 Feb)	19.2	9.4	93.6	65.9	20.6	7.4	2.8	2.8
8 (19-25 Feb)	20.3	8.6	91.3	58.6	67.8	9.7	3.6	5.9
9 (26-04 Mar)	18.0	6.3	92.3	56.6	11.2	10.6	3.1	3.9
10 (05-11 Mar)	22.4	8.8	91.1	49.0	0.0	16.4	3.1	6.6
11 (12-18 Mar)	24.3	9.1	91.3	46.1	10.8	19.4	2.7	6.6
12 (19-25 Mar)	25.2	10.9	91.9	51.6	14.2	21.2	3.2	4.9
13 (26-01 Apr)	29.1	13.5	89.0	44.4	2.0	29.8	2.7	6.5
14 (02-08 Apr)	33.4	15.9	80.9	37.1	0.0	32.8	2.6	8.5
15 (09-15 Apr)	33.8	17.8	81.4	38.7	7.2	30.2	2.7	6.4
16 (16-22 Apr)	30.2	17.1	77.1	43.4	26.8	25.4	3.9	7.6
17 (23-29 Apr)	37.1	17.9	57.6	22.9	8.4	38.2	4.7	9.1

KARNAL	Latitude 29^{0}43'N		Longitude 76^{0}58'E			Height above MSL 245 m		
44(29-04 Nov)	29.1	15.6	89.7	46.7	0.0	5.4	3.5	2.1
45(05-11 Nov)	26.9	11.5	90.3	38.6	0.0	4.6	2.1	2.3
46(12-18 Nov)	26.5	12.8	90.9	41.4	0.0	4.7	4.6	1.8

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)	27.0	10.8	88.4	39.9	0.0	7.3	3.2	2.1
48(26-02 Dec)	26.1	11.6	90.9	46.4	0.0	5.9	2.2	1.4
49(03-09 Dec)	23.6	7.4	98.4	44.9	0.0	6.2	1.7	1.5
50(10-16 Dec)	20.6	7.7	96.9	56.9	14.8	4.7	1.9	1.5
51(17-23 Dec)	20.1	4.2	99.1	53.0	0.0	7.9	1.5	1.3
52(24-31 Dec)	18.4	3.2	100.0	48.0	0.0	6.7	1.9	1.1
1(01-07 Jan)	18.8	5.6	98.6	58.1	0.0	4.5	1.5	1.0
2(08-14 Jan)	19.8	6.1	98.7	53.3	0.0	5.7	1.9	1.3
3(15-21 Jan)	20.2	5.7	96.6	53.4	0.0	5.4	2.5	1.3
4(22-28 Jan)	16.7	8.2	100.0	61.1	28.4	5.5	5.4	1.9
5(29-04 Feb)	17.3	6.9	95.6	72.4	0.0	4.3	5.1	1.6
6(05-11 Feb)	19.4	8.1	98.0	64.9	5.4	5.0	9.0	0.5
7(12-18 Feb)	20.4	9.6	97.4	66.0	2.4	4.3	6.9	1.4
8(19-25 Feb)	21.8	10.8	94.0	61.7	2.8	6.0	9.7	2.1
9(26-04 Mar)	21.6	8.5	99.1	65.3	15.6	7.0	5.2	2.0
10(05-11 Mar)	23.2	8.8	94.3	52.4	0.0	7.9	7.2	2.3
11(12-18 Mar)	23.7	9.9	92.1	58.7	2.0	5.8	6.4	2.6
12(19-25 Mar)	27.7	12.6	89.7	49.3	0.0	8.2	10.7	4.5
13(26-01 Apr)	30.0	13.7	90.4	46.3	0.0	7.7	9.4	4.1
14(02-08 Apr)	33.9	16.8	85.1	40.3	0.0	8.3	8.9	5.6
15(09-15 Apr)	35.4	18.4	78.6	28.7	0.0	8.4	9.9	7.2
16(16-22 Apr)	33.0	18.6	74.7	36.4	1.0	8.0	10.7	6.1
17(23-29 Apr)	39.2	21.2	63.3	22.7	6.8	9.1	13.7	7.9

LUDHIANA	Latitude 30^{0}54' N		Longitude 75^{0}52' E		Height above MSL 247 m			
40 (01-07 Oct)	32.5	20.5	93.0	47.0	0.0	23.4	1.8	9.6
41 (08-14 Oct)	30.8	18.6	85.0	40.0	0.0	26.2	3.7	8.0
42 (15-21 Oct)	31.7	16.0	88.0	33.0	0.0	22.2	1.9	8.9
43 (22-28 Oct)	26.2	14.2	90.0	35.0	0.0	18.4	1.2	8.1
44 (29-04 Nov)	29.6	16.2	89.0	44.0	2.6	15.0	2.9	2.1
45 (05-11 Nov)	27.1	11.0	90.0	33.0	0.0	14.3	1.7	6.5
46 (12-18 Nov)	26.4	11.5	91.0	36.0	0.0	13.9	2.8	6.3
47 (19-25 Nov)	27.2	9.4	88.0	31.0	0.0	17.2	2.5	8.3
48 (26-02 Dec)	25.7	10.1	93.0	34.0	0.0	14.5	1.7	5.7
49 (03-09 Dec)	22.6	7.7	95.0	43.0	0.0	8.7	1.0	4.8
50 (10-16 Dec)	20.3	7.4	93.0	50.0	0.0	9.0	2.6	4.7
51 (17-23 Dec)	20.3	3.6	93.0	39.0	0.0	9.5	1.4	6.3
52 (24-31 Dec)	18.4	2.8	95.0	42.0	0.0	8.9	1.9	5.5
1 (01-07 Jan)	18.2	6.7	92.0	53.0	2.0	8.2	2.0	2.2
2 (08-14 Jan)	19.8	6.0	91.0	45.0	2.0	9.0	2.9	5.0
3 (15-21 Jan)	19.3	6.2	91.0	48.0	46.4	10.9	2.8	4.0
4 (22-28 Jan)	17.2	5.9	94.0	53.0	15.6	10.4	2.7	7.6
5 (29-04 Feb)	19.1	6.3	93.0	52.0	0.0	8.4	2.3	4.7
6 (05-11 Feb)	19.4	8.4	92.0	58.0	68.4	11.6	4.2	4.7
7 (12-18 Feb)	19.9	10.6	91.0	62.0	16.4	9.8	3.2	2.4
8 (19-25 Feb)	21.1	10.3	91.0	58.0	5.4	14.4	4.0	6.8
9 (26-04 Mar)	20.0	9.6	89.0	55.0	11.4	14.4	3.5	6.7
10 (05-11 Mar)	22.7	10.0	87.0	50.0	1.4	16.2	3.1	8.3
11 (12-18 Mar)	24.6	10.7	90.0	45.0	0.0	15.4	2.7	7.5
12 (19-25 Mar)	26.9	12.9	87.0	42.0	0.0	23.8	3.7	7.5
13 (26-01 Apr)	31.1	14.7	88.0	38.0	0.0	26.0	2.6	10.0
14 (02-08 Apr)	34.3	18.3	83.0	33.0	0.0	31.2	2.6	9.4
15 (09-15 Apr)	35.0	19.9	70.0	31.0	6.6	41.5	5.0	7.1
16 (16-22 Apr)	31.3	18.1	77.0	37.0	31.2	30.6	3.8	8.9
17 (23-29 Apr)	39.3	21.9	58.0	19.0	3.8	52.8	4.4	10.4

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
PANTNAGAR	**Latitude 29^0 N**		**Longitude 79^0 30´E**			**Height above MSL 243.84 m**		
40 (01-07 Oct)	32.4	18.5	84.0	60.0	0.0	3.8	4.2	9.1
41 (08-14 Oct)	30.5	17.1	83.0	61.0	2.6	3.5	4.7	7.3
42 (15-21 Oct)	30.5	14.3	87.0	59.0	Trace	3.3	3.7	7.4
43 (22-28 Oct)	29.8	12.0	90.0	51.0	0.0	3.2	3.1	8.8
44 (29-04 Nov)	29.8	13.7	87.0	54.0	4.2	2.6	3.1	6.9
45 (05-11 Nov)	27.2	11.7	94.0	54.0	0.0	2.2	2.7	7.6
46 (12-18 Nov)	26.4	11.8	93.0	63.0	0.0	2.3	2.4	6.7
47 (19-25 Nov)	26.6	10.5	93.0	54.0	0.0	2.7	1.7	7.7
48 (26-02 Dec)	25.9	10.7	95.0	61.0	0.0	2.2	1.9	6.0
49 (03-09 Dec)	23.6	7.8	93.0	62.0	0.0	1.6	2.0	6.7
50 (10-16 Dec)	22.6	6.5	94.0	58.0	0.8	2.0	1.7	6.2
51 (17-23 Dec)	22.3	5.0	96.0	51.0	0.0	1.7	2.0	6.3
52 (24-31 Dec)	20.2	2.7	96.0	52.0	0.0	1.5	1.7	7.0
1 (01-07 Jan)	21.4	6.0	91.0	60.0	Trace	1.7	2.6	6.5
2 (08-14 Jan)	21.4	5.3	94.0	57.0	0.0	1.7	3.1	6.0
3 (15-21 Jan)	21.9	5.7	93.0	53.0	13.4	2.0	3.0	5.0
4 (22-28 Jan)	20.4	8.6	88.0	57.0	0.8	1.9	2.9	4.6
5 (29-04 Feb)	20.8	7.0	93.0	63.0	0.0	1.7	1.6	5.9
6 (05-11 Feb)	21.5	9.0	94.0	65.0	15.0	2.3	3.1	5.6
7 (12-18 Feb)	23.1	10.8	94.0	64.0	15.2	2.1	3.1	4.5
8 (19-25 Feb)	24.4	11.2	92.0	63.0	1.4	2.4	2.8	4.4
9 (26-04 Mar)	21.6	9.0	92.0	69.0	5.4	2.5	2.1	6.4
10 (05-11 Mar)	26.5	8.9	88.0	50.0	Trace	3.9	2.1	9.3
11 (12-18 Mar)	27.9	11.9	89.0	47.0	2.6	3.1	1.7	6.3
12 (19-25 Mar)	30.9	11.7	74.0	41.0	Trace	4.8	1.2	8.3
13 (26-01 Apr)	32.6	15.5	85.0	50.0	0.0	4.8	2.4	8.6
14 (02-08 Apr)	33.2	18.0	70.0	43.0	3.2	6.0	4.0	7.8
15 (09-15 Apr)	36.8	17.3	74.0	29.0	0.0	7.3	5.2	10.0
16 (16-22 Apr)	32.9	17.8	72.0	37.0	11.2	5.8	4.4	7.7
17 (23-29 Apr)	38.7	20.0	63.0	25.0	0.0	9.5	5.8	10.1
18 (30-06 May)	38.7	21.1	70.0	18.0	Trace	10.2	7.6	9.9

SRIGANGANAGAR	**Latitude 29^0 66' N**		**Longitude 75^0 53'E**			**Height Above MSL 175 m**		
40(01-07 Oct)	37.6	23.5	78.1	50.9	7.7	3.7		8.4
41(08-14 Oct)	34.4	21.4	73.1	44.7	0.0	3.0		7.7
42(15-21 Oct)	35.1	18.8	74.3	33.9	0.0	2.8		8.2
43(22-28 Oct)	34.4	16.9	72.6	42.7	0.0	2.8		7.9
44(29-04 Nov)	32.0	16.8	74.6	50.1	0.0	2.3		4.2
45(05-11 Nov)	30.1	11.9	67.9	44.9	0.0	2.4		5.6
46(12-18 Nov)	27.8	13.0	84.4	55.6	0.1	1.7		4.2
47(19-25 Nov)	29.4	12.2	80.1	49.4	0.0	2.1		8.0
48(26-02 Dec)	26.0	11.7	79.3	54.9	0.0	1.6		7.8
49(03-09 Dec)	20.6	10.9	87.4	58.3	0.0	1.5		7.0
50(10-16 Dec)	17.8	9.6	88.9	62.4	0.8	1.1		5.0
51(17-23 Dec)	17.7	5.4	90.0	56.3	0.0	1.2		7.6
52(24-31 Dec)	18.3	4.9	91.0	52.7	0.0	1.3		7.4
1(01-07 Jan)	19.6	7.1	91.3	60.0	0.1	0.9		3.9
2(08-14 Jan)	20.6	7.7	87.6	56.9	2.1	1.0		6.1
3(15-21 Jan)	20.9	7.6	87.1	57.9	0.0	1.1		4.6
4(22-28 Jan)	17.1	7.5	90.6	56.9	0.0	1.5		5.2
5(29-04 Feb)	18.1	7.4	88.3	54.6	8.5	1.2		4.6
6(05-11 Feb)	21.4	8.1	87.6	52.9	1.7	1.4		6.6
7(12-18 Feb)	22.3	10.0	84.9	57.0	1.3	1.5		4.3
8(19-25 Feb)	23.3	10.4	88.3	55.1	2.6	1.7		6.5
9(26-04 Mar)	21.4	9.6	88.3	58.7	6.4	1.5		5.8

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)	25.0	11.6	79.4	40.4	7.3	2.3		7.9
11(12-18 Mar)	26.7	12.3	78.3	41.1	1.9	2.5		7.1
12(19-25 Mar)	29.8	15.3	69.9	37.9	0.0	4.0		8.1
13(26-01 Apr)	32.9	20.8	61.0	30.4	0.0	4.0		8.8
14(02-08 Apr)	34.4	23.3	58.9	33.3	0.0	5.6		8.1
15(09-15 Apr)	38.3	22.9	62.6	28.7	0.0	6.1		8.5
16 (16-22 Apr)	33.9	19.0	71.6	40.6	26.5	4.5		8.3
17 (23-29 Apr)	40.8	23.4	49.1	25.4	0.4	5.7		8.9
18 (30-06 May)	41.1	27.6	37.3	17.9	0.0	7.5		10.1

NORTH EASTERN PLAINS ZONE

BURDWAN	Latitude 23^{0}15' N				Longitude 87^{0}52'E		Height above MSL 32 m	
40 (01-07 Oct)	35.6	23.9			0.0			
41 (08-14 Oct)	30.7	22.4			18.9			
42 (15-21 Oct)	33.5	20.8			0.0			
43 (22-28 Oct)	32.9	19.1			0.0			
44 (29-04 Nov)	31.1	20.5			0.0			
45 (05-11 Nov)	31.8	18.5			0.0			
46 (12-18 Nov)	32.4	17.1			0.0			
47 (19-25 Nov)	31.0	15.8			0.0			
48 (26-02 Dec)	30.8	15.6			0.0			
49 (03-09 Dec)	28.4	11.9			0.0			
50 (10-16 Dec)	28.8	12.8			0.0			
51 (17-23 Dec)	24.3	10.9			28.8			
52 (24-31 Dec)	25.5	9.3			0.0			
1 (01-07 Jan)	27.1	11.4			0.0			
2 (08-14 Jan)	26.6	10.2			0.0			
3 (15-21 Jan)	26.6	10.7			0.0			
4 (22-28 Jan)	28.4	12.1			0.0			
5 (29-04 Feb)	27.0	10.8			0.0			
6 (05-11 Feb)	28.4	12.6			0.0			
7 (12-18 Feb)	28.9	12.8			4.2			
8 (19-25 Feb)	32.2	16.5			13.2			
9 (26-04 Mar)	27.1	16.2			110.6			
10 (05-11 Mar)	29.7	17.8			0.0			
11 (12-18 Mar)	33.8	20.9			0.0			
12 (19-25 Mar)	34.6	19.1			0.0			
13 (26-01 Apr)	34.9	22.5			8.4			
14 (02-08 Apr)	33.9	22.8			21.2			
15 (09-15 Apr)	33.8	22.6			0.0			
16 (16-22 Apr)	35.1	22.6			0.0			
17 (23-29 Apr)	35.6	24.5			5.3			
18 (30-06 May)	34.4	25.1			56.5			
19 (7-13 May)	38.2	26.9			0.0			
20 (14-20 May)	36.6	25.5			19.4			

COOCHBEHAR	Latitude 26^{0}19'86" N			Longitude 89^{0}23'53" E			Height above MSL 43 m	
45 (05-11 Nov)	29.2	16.7	91.0	54.0	0.0			
46 (12-18 Nov)	28.2	15.7	90.0	51.0	0.0			
47 (19-25 Nov)	28.3	13.2	85.0	59.0	0.0			
48 (26-02 Dec)	28.6	14.7	96.0	57.0	0.0			
49 (03-09 Dec)	27.5	11.8	91.0	51.0	0.0			
50 (10-16 Dec)	27.6	10.5	90.0	54.0	0.0			
51 (17-23 Dec)	23.6	12.0	98.0	63.0	5.8			
52 (24-31 Dec)	24.5	8.6	94.0	57.0	0.0			
1 (01-07 Jan)	25.6	7.4	90.0	52.0	0.0			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
2 (08-14 Jan)	25.8	8.5	97.0	63.0	0.0			
3 (15-21 Jan)	26.1	8.6	99.0	70.0	0.0			
4 (22-28 Jan)	26.8	11.5	99.0	55.0	0.0			
5 (29-04 Feb)	25.0	9.8	90.0	56.0	0.0			
6 (05-11 Feb)	24.9	9.6	93.0	64.0	8.9			
7 (12-18 Feb)	26.8	12.8	85.0	48.0	0.0			
8 (19-25 Feb)	27.3	14.0	82.0	47.0	0.0			
9 (26-04 Mar)	26.3	11.4	78.0	54.0	36.2			
10 (05-11 Mar)	27.7	13.4	74.0	53.0	2.3			
11 (12-18 Mar)	31.4	16.6	68.0	47.0	0.0			
12 (19-25 Mar)	31.1	17.2	73.0	41.0	0.0			
13 (26-01 Apr)	30.6	17.6	68.0	53.0	50.9			
14 (02-08 Apr)	29.2	18.9	69.0	53.0	0.0			
15 (09-15 Apr)	31.9	19.8	80.0	63.0	31.2			
16 (16-22 Apr)	31.2	20.4	72.0	64.0	62.7			

FAIZABAD	Latitude 26.47^0 N		Longitude 82.80^0 E		Height above MSL 113 m			
40 (01-07 Oct)	34.4	21.6	87.6	55.4	0.0	46.1	2.1	9.3
41 (08-14 Oct)	32.4	21.0	88.6	56.6	0.0	39.7	2.4	8.3
42 (15-21 Oct)	33.8	17.6	83.0	48.1	0.0	38.2	2.0	8.4
43 (22-28 Oct)	32.0	15.4	86.0	55.6	0.0	35.6	1.4	8.5
44 (29-04 Nov)	31.9	15.5	89.6	49.9	0.0	40.1	1.1	8.7
45 (05-11 Nov)	28.6	12.7	92.3	44.6	0.0	51.9	1.4	7.4
46 (12-18 Nov)	28.6	13.1	92.7	50.6	0.0	50.7	2.2	7.2
47 (19-25 Nov)	27.9	9.6	92.6	42.6	0.0	22.8	1.7	7.1
48 (26-02 Dec)	26.8	11.1	92.4	49.0	0.0	21.0	1.4	6.8
49 (03-09 Dec)	25.1	8.5	92.9	49.3	0.0	19.8	1.5	6.3
50 (10-16 Dec)	24.2	7.6	92.9	45.3	0.0	21.1	1.9	6.2
51 (17-23 Dec)	23.1	5.0	94.3	48.4	0.0	20.4	2.0	6.8
52 (24-31 Dec)	21.0	3.6	94.0	46.4	0.0	18.1	2.6	7.3
1 (01-07 Jan)	22.3	5.4	93.3	51.3	0.0	18.7	2.6	5.6
2 (08-14 Jan)	22.0	5.8	93.3	50.9	0.0	21.8	2.2	6.1
3 (15-21 Jan)	22.7	5.1	93.6	41.9	0.0	23.2	2.6	6.9
4 (22-28 Jan)	20.6	10.6	92.6	59.9	41.0	26.8	4.4	4.2
5 (29-04 Feb)	21.9	7.1	95.0	54.9	0.0	24.4	3.4	7.5
6 (05-11 Feb)	22.4	8.9	93.1	57.1	9.0	24.4	3.6	4.4
7 (12-18 Feb)	21.8	9.1	92.6	60.7	2.0	23.0	3.3	3.7
8 (19-25 Feb)	25.6	11.3	86.3	52.1	2.5	31.8	3.8	6.9
9 (26-04 Mar)	22.9	10.1	92.7	52.7	0.0	28.8	3.7	6.8
10 (05-11 Mar)	26.9	11.9	87.1	46.7	0.0	33.2	3.7	9.2
11 (12-18 Mar)	30.0	12.7	87.1	35.7	0.0	36.2	2.8	5.2
12 (19-25 Mar)	32.3	12.8	86.1	35.0	0.0	38.6	4.6	9.5
13 (26-01 Apr)	34.1	17.4	84.6	39.7	5.0	40.5	2.7	8.9
14 (02-08 Apr)	34.6	18.9	80.3	42.4	2.0	44.4	4.3	8.5
15 (09-15 Apr)	36.7	21.3	74.7	38.6	0.0	50.5	3.3	9.4
16 (16-22 Apr)	34.7	19.2	83.6	49.7	0.0	42.4	4.9	8.0
17 (23-29 Apr)	40.5	23.3	75.9	30.3	0.0	50.2	5.1	9.6
18 (30-06 May)	40.0	24.5	78.7	30.6	0.0	50.8	6.4	10.0
19 (7-13 May)	42.4	24.9	65.9	25.3	0.0	56.8	8.3	8.7
20 (14-20 May)	39.6	24.3	60.1	31.6	0.0	56.2	4.9	9.4

IARI PUSA BIHAR	Latitude 25^{0}98' N		Longitude 85^{0}67' E		Height above MSL 52.1 m			
40 (01-07 Oct)	34.0	22.7	81.0	58.0	12.6	4.0	2.4	
41 (08-14 Oct)	30.9	21.4	88.0	64.0	0.0	3.3	3.8	
42 (15-21 Oct)	32.9	18.4	85.0	55.0	0.0	3.5	2.3	
43 (22-28 Oct)	32.3	15.7	87.0	44.0	0.0	3.5	1.9	

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)	32.2	16.1	84.0	62.0	0.0	3.0	1.6	
45 (05-11 Nov)	30.7	13.4	83.0	60.0	0.0	2.8	1.4	
46 (12-18 Nov)	30.0	13.6	80.0	63.0	0.0	2.8	1.7	
47 (19-25 Nov)	27.7	11.3	81.0	52.0	0.0	2.1	1.0	
48 (26-02 Dec)	28.0	12.2	88.0	52.0	0.0	1.9	1.2	
49 (03-09 Dec)	25.6	10.1	82.0	54.0	0.0	1.7	1.1	
50 (10-16 Dec)	26.6	8.8	77.0	52.0	0.0	1.7	1.4	
51 (17-23 Dec)	23.4	9.6	87.0	61.0	1.2	1.7	1.9	
52 (24-31 Dec)	26.1	6.8	93.0	61.0	0.0	2.2	2.6	
1 (01-07 Jan)	22.8	6.0	85.0	50.0	0.0	1.5	1.2	
2 (08-14 Jan)	22.7	7.6	85.0	51.0	0.0	1.6	2.2	
3 (15-21 Jan)	23.5	7.2	86.0	57.0	0.0	1.8	2.1	
4 (22-28 Jan)	23.2	12.1	89.0	65.0	1.2	1.7	3.3	
5 (29-04 Feb)	24.1	7.6	85.0	53.0	13.2	2.2	2.7	
6 (05-11 Feb)	24.1	9.4	84.0	57.0	0.0	2.1	3.3	
7 (12-18 Feb)	25.1	11.4	84.0	56.0	0.0	2.0	6.5	
8 (19-25 Feb)	27.2	11.8	80.0	49.0	0.0	2.8	3.2	
9 (26-04 Mar)	25.5	11.0	83.0	53.0	12.2	3.0	3.4	
10 (05-11 Mar)	27.9	11.3	74.0	46.0	0.0	3.4	2.8	
11 (12-18 Mar)	32.6	14.5	74.0	41.0	0.0	5.2	3.6	
12 (19-25 Mar)	32.4	13.4	71.0	40.0	0.0	5.7	2.8	
13 (26-01 Apr)	33.0	18.0	79.0	50.0	1.0	4.5	3.0	
14 (02-08 Apr)	32.1	19.7	80.0	53.0	2.6	5.5	6.0	
15 (09-15 Apr)	33.7	21.6	79.0	53.0	3.8	5.4	2.3	
16 (16-22 Apr)	36.0	19.8	69.0	42.0	1.2	6.8	3.4	
17 (23-29 Apr)	37.0	24.2	73.0	50.0	0.0	6.6	1.8	
18 (30-06 May)	37.9	24.0	77.0	53.0	1.0	6.5	5.3	
19 (7-13 May)	40.5	24.0	83.0	47.0	0.0	6.5	3.7	

KALYANI	Latitude 22^{0}57'N			Longitude 88^{0}20'E			Height above MSL 9.75 m	
40 (01-07 Oct)	35.4	25.3	92.4	53.4	0.0	2.4	0.2	9.1
41 (08-14 Oct)	30.1	23.5	94.0	73.6	1.6	2.1	1.3	3.7
42 (15-21 Oct)	33.9	21.8	94.0	56.6	0.0	1.7	0.9	8.5
43 (22-28 Oct)	32.2	19.9	91.6	51.3	0.0	1.5	0.1	7.7
44 (29-04 Nov)	30.6	21.7	92.7	59.6	1.5	1.2	0.3	6.3
45 (05-11 Nov)	30.9	19.5	90.9	47.7	0.0	2.0	0.1	6.8
46 (12-18 Nov)	31.8	18.2	91.9	45.3	0.0	1.7	0.3	7.4
47 (19-25 Nov)	28.4	15.8	91.3	42.6	0.0	1.3	0.3	6.3
48 (26-02 Dec)	28.8	16.2	91.1	46.7	0.0	1.7	0.3	6.7
49 (03-09 Dec)	26.2	12.5	92.7	43.9	0.0	1.0	0.2	5.1
50 (10-16 Dec)	26.7	13.2	88.0	42.9	0.1	1.6	0.2	5.4
51 (17-23 Dec)	21.4	12.4	95.6	65.3	3.1	1.0	0.2	4.9
52 (24-31 Dec)	23.2	8.3	91.0	41.6	0.0	0.6	0.4	7.8
1 (01-07 Jan)	25.0	8.6	91.1	41.1	0.0	1.4	0.7	7.7
2 (08-14 Jan)	24.7	9.9	90.9	44.7	0.0	0.7	0.4	6.1
3 (15-21 Jan)	24.9	9.1	89.3	40.7	0.0	0.4	0.9	7.3
4 (22-28 Jan)	26.9	13.1	89.3	46.5	0.0	1.5	3.1	5.2
5 (29-04 Feb)	26.3	10.0	88.0	35.1	0.0	1.4	5.3	8.5
6 (05-11 Feb)	27.2	12.6	91.0	30.7	0.0	2.6	7.4	6.5
7 (12-18 Feb)	28.2	13.2	89.4	30.4	0.1	1.2	3.7	8.1
8 (19-25 Feb)	31.0	16.7	90.1	31.3	1.9	3.1	6.6	7.9
9 (26-04 Mar)	25.9	16.2	94.4	64.3	9.1	3.7	2.7	5.0
10 (05-11 Mar)	29.8	19.1	93.0	47.6	0.3	2.7	1.5	6.8
11 (12-18 Mar)	33.7	22.2	90.4	44.6	0.6	3.4	0.1	6.9
12 (19-25 Mar)	34.3	21.1	90.7	37.9	2.4	3.1	0.9	8.7

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)	33.1	22.1	93.0	55.0	6.1	3.3	1.3	7.8
14 (02-08 Apr)	33.3	23.1	92.0	63.5	2.5	3.1	1.7	6.9
15 (09-15 Apr)	34.3	24.2	92.3	63.7	10.9	3.7	0.5	7.3
16 (16-22 Apr)	35.6	25.1	90.2	56.3	1.2	3.0	2.7	6.5
17 (23-29 Apr)	36.0	25.3	89.3	66.2	0.0	2.1	4.0	7.0
18 (30-06 May)	37.1	28.2	91.3	67.1	0.3	1.9	1.7	6.2
19 (7-13 May)	38.2	28.3	92.7	65.4	0.0	0.6	2.5	6.5

KANPUR	Latitude 26^{0}29'N		Longitude 80^{0}18'E			Height above MSL 125.9 m		
44 (29-04 Nov)	32.1	15.2	81.5	39.0	-	3.0	2.1	9.0
45 (05-11 Nov)	28.3	12.7	82.4	44.0	-	2.8	2.6	6.5
46 (12-18 Nov)	29.5	10.6	84.0	34.2	-	2.6	2.7	8.1
47 (19-25 Nov)	28.4	11.5	84.5	34.1	-	2.5	2.7	8.6
48 (26-02 Dec)	26.6	10.5	90.1	44.4	8.0	2.4	1.7	5.3
49 (03-09 Dec)	24.8	8.7	89.1	38.4	-	2.4	1.3	6.8
50 (10-16 Dec)	22.9	8.3	78.8	47.1	-	2.1	2.5	4.4
51 (17-23 Dec)	22.3	5.2	87.0	34.7	-	1.9	1.8	7.3
52 (24-31 Dec)	21.0	4.5	87.3	34.2	-	1.6	3.7	8.3
1 (01-07 Jan)	22.9	6.6	87.8	46.8	-	1.2	3.1	3.3
2 (08-14 Jan)	21.4	7.2	86.3	43.7	-	1.0	3.5	4.9
3 (15-21 Jan)	23.1	6.0	83.0	40.2	-	1.0	3.8	8.0
4 (22-28 Jan)	19.5	10.6	85.1	53.7	13.5	1.1	4.9	3.1
5 (29-04 Feb)	22.5	8.6	88.3	57.0	-	1.2	4.7	8.6
6 (05-11 Feb)	21.7	10.3	91.2	57.2	10.5	1.2	4.4	5.1
7 (12-18 Feb)	23.5	10.2	89.2	57.8	1.7	1.4	4.7	5.4
8 (19-25 Feb)	25.9	13.1	85.5	50.5	-	1.3	5.9	5.5
9 (26-04 Mar)	22.1	10.6	86.5	57.0	9.1	1.6	6.2	4.9
10 (05-11 Mar)	27.5	12.0	78.0	40.0	-	1.8	5.4	9.6
11 (12-18 Mar)	29.7	13.2	80.1	37.0	-	2.6	4.1	7.9
12 (19-25 Mar)	32.2	15.6	70.5	38.8	-	2.2	6.3	10.1
13 (26-01 Apr)	30.9	17.2	77.2	41.2	0.4	2.7	5.1	9.9
14 (02-08 Apr)	36.7	16.7	69.2	34.7	-	3.2	5.6	10.2
15 (09-15 Apr)	36.7	20.6	74.2	41.1	-	3.4	3.9	7.8

RANCHI	Latitude 23^{0}21'N		Longitude 85^{0}20'E			Height above MSL 629 m		
40 (01-07 Oct)	26.4	16.5	83.7	69.0	2.0	18.4	2.8	5.6
41 (08-14 Oct)	25.9	15.2	86.9	68.3	0.0	21.0	2.6	9.1
42 (15-21 Oct)	26.5	15.4	87.0	67.9	0.0	18.8	2.1	8.9
43 (22-28 Oct)	27.9	17.9	87.0	68.4	0.0	19.5	2.4	7.5
44 (29-04 Nov)	28.7	17.5	84.9	68.6	0.0	15.9	2.2	8.1
45 (05-11 Nov)	26.1	13.6	84.4	68.6	0.0	17.7	1.9	9.0
46 (12-18 Nov)	24.9	10.9	83.7	69.0	0.0	18.9	2.3	8.8
47 (19-25 Nov)	25.5	7.5	84.6	68.3	0.0	21.0	1.8	8.7
48 (26-02 Dec)	25.6	5.8	84.9	68.0	0.0	18.1	2.4	8.3
49 (03-09 Dec)	24.8	7.7	86.1	69.1	0.0	18.1	1.8	5.8
50 (10-16 Dec)	21.4	4.0	84.6	69.4	13.5	11.9	2.8	5.3
51 (17-23 Dec)	17.8	2.3	85.3	69.1	0.0	14.7	3.6	10.0
52 (24-31 Dec)	19.8	3.7	86.0	68.3	0.0	14.2	3.3	8.6
1 (01-07 Jan)	21.4	4.0	82.1	67.7	0.0	12.9	2.8	7.8
2 (08-14 Jan)	20.6	2.2	84.1	66.3	0.0	14.7	1.7	8.5
3 (15-21 Jan)	25.6	8.2	84.9	68.7	2.0	11.7	2.2	4.7
4 (22-28 Jan)	22.7	4.5	85.9	68.3	0.0	14.2	4.2	8.4
5 (29-04 Feb)	26.0	9.9	83.9	68.4	4.2	15.3	4.5	7.7
6 (05-11 Feb)	25.7	8.3	84.0	68.4	0.0	16.8	2.9	8.8
7 (12-18 Feb)	28.4	13.6	85.1	67.7	0.0	16.5	4.4	8.6

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)	25.4	11.7	86.4	68.9	6.2	12.0	3.5	4.9
9 (26-04 Mar)	26.6	14.6	85.6	66.9	0.0	18.8	3.4	7.5
10 (05-11 Mar)	27.4	13.8	85.1	68.9	30.7	15.2	4.9	5.2
11 (12-18 Mar)	28.5	14.3	84.7	68.4	8.2	16.5	3.6	7.6
12 (19-25 Mar)	33.6	16.1	83.4	71.6	0.0	20.3	3.2	8.1
13 (26-01 Apr)	36.8	17.6	86.3	68.7	4.0	21.7	4.1	8.9
14 (02-08 Apr)	34.9	20.1	85.9	68.1	0.0	18.1	2.8	8.4
15 (09-15 Apr)	35.5	23.0	86.0	68.4	19.7	17.6	4.3	6.6
16 (16-22 Apr)	37.6	25.0	84.9	68.0	0.0	23.6	3.7	9.3
17 (23-29 Apr)	36.1	22.9	84.9	68.6	31.8	20.9	4.1	5.7
18 (30-06 May)	36.6	21.2	85.0	41.4	3.2	21.8	4.5	6.7

RAU PUSA BIHAR	Latitude 25.98^0 N		Longitude 85.67^0 E				Height above MSL 52.0 m	
40 (01-07 Oct)	33.6	22.7	81.0	58.0	12.6	4.0	2.4	
41 (08-14 Oct)	30.9	21.5	88.0	64.0	0.0	3.3	3.8	
42 (15-21 Oct)	32.2	18.4	85.0	52.0	0.0	3.5	2.3	
43 (22-28 Oct)	31.5	15.7	87.0	49.0	0.0	3.5	1.9	
44 (29-04 Nov)	31.8	16.1	84.0	62.0	0.0	3.0	1.6	
45 (05-11 Nov)	29.8	13.4	83.0	61.0	0.0	2.8	1.4	
46 (12-18 Nov)	29.0	13.6	80.0	63.0	0.0	2.8	1.7	
47 (19-25 Nov)	27.4	11.3	81.0	52.0	0.0	2.1	1.4	
48 (26-02 Dec)	27.5	12.3	88.0	53.0	0.0	2.0	1.2	
49 (03-09 Dec)	25.1	10.1	82.0	54.0	0.0	1.7	1.1	
50 (10-16 Dec)	26.2	8.9	77.0	52.0	0.0	1.7	1.4	
51 (17-23 Dec)	22.9	8.9	88.0	60.0	0.0	1.7	1.8	
52 (24-31 Dec)	22.0	5.8	81.0	53.0	0.0	2.0	2.3	
1 (01-07 Jan)	22.5	6.0	85.0	50.0	0.0	1.5	1.2	
2 (08-14 Jan)	22.5	7.5	85.0	52.0	0.0	1.6	2.1	
3 (15-21 Jan)	19.9	7.1	86.0	57.0	0.0	1.8	2.1	
4 (22-28 Jan)	19.8	12.2	89.0	65.0	1.2	1.7	3.3	
5 (29-04 Feb)	23.6	7.7	85.0	52.0	0.0	2.2	2.7	
6 (05-11 Feb)	23.4	9.3	83.0	57.0	6.6	2.1	3.3	
7 (12-18 Feb)	24.2	11.0	84.0	58.0	0.0	2.0	3.3	
8 (19-25 Feb)	26.7	11.7	82.0	49.0	0.0	2.8	3.2	
9 (26-04 Mar)	25.0	11.1	83.0	55.0	6.1	3.0	3.4	
10 (05-11 Mar)	27.9	11.3	74.0	45.0	0.0	3.3	2.8	
11 (12-18 Mar)	31.8	14.5	74.0	41.0	0.0	5.2	3.6	
12 (19-25 Mar)	32.3	13.4	71.0	40.0	0.0	5.7	2.8	
13 (26-01 Apr)	33.5	18.1	79.0	50.0	2.1	4.8	3.0	
14 (02-08 Apr)	32.1	19.7	80.0	53.0	1.3	5.5	5.9	
15 (09-15 Apr)	33.5	21.9	79.0	53.0	3.8	5.4	2.3	
16 (16-22 Apr)	35.4	19.7	69.0	44.0	1.2	6.8	3.4	
17 (23-29 Apr)	36.8	24.1	73.0	50.0	0.0	6.6	3.1	

SABOUR	Latitude 25^0 23' N		Longitude 87^0 07' E				Height above MSL 37.1m	
40 (01-07 Oct)	33.3	25.1	86.9	74.6	0.6	3.1	5.6	6.1
41 (08-14 Oct)	30.6	21.1	90.0	73.4	75.6	2.9	4.5	4.9
42 (15-21 Oct)	30.2	18.1	91.6	79.4	0.0	1.7	2.0	8.2
43 (22-28 Oct)	31.0	17.4	90.1	72.6	0.0	1.6	1.4	7.4
44 (29-04 Nov)	31.5	18.0	88.7	71.3	0.0	1.3	2.2	8.4
45 (05-11 Nov)	30.8	14.1	90.7	59.7	0.0	1.2	2.1	5.6
46 (12-18 Nov)	29.8	12.8	89.9	64.7	0.0	1.1	2.3	5.6
47 (19-25 Nov)	28.0	10.2	87.9	56.9	0.0	1.1	1.4	3.7
48 (26-02 Dec)	27.9	10.5	84.1	53.3	0.0	1.1	1.2	4.3
49 (03-09 Dec)	26.3	8.3	87.7	51.9	0.0	0.9	2.1	3.7

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
50 (10-16 Dec)	26.9	8.3	86.7	53.4	0.0	1.5	2.1	7.1
51 (17-23 Dec)	22.0	7.9	92.6	73.9	11.2	0.8	2.7	3.2
52 (24-31 Dec)	21.0	4.7	91.1	61.6	0.0	0.8	3.6	6.8
1 (01-07 Jan)	22.7	4.2	91.7	56.6	0.0	0.9	2.0	5.1
2 (08-14 Jan)	23.4	5.1	90.6	54.3	0.0	1.3	3.2	5.5
3 (15-21 Jan)	22.8	5.1	90.1	52.3	0.0	1.3	2.7	6.1
4 (22-28 Jan)	23.4	7.3	84.9	55.0	4.6	0.8	3.8	1.9
5 (29-04 Feb)	23.3	7.7	91.1	51.7	0.0	1.2	5.9	7.4
6 (05-11 Feb)	23.7	7.4	89.6	56.6	34.0	1.3	5.0	6.5
7 (12-18 Feb)	24.9	9.5	86.6	63.1	0.0	1.8	4.8	7.4
8 (19-25 Feb)	27.1	13.2	86.7	63.1	0.0	2.8	5.3	8.8
9 (26-04 Mar)	26.5	13.0	88.6	66.4	1.3	3.0	5.4	5.3
10 (05-11 Mar)	27.7	13.8	87.7	58.0	0.0	4.3	2.7	7.4
11 (12-18 Mar)	31.8	15.6	84.1	72.6	0.0	3.2	2.0	5.4
12 (19-25 Mar)	32.2	16.7	80.9	65.1	0.0	3.2	2.2	7.6
13 (26-01 Apr)	32.7	17.7	76.9	50.7	0.6	3.5	3.9	6.3
14 (02-08 Apr)	31.3	17.2	75.7	59.0	18.4	2.8	3.2	5.6
15 (09-15 Apr)	32.1	20.8	79.7	63.0	16.6	3.1	4.5	5.9
16 (16-22 Apr)	34.0	23.6	79.6	59.0	3.0	3.3	2.8	7.3
17 (23-29 Apr)	36.3	24.1	77.1	51.0	0.0	3.8	2.3	6.6
18 (30-06 May)	36.0	24.0	76.3	53.7	32.8	2.9	1.9	5.3

SHILLONGANI	Latitude 26^0 21' N		Longitude 90^{0}45' E			Height above MSL 50.2 m		
40 (01-07 Oct)	30.8	21.1	93.4	81.6	83.2	19.9	1.6	
41 (08-14 Oct)	29.2	20.4	93.3	81.7	2.4	21.2	1.5	
42 (15-21 Oct)	29.9	19.4	93.0	82.0	0.0	21.8	1.7	
43 (22-28 Oct)	30.8	18.8	90.0	78.1	0.0	22.9	1.6	
44 (29-04 Nov)	30.3	18.5	93.6	80.4	2.2	22.2	1.6	
45 (05-11 Nov)	27.5	18.0	94.1	79.9	5.0	20.8	1.4	
46 (12-18 Nov)	27.6	15.4	94.7	75.6	5.0	22.9	1.4	
47 (19-25 Nov)	26.1	12.9	93.6	74.9	0.0	23.5	1.2	
48 (26-02 Dec)	26.9	11.4	93.9	74.1	0.0	24.1	1.1	
49 (03-09 Dec)	25.9	10.9	94.1	66.7	0.0	23.5	1.1	
50 (10-16 Dec)	26.6	10.4	94.7	65.0	0.0	23.9	1.3	
51 (17-23 Dec)	22.9	12.7	92.7	81.0	28.2	21.0	1.5	
52 (24-31 Dec)	24.0	10.9	93.1	74.1	0.0	2.7	1.3	
1 (01-07 Jan)	24.0	7.4	94.0	68.0	0.0	16.7	1.2	
2 (08-14 Jan)	23.8	8.4	93.0	74.0	0.2	17.5	1.3	
3 (15-21 Jan)	24.4	7.6	93.0	63.0	0.0	18.6	1.3	
4 (22-28 Jan)	25.8	8.9	92.0	63.0	0.0	18.8	1.2	
5 (29-04 Feb)	24.9	9.9	94.0	58.0	4.0	16.6	2.1	
6 (05-11 Feb)	25.5	11.2	92.0	54.0	3.4	17.0	1.8	
7 (12-18 Feb)	25.6	12.1	91.0	62.0	3.2	17.8	1.4	
8 (19-25 Feb)	24.5	13.1	93.0	63.0	9.2	16.5	1.2	
9 (26-04 Mar)	25.0	12.2	88.0	64.0	3.0	17.6	2.7	
10 (05-11 Mar)	25.5	13.3	91.0	58.0	22.0	16.2	2.7	
11 (12-18 Mar)	29.9	16.2	89.0	52.0	0.0	18.9	2.6	
12 (19-25 Mar)	28.5	15.4	90.0	58.0	3.8	19.4	2.8	
13 (26-01 Apr)	29.4	16.7	89.0	59.0	40.6	17.9	2.9	
14 (02-08 Apr)	26.5	16.7	92.0	75.0	44.2	17.2	2.5	
15 (09-15 Apr)	29.4	19.0	92.0	65.0	42.0	16.6	2.5	
16 (16-22 Apr)	29.4	17.2	89.0	71.0	39.2	15.8	2.8	
17 (23-29 Apr)	31.3	18.8	92.0	62.0	43.0	15.1	1.9	
18 (30-06 May)	27.8	19.7	95.0	80.0	43.0	14.3	3.2	
19 (7-13 May)	29.4	19.4	91.0	79.0	21.2	16.4	2.9	
20 (14-20 May)	31.0	19.0	89.0	72.0	30.8	16.7	3.1	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
VARANASI	**Latitude 25^0 20' N**		**Longitude 83^0 03' E**			**Height above MSL 128.93 m**		
40 (01-07 Oct)	34.2	20.8	83.0	51.0	0.0	3.7	0.8	
41 (08-14 Oct)	31.0	20.0	89.0	61.0	0.0	2.9		
42 (15-21 Oct)	33.4	16.5	84.0	40.0	0.0	2.8		
43 (22-28 Oct)	31.5	14.4	89.0	41.0	0.0	2.6		
44 (29-04 Nov)	31.1	16.7	91.0	48.0	0.0	2.3		
45 (05-11 Nov)	28.2	12.2	87.0	44.0	0.0	2.0		
46 (12-18 Nov)	29.0	11.7	89.0	45.0	0.0	1.8		
47 (19-25 Nov)	27.9	10.1	88.0	44.0	0.0	2.0		
48 (26-02 Dec)	26.4	10.1	93.0	48.0	0.0	1.5		
49 (03-09 Dec)	24.8	7.1	94.0	46.0	0.0	1.5		
50 (10-16 Dec)	24.3	7.9	91.6	47.8	0.0	1.3		
51 (17-23 Dec)	22.0	7.9	90.7	47.0	0.0	1.2		
52 (24-31 Dec)	21.9	3.9	86.8	37.9	0.0	1.7		
1 (01-07 Jan)	22.7	6.1	92.0	46.0	4.8	1.6		6.5
2 (08-14 Jan)	21.5	6.8	90.0	50.0	0.0	1.4		6.7
3 (15-21 Jan)	22.1	4.7	90.0	45.0	0.0	1.7		8.5
4 (22-28 Jan)	19.8	10.5	85.0	69.0	13.0	4.2		
5 (29-04 Feb)	21.7	6.3	91.0	57.0	0.0	2.2		
6 (05-11 Feb)	23.0	9.1	90.0	61.0	7.8	2.0		
7 (12-18 Feb)	23.6	9.1	90.0	56.0	2.0	1.8		
8 (19-25 Feb)	27.2	11.6	79.0	48.0	0.0	2.9		
9 (26-04 Mar)	23.7	9.6	84.0	54.0	1.8	2.6		
10 (05-11 Mar)	27.7	10.2	86.0	40.0	0.0	3.4		
11 (12-18 Mar)	28.7	14.3	79.0	47.0	0.0	3.0		
12 (19-25 Mar)	31.9	13.2	73.0	31.0	0.0	4.9		9.5
13 (26-01 Apr)	34.1	16.5	68.0	35.0	0.0	4.8		9.0
14 (02-08 Apr)	35.9	17.8	74.0	36.0	0.0	6.1		9.0
15 (09-15 Apr)	39.5	20.5	66.0	27.0	0.0	6.5		8.9
16 (16-22 Apr)	34.3	18.7	62.0	38.0	3.0	6.3		
17 (23-29 Apr)	41.0	22.5	55.0	26.0	0.0	8.1		
CENTRAL ZONE								
BILASPUR	**Latitude 22^0 9' N**		**Longitude 82^0 12' E**			**Height above MSL 292.3 m**		
40 (01-07 Oct)	34.8	21.0	90.7	58.8	0.0			9.3
41 (08-14 Oct)	32.8	20.0	88.7	62.6	0.0			7.2
42 (15-21 Oct)	33.8	18.9	90.4	45.7	0.0			8.7
43 (22-28 Oct)	33.0	15.5	83.2	50.4	0.0			9.4
44 (29-04 Nov)	31.2	17.7	86.7	60.0	0.0			9.3
45 (05-11 Nov)	31.8	15.2	81.6	47.4	0.0			8.2
46 (12-18 Nov)	31.5	12.9	87.3	49.4	0.0			7.0
47 (19-25 Nov)	31.0	12.6	84.6	47.3	0.0			8.4
48 (26-02 Dec)	28.9	11.5	90.7	57.7	0.0			7.4
49 (03-09 Dec)	27.6	11.8	89.5	56.0	0.0			4.9
50 (10-16 Dec)	26.8	12.4	91.1	64.2	4.6			4.6
51 (17-23 Dec)	22.4	8.5	96.2	64.0	56.4			6.3
52 (24-31 Dec)	24.8	6.7	87.5	55.6	0.0			8.5
1 (01-07 Jan)	26.6	7.5	90.0	49.0	0.0			8.3
2 (08-14 Jan)	25.0	9.8	92.2	57.8	0.0			6.4
3 (15-21 Jan)	27.6	NA	82.7	49.7	0.0			9.5
4 (22-28 Jan)	25.4	NA	94.5	67.6	12.2			4.8
5 (29-04 Feb)	25.7	9.3	88.0	50.0	0.0			7.8
6 (05-11 Feb)	27.8	13.2	88.8	53.0	1.6			7.5
7 (12-18 Feb)	27.8	11.1	85.4	48.4	4.6			7.8
8 (19-25 Feb)	32.0	14.8	81.4	48.4	6.4			9.2
9 (26-04 Mar)	28.8	14.8	77.4	48.2	2.4			7.9

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
GWALIOR	Latitude 26^0 13' N		Longitude 78^0 14' E			Height above MSL 211.52 m		
40 (01-07 Oct)	36.7	18.5	63.6	44.1	0.0	6.0		
41 (08-14 Oct)	35.4	18.7	81.5	38.5	0.0	5.2		
42 (15-21 Oct)	36.5	17.4	76.8	27.5	0.0	5.1		
43 (22-28 Oct)	34.5	14.9	80.7	28.7	0.0	4.2		
44 (29-04 Nov)	33.3	14.4	82.1	28.2	0.0	4.3		
45 (05-11 Nov)	29.6	10.6	83.6	33.6	0.0	2.7		
46 (12-18 Nov)	31.6	13.5	80.3	28.3	0.0	2.7		
47 (19-25 Nov)	35.3	11.4	88.3	30.7	0.0	2.0		
48 (26-02 Dec)	26.7	9.8	99.3	39.1	0.0	1.7		
49 (03-09 Dec)	26.8	7.2	93.6	33.3	0.0	1.5		
50 (10-16 Dec)	22.4	6.8	90.4	57.7	0.0	1.0		
51 (17-23 Dec)	23.5	4.5	90.7	38.4	0.0	1.2		
52 (24-31 Dec)	22.8	3.5	94.5	36.8	0.0	1.0		
1 (01-07 Jan)	24.0	0.6	97.7	46.7	0.0	1.3		
2 (08-14 Jan)	21.7	5.5	93.6	41.3	0.0	2.1		
3 (15-21 Jan)	23.8	4.6	91.7	34.9	0.0	2.4		
4 (22-28 Jan)	20.6	9.0	92.4	73.9	0.0	1.9		
5 (29-04 Feb)	20.6	5.9	92.8	58.7	0.0	3.1		
6 (05-11 Feb)	22.8	9.0	85.6	61.3	12.2	2.4		
7 (12-18 Feb)	24.7	10.2	90.0	48.3	0.0	2.4		
8 (19-25 Feb)	27.0	12.2	84.0	51.4	0.0	3.5		
9 (26-04 Mar)	23.5	9.1	93.1	50.1	15.6	4.4		
10 (05-11 Mar)	26.8	11.3	80.7	34.0	0.0	5.2		
11 (12-18 Mar)	29.3	12.5	78.9	34.9	0.0	5.0		
12 (19-25 Mar)	37.7	14.5	65.6	26.0	0.0	6.2		
13 (26-01 Apr)	35.8	16.5	63.4	28.6	0.0	7.8		
14 (02-08 Apr)	39.5	18.5	28.8	50.1	1.4	5.5		
15 (09-15 Apr)	40.7	22.1	21.7	47.7	0.0	6.0		
16 (16-22 Apr)	39.5	18.5	28.8	50.1	1.4	7.9		

INDORE	Latitude 22^0 37'N		Longitude 75^{0}50' N				Height above MSL 557 m	
40 (01-07 Oct)	35.3	19.9	78.7	66.5			0.1	
41 (08-14 Oct)	35.7	18.4	70.2	61.2			0.1	
42 (15-21 Oct)	35.0	17.9	78.6	62.6			0.1	
43 (22-28 Oct)	32.6	16.6	76.3	75.0			0.1	
44 (29-04 Nov)	32.8	15.1	72.9	72.7			0.2	
45 (05-11 Nov)	33.9	13.0	78.1	67.0			0.1	
46 (12-18 Nov)	34.4	12.5	78.2	66.3			0.0	
47 (19-25 Nov)	33.7	15.3	75.4	69.0			0.1	
48 (26-02 Dec)	31.8	10.4	71.5	70.4			0.1	
49 (03-09 Dec)	29.5	10.7	74.5	76.2			0.1	
50 (10-16 Dec)	27.3	8.8	76.2	75.0			0.3	
51 (17-23 Dec)	25.4	7.4	80.7	78.9			0.3	
52 (24-31 Dec)	27.8	8.8	75.7	78.9			0.3	
1 (01-07 Jan)	26.6	8.9	75.7	76.6			0.3	
2 (08-14 Jan)	25.6	8.9	74.9	74.4			0.3	
3 (15-21 Jan)	29.2	9.6	75.5	70.0			0.3	
4 (22-28 Jan)	24.4	9.2	79.0	75.0			0.8	
5 (29-04 Feb)	25.4	9.1	74.6	74.7			0.6	
6 (05-11 Feb)	26.3	10.9	67.2	79.7			0.8	
7 (12-18 Feb)	31.0	13.6	70.6	72.5			0.6	
8 (19-25 Feb)	33.6	13.1	79.0	70.3			0.6	
9 (26-04 Mar)	32.1	13.3	68.3	69.3			1.0	
10 (05-11 Mar)	33.7	14.8	61.3	65.7			1.0	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
11 (12-18 Mar)	36.1	15.4	67.3	70.9			0.7	
12 (19-25 Mar)	39.6	19.1	70.2	70.7			0.9	
13 (26-01 Apr)	41.0	20.0	76.4	65.4			1.50	
14 (02-08 Apr)	41.6	19.9	61.8	72.1			1.3	
15 (09-15 Apr)	41.8	22.7	55.5	66.3			1.4	
16 (16-22 Apr)	65.1	60.4	37.9	21.4			1.0	
17 (23-29 Apr)	53.5	51.7	43.2	26.1			1.3	

JABALPUR	Latitude 23^0 09' N		Longitude 79^0 58' E		Height above MSL 411 m			
40 (01-07 Oct)	34.2	19.8	88.7	53.9	0.0	4.2		9.2
41 (08-14 Oct)	32.0	18.0	86.4	60.7	0.0	3.6		8.1
42 (15-21 Oct)	32.7	17.8	85.7	53.3	0.0	3.5		8.7
43 (22-28 Oct)	31.9	14.7	84.9	52.9	0.0	3.3		9.2
44 (29-04 Nov)	30.5	15.1	87.7	45.6	0.0	2.8		8.6
45 (05-11 Nov)	29.0	10.9	84.9	28.6	0.0	2.6		8.3
46 (12-18 Nov)	30.5	9.0	82.4	35.3	0.0	2.4		8.8
47 (19-25 Nov)	29.7	9.9	84.3	30.3	0.0	2.6		8.0
48 (26-02 Dec)	27.0	8.2	84.4	34.1	0.0	1.9		6.7
49 (03-09 Dec)	25.6	9.0	85.9	33.9	0.0	1.9		4.4
50 (10-16 Dec)	24.4	7.9	83.3	43.3	0.0	1.7		5.1
51 (17-23 Dec)	22.3	4.8	77.4	36.6	0.0	1.8		7.1
52 (24-31 Dec)	22.8	4.8	75.8	31.4	0.0	2.0		8.2
1 (01-07 Jan)	25.0	6.6	77.0	37.0	0.0	1.9		7.8
2 (08-14 Jan)	22.9	6.4	84.0	43.0	0.0	1.7		5.4
3 (15-21 Jan)	23.9	5.3	72.0	27.0	0.0	2.3		8.9
4 (22-28 Jan)	23.4	12.0	84.0	56.0	4.3	1.8		3.7
5 (29-04 Feb)	19.6	3.1	84.0	30.0	0.0	2.2		9.6
6 (05-11 Feb)	26.2	9.9	69.0	36.0	1.0	3.1		7.3
7 (12-18 Feb)	26.2	10.7	78.0	47.0	5.4	2.6		8.2
8 (19-25 Feb)	29.9	13.7	77.0	40.0	0.0	3.2		8.6
9 (26-04 Mar)	26.9	12.6	78.0	43.0	0.8	3.6		8.8
10 (05-11 Mar)	28.9	11.7	82.0	36.0	0.0	3.7		8.8
11 (12-18 Mar)	31.6	14.7	85.0	49.0	5.4	3.7		6.9
12 (19-25 Mar)	32.5	13.4	79.0	29.0	0.0	4.1		9.2
13 (26-01 Apr)	36.5	15.4	76.0	22.0	0.0	5.4		9.1
14 (02-08 Apr)	38.8	17.7	57.0	17.0	0.0	6.5		8.7
15 (09-15 Apr)	39.9	19.8	52.0	20.0	0.0	7.0		9.0

JUNAGARH	Latitude 21^0 31' N		Longitude 70^0 33' E		Height above 83 MSL			
40 (01-07 Oct)	37.4	22.9	76.0	31.7	0.0			9.9
41 (08-14 Oct)	37.9	23.1	65.6	29.0	0.0			8.5
42 (15-21 Oct)	36.7	21.1	74.4	27.9	0.0			9.3
43 (22-28 Oct)	37.5	20.2	63.7	22.4	0.0			9.9
44 (29-04 Nov)	37.0	19.8	60.3	23.3	0.0			9.4
45 (05-11 Nov)	36.7	18.0	68.4	21.9	0.0			9.4
46 (12-18 Nov)	35.4	18.7	75.4	26.7	0.0			9.2
47 (19-25 Nov)	35.9	18.0	67.3	21.1	0.0			8.7
48 (26-02 Dec)	34.0	16.6	67.4	30.3	0.0			5.4
49 (03-09 Dec)	32.1	15.4	79.6	28.4	0.0			3.5
50 (10-16 Dec)	29.5	17.0	63.3	31.2	0.0			5.0
51 (17-23 Dec)	30.0	10.8	66.9	24.7	0.0			6.5
52 (24-31 Dec)	29.5	11.0	55.3	21.7	0.0			6.6
1 (01-07 Jan)	31.1	12.7	64.3	22.4	0.0			6.5
2 (08-14 Jan)	29.3	12.3	69.7	29.6	0.0			4.0

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
3 (15-21 Jan)	32.0	12.5	76.1	30.0	0.0			6.8
4 (22-28 Jan)	27.0	14.6	51.9	26.4	0.0			8.1
5 (29-04 Feb)	28.8	12.6	59.0	26.9	0.0			8.7
6 (05-11 Feb)	29.2	12.1	61.7	23.7	0.0			7.4
7 (12-18 Feb)	31.9	14.8	78.0	28.3	0.0			8.6
8 (19-25 Feb)	33.3	17.7	75.3	45.6	0.0			7.6
9 (26-04 Mar)	32.6	18.0	75.6	34.0	0.0			7.5
10 (05-11 Mar)	32.5	19.4	64.6	26.0	0.0			8.8
11 (12-18 Mar)	33.7	18.4	54.6	19.9	0.0			10.2
12 (19-25 Mar)	37.2	21.6	55.3	21.6	0.0			10.1
13 (26-01 Apr)	40.8	23.7	52.3	22.9	0.0			10.0
14 (02-08 Apr)	40.3	21.6	82.1	27.4	0.0			9.9
15 (09-15 Apr)	40.5	24.1	72.9	19.7	0.0			9.9
16 (16-22 Apr)	38.0	23.7	65.3	25.6	0.0			10.1
17 (23-29 Apr)	42.2	25.3	65.6	17.4	0.0			11.0
18 (30-06 May)	39.3	25.3	82.3	26.6	0.0			10.4

POWARKHEDA	Latitude 22^0 44'N		Longitude 77^0 42' E		Height above MSL 299 m			
40 (01-07 Oct)	27.0	22.5	92.1	75.5	23.6			
41 (08-14 Oct)	30.5	20.0	93.7	71.5	2.0			
42 (15-21 Oct)	33.5	21.0	94.8	72.3	35.2			
43 (22-28 Oct)	33.0	22.5	84.2	64.0	0.0			
44 (29-04 Nov)	35.5	19.2	68.0	43.1	0.0			
45 (05-11 Nov)	36.0	16.5	98.2	73.6	0.0			
46 (12-18 Nov)	34.0	17.5	69.1	47.5	0.0			
47 (19-25 Nov)	34.0	16.0	63.6	26.1	0.0			
48 (26-02 Dec)	30.0	14.0	56.1	39.1	0.0			
49 (03-09 Dec)	30.5	12.5	66.9	36.2	0.0			
50 (10-16 Dec)	33.0	11.5	72.0	37.9	0.0			
51 (17-23 Dec)	32.0	15.0	53.1	48.5	0.0			
52 (24-31 Dec)	29.0	12.0	56.6	41.6	0.0			
1 (01-07 Jan)	34.0	11.5	72.0	26.1	0.0			
2 (08-14 Jan)	34.0	11.5	72.0	26.1	0.0			
3 (15-21 Jan)	34.0	11.5	72.0	26.1	0.0			
4 (22-28 Jan)	34.0	11.5	72.0	26.1	0.0			
5 (29-04 Feb)	34.0	11.5	72.0	26.1	0.0			
6 (05-11 Feb)	34.0	11.5	72.0	26.1	0.0			
7 (12-18 Feb)	34.0	11.5	72.0	26.1	0.0			
8 (19-25 Feb)	34.0	11.5	72.0	26.1	0.0			
9 (26-04 Mar)	34.0	11.5	72.0	26.1	0.0			
10 (05-11 Mar)	34.0	11.5	72.0	26.1	0.0			
11 (12-18 Mar)	34.0	11.5	72.0	26.1	0.0			
12 (19-25 Mar)	34.0	11.5	72.0	26.1	0.0			
13 (26-01 Apr)	34.0	11.5	72.0	26.1	0.0			

UDAIPUR	Latitude 24^0 35' N		Longitude 73^{0}42'E		Height above MSL 582 m			
40 (01-07 Oct)	34.4	17.2	74.0	41.9	0.0	4.0	1.6	8.2
41 (08-14 Oct)	34.2	17.2	66.4	40.1	0.0	4.0	1.6	7.0
42 (15-21 Oct)	34.0	15.1	64.9	23.0	0.0	4.2	1.9	8.8
43 (22-28 Oct)	33.5	13.7	64.1	19.6	0.0	4.8	1.9	8.3
44 (29-04 Nov)	32.0	12.6	67.4	27.3	0.0	4.3	1.3	8.8
45 (05-11 Nov)	30.6	9.8	57.4	20.7	0.0	4.0	1.5	8.7
46 (12-18 Nov)	31.1	11.3	69.9	23.9	0.0	3.9	1.0	8.3
47 (19-25 Nov)	30.9	11.0	69.7	26.4	0.0	3.3	1.3	8.3

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)	27.6	8.3	77.0	27.9	0.0	2.3	1.1	7.1
49 (03-09 Dec)	26.0	7.9	80.9	33.6	0.0	2.5	0.9	6.5
50 (10-16 Dec)	23.9	7.0	77.3	30.0	0.0	3.0	2.3	7.5
51 (17-23 Dec)	24.0	4.1	77.3	26.3	0.0	2.6	1.5	7.4
52 (24-31 Dec)	23.8	4.1	78.8	23.1	0.0	2.7	1.4	8.5
1 (01-07 Jan)	25.7	5.8	75.7	22.3	0.0	3.2	2.5	7.8
2 (08-14 Jan)	23.4	4.9	83.4	29.1	0.0	2.6	2.0	7.5
3 (15-21 Jan)	26.9	5.6	78.7	20.4	0.0	3.1	2.2	8.6
4 (22-28 Jan)	21.6	5.6	80.1	32.7	0.0	3.7	4.4	7.3
5 (29-04 Feb)	22.7	4.9	73.1	28.7	0.0	3.1	2.9	7.8
6 (05-11 Feb)	23.6	5.4	72.4	31.3	0.0	4.2	3.9	6.8
7 (12-18 Feb)	26.6	8.2	66.6	30.9	0.0	4.2	2.8	8.2
8 (19-25 Feb)	28.2	11.3	71.9	25.7	0.0	4.9	4.1	6.9
9 (26-04 Mar)	26.6	9.6	70.1	26.0	1.0	5.0	4.1	7.8
10 (05-11 Mar)	28.1	10.4	68.6	23.6	0.0	6.1	3.4	8.9
11 (12-18 Mar)	28.5	10.8	55.7	22.4	0.0	5.5	3.8	7.2
12 (19-25 Mar)	32.7	13.1	51.0	19.6	0.0	7.0	3.7	8.5
13 (26-01 Apr)	36.8	15.5	44.6	14.4	0.0	7.2	3.7	7.6
14 (02-08 Apr)	39.0	18.0	35.3	11.6	0.0	8.8	3.7	7.8
15 (09-15 Apr)	39.4	20.1	36.1	13.1	0.0	11.4	5.4	8.9
16 (16-22 Apr)	33.7	17.7	52.6	32.4	6.0	7.3	5.3	8.1
17 (23-29 Apr)	39.8	22.6	29.0	11.0	0.0	9.2	4.0	9.5

VIJAPUR	Latitude 23^{0}15' N			Longitude 72^{0}55' E			Height above MSL 126 m	
44 (29-04 Nov)	30.3	14.6	78.4	37.9	0.0			9.5
45 (05-11 Nov)	29.8	12.1	80.3	30.0	0.0			9.5
46 (12-18 Nov)	29.3	12.5	85.0	40.0	0.0			9.4
47 (19-25 Nov)	29.0	13.7	75.0	38.4	0.0			9.3
48 (26-02 Dec)	25.6	11.1	79.4	42.0	0.0			9.5
49 (03-09 Dec)	25.2	10.5	87.9	42.7	0.0			9.3
50 (10-16 Dec)	22.1	9.0	71.3	42.1	0.0			9.2
51 (17-23 Dec)	23.6	6.5	85.1	38.1	0.0			9.3
52 (24-31 Dec)	21.8	6.5	77.6	30.9	0.0			9.4
1 (01-07 Jan)	23.4	7.2	86.3	34.7	0.0			9.3
2 (08-14 Jan)	22.4	7.2	84.7	41.1	0.0			9.5
3 (15-21 Jan)	24.6	7.5	83.7	37.6	0.0			9.5
4 (22-28 Jan)	20.2	7.0	80.7	42.0	0.0			9.4
5 (29-04 Feb)	22.3	7.9	72.9	41.7	0.0			10.0
6 (05-11 Feb)	21.6	7.5	71.6	36.0	0.0			9.7
7 (12-18 Feb)	25.8	8.9	76.9	37.7	0.0			10.1
8 (19-25 Feb)	26.7	11.3	87.7	39.3	0.0			10.4
9 (26-04 Mar)	17.7	10.6	51.4	26.3	5.0			6.8
10 (05-11 Mar)	27.2	11.0	70.3	31.3	0.0			10.4
11 (12-18 Mar)	28.9	12.1	51.7	26.4	0.0			10.6
12 (19-25 Mar)	32.1	15.3	54.9	26.3	0.0			10.9
13 (26-01 Apr)	36.6	17.6	52.0	18.1	0.0			11.4

PENINSULAR ZONE

DHARWAD	Latitude 15^0 26'N			Longitude 75^0 07' E			Height above MSL 678 m	
40(01-07 Oct)	32.5	19.8	81.0	44.0	13.8			
41(08-14 Oct)	32.4	19.4	86.0	40.0	0.4			
42(15-21 Oct)	30.1	19.0	86.0	53.0	62.6			
43(22-28 Oct)	32.1	16.8	62.0	44.0	0.0			
44(29-04 Nov)	30.4	15.9	63.0	37.0	0.0			
45(05-11 Nov)	31.9	17.1	65.0	31.0	0.0			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
46(12-18 Nov)	31.2	15.6	61.0	31.0	0.0			
47(19-25 Nov)	29.9	17.9	82.0	45.0	34.4			
48(26-02 Dec)	29.2	12.9	64.0	37.0	0.0			
49(03-09 Dec)	29.7	17.2	82.0	50.0	38.4			
50(10-16 Dec)	29.4	15.1	79.0	40.0	0.0			
51(17-23 Dec)	27.1	13.3	81.0	43.0	0.0			
52(24-31 Dec)	28.8	13.4	73.0	39.0	0.0			
1(01-07 Jan)	29.2	10.2	57.0	21.0	0.0			
2(08-14 Jan)	30.6	12.4	71.0	28.0	0.0			
3(15-21 Jan)	29.9	12.7	60.0	27.0	0.0			
4(22-28 Jan)	29.5	14.0	86.0	36.0	0.0			
5(29-04 Feb)	28.9	13.7	68.0	39.0	0.0			
6(05-11 Feb)	32.0	14.8	60.0	32.0	0.0			
7(12-18 Feb)	32.7	15.6	57.0	21.0	0.0			
8(19-25 Feb)	35.7	16.5	54.0	18.0	0.0			
9(26-04 Mar)	34.2	16.1	58.0	17.0	0.0			
10(05-11 Mar)	35.5	17.0	63.0	18.0	0.0			
11(12-18 Mar)	35.7	19.5	55.0	17.0	0.0			
12(19-25 Mar)	36.3	19.9	59.0	24.0	0.0			
13(26-01 Apr)	36.5	21.5	87.0	27.0	0.4			
14 (02-08 Apr)	36.9	20.0	77.0	25.0	29.1			
15 (09-15 Apr)	37.0	21.3	78.0	29.0	13.6			
16 (16-22 Apr)	36.7	20.8	61.0	24.0	0.0			
17 (23-29 Apr)	38.0	22.0	82.0	31.0	11.0			

NIPHAD	Latitude 20.6^0 N		Longitude 74.6^0 E		Height above MSL 548.6 m			
40(01-07 Oct)	34.1	19.7	80.0	48.0	0.2	6.3	2.7	7.7
41(08-14 Oct)	34.1	16.3	78.0	30.0	0.0	6.1	2.7	8.2
42(15-21 Oct)	34.1	18.1	75.0	39.0	0.0	6.1	1.7	9.1
43(22-28 Oct)	34.2	15.2	74.0	31.0	0.0	6.0	1.8	8.5
44(29-04 Nov)	32.6	15.5	74.0	41.0	0.0	5.6	3.9	9.7
45(05-11 Nov)	33.1	16.2	74.0	39.0	0.0	5.3	2.1	9.2
46(12-18 Nov)	32.4	11.2	76.0	33.0	0.0	5.3	1.5	9.2
47(19-25 Nov)	32.0	15.8	77.0	41.0	14.8	4.8	2.3	7.3
48(26-02 Dec)	29.4	11.0	74.0	42.0	0.0	5.6	2.0	7.2
49(03-09 Dec)	29.6	12.8	81.0	39.0	0.0	5.5	1.9	7.7
50(10-16 Dec)	28.5	10.2	78.0	39.0	0.0	5.7	3.9	9.2
51(17-23 Dec)	27.3	7.5	69.0	39.0	0.0	5.6	3.0	9.3
52(24-31 Dec)	26.9	6.1	72.0	32.0	0.0	5.6	3.0	9.2
1(01-07 Jan)	29.0	5.5	71.0	28.0	0.0	5.4	1.0	9.3
2(08-14 Jan)	28.3	5.9	73.0	31.0	0.0	5.6	1.2	8.9
3(15-21 Jan)	30.7	8.7	73.0	33.0	0.0	5.7	1.0	9.0
4(22-28 Jan)	27.2	7.5	75.0	40.0	0.0	5.6	3.4	8.8
5(29-04 Feb)	27.2	7.9	74.0	38.0	0.0	5.7	1.7	8.8
6(05-11 Feb)	27.3	7.6	73.0	38.0	0.0	6.0	3.3	8.8
7(12-18 Feb)	31.6	9.6	77.0	30.0	0.0	6.0	1.5	9.3
8(19-25 Feb)	34.1	11.9	72.0	26.0	0.0	14.2	1.4	9.8
9(26-04 Mar)	33.1	10.4	73.0	31.0	0.0	6.4	2.5	9.9
10(05-11 Mar)	32.9	11.5	73.0	28.0	0.0	6.3	4.6	9.9
11(12-18 Mar)	35.7	12.2	75.0	28.0	0.0	6.3	3.1	10.1
12(19-25 Mar)	37.0	12.1	64.0	24.0	0.0	6.5	2.7	10.0
13(26-01 Apr)	39.0	15.3	60.0	21.0	0.0	7.1	3.9	10.0
14(02-08 Apr)	38.7	18.2	70.0	27.0	0.0	8.4	5.0	9.9
15(09-15 Apr)	39.0	18.9	66.0	25.0	0.0	8.7	5.0	9.2
16(16-22 Apr)	36.5	18.0	73.0	31.0	0.0	8.4	5.8	8.6

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
17(23-29 Apr)	40.5	22.9	62.0	22.0	0.0	9.1	5.5	10.2
18(30-06 May)	37.3	19.8	70.0	31.0	0.0	8.8	10.3	10.4
19(07-13 May)	37.3	20.9	79.0	31.0	0.0	9.1	9.9	10.3
20 (14-20 May)	38.4	20.2	79.0	26.0	0.0	9.1	9.0	11.2

PUNE	Latitude 18.04' N		Longitude 74.21' E		Height above MSL 548.6 m			
40(01-07 Oct)	32.3	21.4	91.0	53.0	18.5			
41(08-14 Oct)	34.2	19.8	84.0	38.0	0.0			
42(15-21 Oct)	32.7	20.0	87.0	45.0	2.3			
43(22-28 Oct)	33.4	18.1	80.0	37.0	0.0			
44(29-04 Nov)	31.9	16.7	78.0	36.0	0.0			
45(05-11 Nov)	33.5	18.6	80.0	40.0	0.0			
46(12-18 Nov)	32.8	14.5	85.0	39.0	0.0			
47(19-25 Nov)	29.1	17.3	92.0	53.0	55.4			
48(26-02 Dec)	29.1	12.8	85.0	42.0	0.0			
49(03-09 Dec)	31.2	15.1	89.0	44.0	0.0			
50(10-16 Dec)	27.8	13.7	84.0	56.0	0.0			
51(17-23 Dec)	27.8	10.8	85.0	30.0	0.0			
52(24-31 Dec)	27.9	9.3	87.0	43.0	0.0			
1(01-07 Jan)	30.3	8.1	78.0	32.0	0.0			
2(08-14 Jan)	30.3	9.5	90.0	35.0	0.0			
3(15-21 Jan)	30.9	11.1	92.0	35.0	0.0			
4(22-28 Jan)	28.0	10.3	84.0	43.0	0.0			
5(29-04 Feb)	29.4	11.1	84.0	38.0	0.0			
6(05-11 Feb)	30.3	9.8	83.0	33.0	0.0			
7(12-18 Feb)	32.6	13.0	83.0	31.0	0.0			
8(19-25 Feb)	36.4	15.7	81.0	28.0	0.0			
9(26-04 Mar)	33.3	11.5	73.0	21.0	0.0			
10(05-11 Mar)	35.1	12.9	35.0	13.0	0.0			
11(12-18 Mar)	36.4	14.2	63.0	19.0	0.0			
12(19-25 Mar)	37.6	16.4	63.0	20.0	0.0			
13(26-01 Apr)	39.9	18.4	70.0	23.0	0.0			
14(02-08 Apr)	39.6	19.9	74.0	25.0	4.0			
15(09-15 Apr)	39.9	21.0	70.0	25.0	Tr			

ANNEXURE-III

SOIL PHYSICO-CHEMICAL PROPERTIES 2018-19

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	45	28	1.35	27.4	17.6	1.02	368	14.9	189	6.5	0.09
Bajaura	Silty Loam	28.2	53.4	18.4	1.53	-	-	0.61	364	51	183	6.20	60.75
Khudwani	Silty Clay Loam	21	61	18	1.29	-	-	0.9	210	13.2	255	6.9	0.13
Malan	Silty Clay Loam	-	-	-	1.56	31.50	13.63	0.75	383	45	245	5.33	166.25
NORTH WESTERN PLAINS ZONE													
Agra	Sandy Loam	58.95	22.20	18.51		18.50	9.80	0.34	183.00	28.30	290.00	8.10	1.80
Gurdaspur	Loam							0.39		6.5	120	7.5	0.22
Durgapura	Loamy Sand	86	5.35	6.8	1.45	10.38	3.1	0.23	172	25.4	237	8	0.24
Hisar	Sandy Loam	72	18.5	9.5	1.4			0.36	140	17.4	275	7.8	0.22
Jammu	Clay Loam	40.57	32.59	26.84	1.43	22.15		0.41	174	12.7	137	7.3	0.21
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	7.9	8	1.46			0.38	-	32	225.8	7.7	0.15
New Delhi	Sandy Clay Loam	61.25	15.6	23.25	1.49	22.1	9.73	0.41	255	11.2	301	7.6	0.23
Pantnagar	Loam	36	47	17	1.39	23	8	0.7	229	43	145	7.3	0.4
Sriganganagar	Sandy Loam	75.2	10.6	14.2	1.48	17.2	4.2	0.25	110.5	24.5	336	8.2	0.22
NORTH EASTERN PLAINS ZONE													
Burdwan	Sandy Loam				-	-	-	0.52	228-251	-	180	5.13	0.08
Coochbehar	Sandy Loam	63	23	14	1.38			0.89	220.4	36.7	138.9	5.8	-
Faizabad													
IARI Pusa		32.6	58.2	8.7	-	-	-	0.41	-	11.44	146.25	8.6225	0.2725
Kalyani	Loamy Soil	41.63	33.05	25.32	1.57	33	12	0.47	258.24	21.92	278.39	7.1	0.32
Kanpur	Sandy Loam	58	32	13	-	-	-	0.6	0	26	180	7.5	0.15
Ranchi	Clay Loam	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	32.3	-
CAU Pusa	Clay Loam	24.33	48.58	27.00	2.42	21.70	7.65	0.43	195.50	21.07	124.80	8.37	0.24
Sabour	Loamy Sand	25.00	43.00	32.00	1.53	23.00	12.00	0.52	204.67	23.88	183.97	7.23	0.15
Shillongani	Sandy Clay Loam	51.47	21.93	26.60	1.35	42.43	7.23	1.16	226.72	16.22	263.40	5.49	0.28
Varanasi	Sandy Clay Loam	49.6	25.25	22.15	1.4	19.5	5.6	0.47	202.03	22.9	230.6	7.3	0.15
CENTRAL ZONE													
Bilaspur	Sandy Clay Loam	42.87	24.20	33.17	1.30	21.46	8.30	0.34	278.00	13.19	293.00	7.30	0.17
Gwalior	Sandy Clay Loam	62.90	17.10	20.00	-	-	-	0.45	180	12.5	200	7.4	-
Indore	Clay Loam	15.70	27.80	56.50	1.45	36	16	0.51	268.2	17.2	423.5	7.7	0.26
Jabalpur	Clay Loam	25.81	18.52	55.67	1.33	39-42	28.30	0.62	285.00	16.66	302.00	7.20	0.33
Junagarh	Clay Loam	35.83	31.38	32.79	1.35	-	-	0.69	266.00	60.79	279.00	7.87	0.45
Powarkheda	Clay Loam	26.00	24.50	47.50	1.50	-	-	0.5	285.0	32.2	351.0	7.5	0.4
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	79.80	11.10	8.00	1.58	11.45	2.44	0.34	162.00	43.42	278.00	7.67	0.32
PENINSULAR ZONE													
Dharwad	Clay	20.0	26.0	50.0	1.25	34	17	0.4	252	37.6	390	7.52	0.25
Niphad	Clay	20.4	34.2	45.4	1.29	NA	NA	0.50	184.21	20.8	357.44	8.14	0.29
Pune	Clay	7.7	56.1	18.5	1.3	NA	NA	1.0	112.0	8.8	630.5	8.1	0.4

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)

NORTHERN HILLS ZONE

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NORTH WESTERN PLAINS ZONE

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11.	Sriganganagar	Dr Balram Godara, Wheat Agronomist, Agricultural Research Station, Karni Road, Sriganganagar- 335 001, *Email:balram.g.ars@gmail.com, Mobile: 09413155287*

NORTH EASTERN PLAINS ZONE

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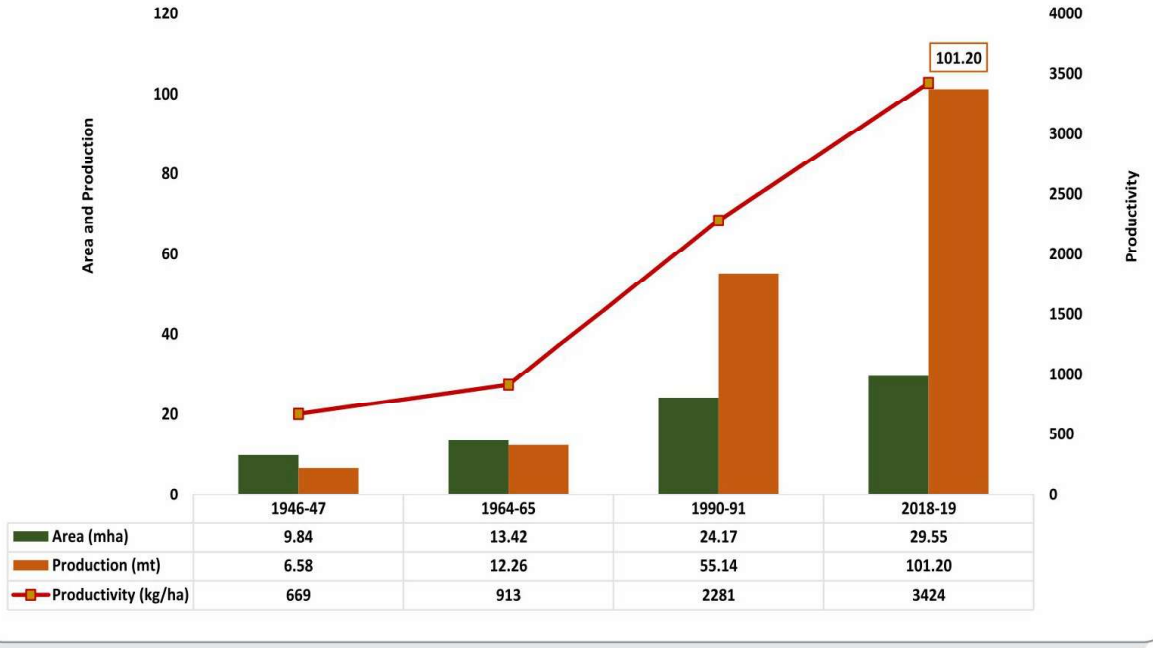
LAND MARK PRODUCTION DURING 2018-19 (>100 MT)



	1946-47	1964-65	1990-91	2018-19
Area (mha)	9.84	13.42	24.17	29.55
Production (mt)	6.58	12.26	55.14	101.20
Productivity (kg/ha)	669	913	2281	3424

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