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PROGRESS REPORT 2020-21

संसाधन प्रबंधन
RESOURCE MANAGEMENT

अखिल भारतीय समन्वित गेहूँ एवं जौ अनुसंधान परियोजना
AICRP on Wheat and Barley

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ICAR-Indian Institute of Wheat and Barley Research, Karnal

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AICRP on Wheat and Barley

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RESOURCE MANAGEMENT

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S Tripathi

Dated: 5th August, 2021

S.C. Tripathi

(Resource Management)

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SUMMARY

Availability of natural resources and suitable environmental conditions play the major role in achieving the full genetic potential of newly released high yielding varieties of the crops. Though there is continuous decrease in available natural resources for agriculture in India, yet the production of food grains is steadily increasing by efficient use of natural resources, better crop management practices, plant protection measures and use of high yielding wheat genotypes. India produced 108.75 million tonnes of wheat grains during 2020–21. This target was achieved by the severe hard work of Indian farmers, researchers and extension agencies. To keep the pace of increasing food demand, the researchers and farmers will have to overcome the hurdles in the way of achieving the maximum yield potential. However, imbalanced nutrients 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 whereas situation in NEPZ is just reverse. 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, water 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 refining the eco-friendly, location specific and cost effective wheat production technologies for higher productivity and profitability to the farmers. 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 here under.

In three wheat growing zones, twelve 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 conducted 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, 52 trials were proposed, of which 48 were conducted. Out of the conducted trials, two trials (Udaipur and Washim centres) were rejected due to low yield and/or high CV and improper data reporting. The overall conduct of trial was 92.3 percent with a success and rejection rate of 95.8 percent and 4.2 percent, respectively.

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-DOS-LS	10	09	01	Delhi	–	–
RIR-TS-TAS	10	09	01	Sriganganagar	–	–
SPL-IR-ES-HYPT	07	06	01	Delhi	–	–
Total	**27**	**24**	**03**	**–**	**–**	**–**
Central Zone						
IR-DOS-TAD	08	08	–	–	–	–
RIR-TS-TAD	07	07	–	–	–	–
SPL-IR-ES-HYPT	05	04	01	Indore	01	Udaipur
Total	**20**	**19**	**01**	**–**	**01**	**–**
Peninsular Zone						
RIR-TS-TAD	05	05	–	–	01	Washim
Total	**05**	**05**	**–**	**–**	**01**	**–**
Grand Total	**52**	**48**	**04**		**02**	

In NWPZ, out of 27 proposed trials, 24 were successfully conducted. In CZ, 20 trials were proposed out of which 19 were conducted successfully but Udaipur centre data were rejected due improper data reporting. In PZ, out of 05 proposed, 04 were conducted. RIR-TS-TAD trial at Akola centre was conducted but failed. Washim

centres data were rejected due to improper or incomplete data reporting. The centres where the trials were not conducted or where the trials were rejected have been listed in Table 1.

The performance of 12 final year test entries has been presented in the Table 2. In NWPZ, the results showed that one AVT-II year late sown test entry JKW 261 was inferior to the best check PBW 771. In restricted irrigation timely sown trial, two test entries DBW 296 and HUW 838 were tested and DBW 296 found significantly better than the best check NIAW 3170 with a yield gain of 2.44 per cent. In early sown high yield trial out of the five final year test entries viz. DBW 327, DBW 328, DBW 332, DBW 333 and WH 1252 were tested against the four checks. Out of these, one test entry DBW327 was found significantly better than the best check variety DBW 187 with a yield gain of 6.92 per cent. Two test entries namely DBW 332 and DBW 328 were found numerically better than the best check DBW 187 with a yield gain of 2.17 and 2.09 per cent, respectively.

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-DOS-LS	JKW 261	-	-	PBW 771	-	09
RIR-TS-TAS	DBW 296, HUW 838	-	DBW 296	NIAW 3170	2.44	08
SPL-IR-ES-HYPT	DBW 327, DBW 328, DBW 332, DBW 333, WH 1252	-	DBW 327	DBW 187	6.92	04
		DBW 332	-	DBW 187	2.17	
		DBW 328	-	DBW 187	2.09	
Central Zone						
IR-DOS-TAD	GW 513, HI 1636	-	HI 1636	GW 322	4.44	08
		HI 1636	-	HI 8713(dc)	1.31	
RIR-TS-TAD	HI 8823(d)		HI 8823(d)	DDW 47(d)	2.91	06
SPL-IR-ES-HYPT	DBW 327, DBW 328, DBW 332, DBW 333, WH 1252	-	DBW 327	HD 3086	4.68	02
		-	DBW 333		4.30	
		DBW 328	-	HD 3086	0.86	
Peninsular Zone						
RIR-TS-TAD	MP 1358	-	MP 1358	NIAW 3170	14.04	02
				NIDW 1149(dc)	12.54	

In Central Zone, two test entries GW 513 and HI 1636 were tested against *durum* and *aestivum* checks in irrigated timely sown conditions. The genotype HI 1636 was found significantly superior to the best *aestivum* check variety GW 322 and numerically superior to the *durum* best check HI 8713 (dc) with a yield gain of 4.44

and 1.31 percent, respectively. In RIR trial, one test entry HI 8823(d) was evaluated and found significantly superior to the *durum* best check DDW 47(d) with a yield gain of 2.91 per cent.

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

Trial Series	Locations	Trials conducted	Trials not conducted	
			Number	Centres
Northern Hill Zone				
SPL-1: Fine tuning of sowing and nutrient management	05	02	03	Almora, Khudwani, Shimla
SPL-2: Effect of seaweed extract	02	02	–	۔
SPL-4: Optimisation of NPK doses	05	03	02	Almora, Shimla
Total	**12**	**07**	**05**	
North Western Plains Zone				
SPL-1: Fine tuning of sowing and nutrient management	10	08	02	Delhi, Sriganganagar
SPL-2: Effect of seaweed extract	04	04	–	
SPL-4: Optimisation of NPK doses	10	08	02	Delhi, Sriganganagar
SPL-5: Lodging management in *dicoccum* wheat	01	01	–	
Total	**25**	**21**	**04**	
North Eastern Plains Zone				
SPL-1: Fine tuning of sowing and nutrient management	11	06	05	Coochbehar, Faizabad, IARI Pusa, RPCAU Pusa, Varanasi
SPL-2: Effect of seaweed extract	04	04	–	–
SPL-3: Effect of surface seeding	06	06	–	–
SPL-4: Optimisation of NPK doses	11	11	–	–
Total	**32**	**27**	**05**	
Central Zone				
SPL-1: Fine tuning of sowing and nutrient management	08	08	–	–
SPL-2: Effect of seaweed extract	02	02	–	–
SPL-4 Optimisation of NPK doses	08	08	–	–
Total	**18**	**18**	**–**	
Peninsular Zone				
SPL-1: Fine tuning of sowing and nutrient management	05	02	03	Akola, Niphad, Washim
SPL-2: Effect of seaweed extract	02	02	–	–
SPL-4 Optimisation of NPK doses	05	03	02	Akola, Washim
SPL-5: Lodging management in *dicoccum* wheat	03	03	–	-
SPL-6: RCT in soybean-wheat	03	03	–	–
SPL-7: Precision NM through fertigation	01	01	–	–
Total	**19**	**14**	**05**	
Total Trials	**106**	**87**	**19**	

In early sown high yield trial five final year test entries viz. DBW 327, DBW 328, DBW 332, DBW 333 and WH 1252 were tested against the four checks. Out of these, two test entries DBW 327 and DBW 333 were found significantly better than the best check HD 3086 with a yield gain of 4.68 and 4.30 per cent, respectively. One test entry namely DBW 328 was found numerically better than the best check HD 3086 with a yield gain of 0.86 per cent.

In PZ, under RIR trial one test genotype namely MP 1358 was tested against *aestivum* and *durum* checks. This entry was found significantly superior to best *aestivum* check NIAW 3170 and *durum* check NIDW 1149 (dc) with a yield gain of 14.04 and 12.54 per cent respectively.

The details of the special trials conducted in different zones are presented in Table 3. In all, 106 trials were proposed, out of which 86 were conducted and the conduct percentage was 82.1. The maximum numbers of special trials were conducted in NEPZ (27) followed by NWPZ (21), CZ (18), PZ (14) and NHZ (7).

NORTH WESTERN 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;

In late sown conditions, one test entry, JKW 261 was evaluated against four checks *viz*. DBW 173, WH 1124, HD 3059 and PBW 771 at nine locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar) under late (10th December to 16th December) and very late (1st January to 7th January) sown conditions. The pooled analysis showed significant effect of sowing time and genotypes on yield (Fig.1). Late sowing gave higher productivity of all genotypes compared to very late sowing and on an average yield declined by 20.8% when sowing was delayed from late to very late situations. Mean basis, the check genotypes PBW 771 was the top yielder and recorded significantly higher yield compared to all checks. The test entry JKW 261 was at par with the second best check genotype HD 3059 but both were significantly superior to two other checks.

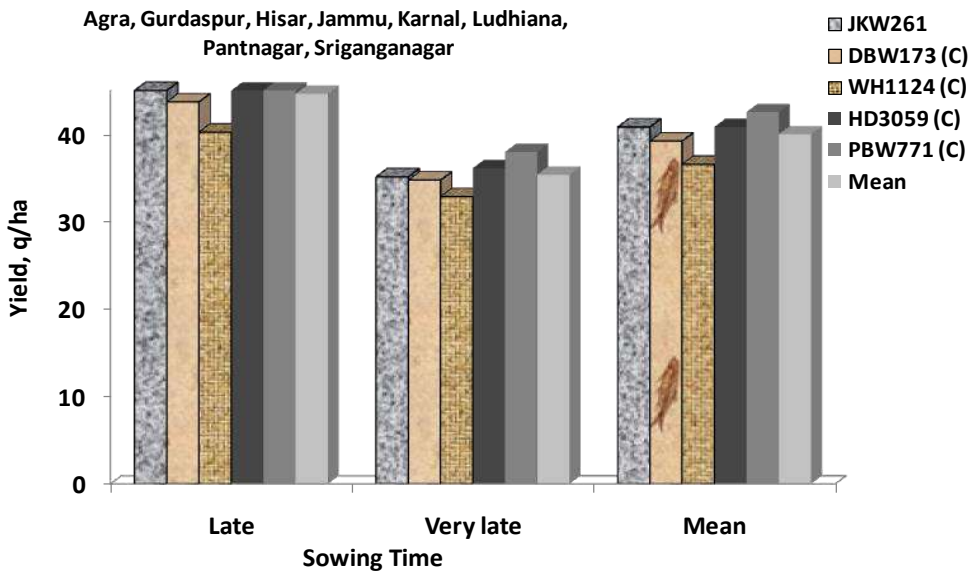

Fig. 1. Genotypes performance under late sown conditions in NWPZ

In restricted irrigation trial, two test entries namely DBW 296 and HUW 838 were evaluated against five checks [HI 1628 (c), NIAW 3170(c), WH 1142(c), HD 3043(c), PBW 644(c)] at no irrigation, one irrigation (CRI stage) and two irrigations (CRI and boot stage). The trial was conducted at nine locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). For pooled analysis,

Durgapura centre data were not included due to low mean yield and rest eight centre data were pooled for statistical analysis. The pooled analysis showed that increasing number of irrigations successively gave significantly higher grain yield (Fig. 2). Maximum and significantly higher grain yield (49.26 q/ha) was obtained with two irrigations as compared with zero and one irrigations levels. The test entry DBW 296 produced significantly higher mean grain yield (47.41 q/ha) than other entries and checks. Among check genotypes, NIAW 3170 produced significantly higher yield (46.28 q/ha) on mean basis. Irrigation level and genotypes interaction was significant for grain yield.

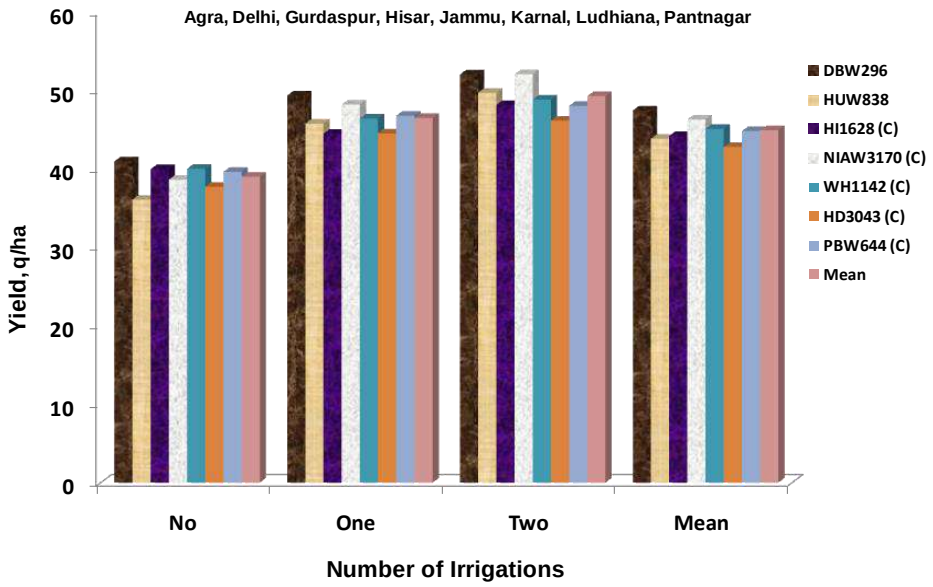

Fig. 2. Genotypes performance under restricted irrigations in NWPZ

High Yield Potential Trial

This experiment was conducted for maximising the wheat productivity with target yield of 8 t/ha by using higher level of inorganic and organic fertilisers combined with spraying of growth retardant to control lodging. This experiment consists of two nutrient management treatments {recommended doses of fertilizers (RDF) 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 stages} in main plots and 16 high yielding wheat genotypes in sub plots. The experiment was conducted at six centres (Gurdaspur, Hisar, Karnal, Ludhiana, BISA Ladowal and Pantnagar) but for pooled analysis the data of only four centres

(Gurdaspur, Karnal, Ludhiana, BISA Ladowal) were considered and presented in Fig. 3. The data showed significant effect of fertiliser application and growth regulators on wheat productivity. The grain yield enhanced significantly with increased fertiliser doses. Addition of 150% RDF and two sprays of growth retardants increased the grain yield (67.60 q/ha) significantly as compared to RDF (61.47 q/ha). This increase was to the tune of 10.0% over RDF. Genotype DBW 327 ranked first on mean yield basis with yield of 69.69 q/ha, which was significantly higher than other genotypes. This genotype also yielded 72.91 q/ha under 150% RDF + 15 t FYM/ha + two sprays of growth regulators. The second and third ranked high yielding genotypes were PBW 872 (67.83 q/ha) and DBW 370 (67.10 q/ha), respectively, on mean yield basis.

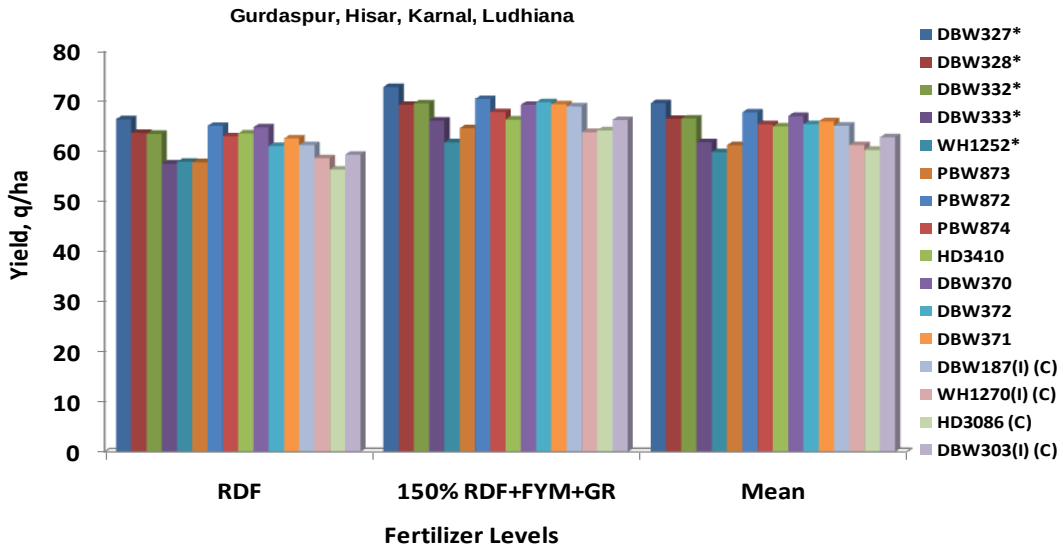

Fig. 3. Genotypes evaluation for high yield potential in NWPZ

CENTRAL ZONE

In Central Zone, two coordinated trials (evaluation of genotypes under different sowing dates and evaluation of genotypes under restricted irrigation) were conducted to evaluate the performance of new genotypes as compared to existing varieties as checks. In addition to this one special coordinated high yield potential trial was conducted to evaluate wheat genotypes with an objective of finalising the package of practices for achieving target productivity of 8 t/ha.

In date of sowing trial, two test entries *viz.* GW 513 and HI 1636 were evaluated against three checks {GW322, HI1544, HI8713(d)} at eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Pawarkheda, Udaipur and Vijapur) under

timely and late sown conditions. Yield decline in late sown condition was 10.87 % as compared to timely sown condition. Test entry HI 1636 ranked first on average basis as well as in late sown condition whereas it ranked second under timely sown conditions (Fig. 4).

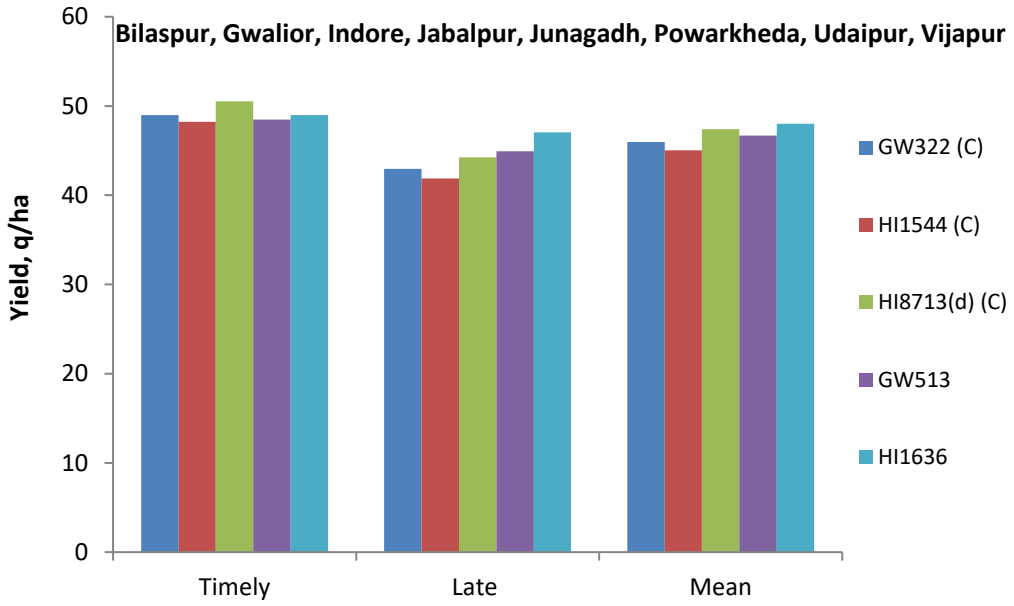

Fig. 4. Genotypes performance under different sowing conditions in CZ

In RIR trial, one test entry (HI 8823) was evaluated against four check varieties under restricted irrigation conditions. Trials were conducted at seven locations (Bilaspur, Gwalior, Indore, Jabalpur, Pawarkheda, Udaipur and Vijapur) under three irrigation levels (zero, one and two) with an objective to evaluate the performance of timely sown genotypes at different irrigation schedules.

The data of Udaipur centre were not included in pooled analysis due to low trial mean yield. One and two irrigation application gave 22.9 and 36.1% higher grain yield, respectively, over no irrigation (Fig. 5). The test entry HI 8823 (d) ranked first and produced significantly higher grain yield (31.73 q/ha) than the best check variety DDW 47 (d) (30.83 q/ha) which was ranked second on average yield basis.

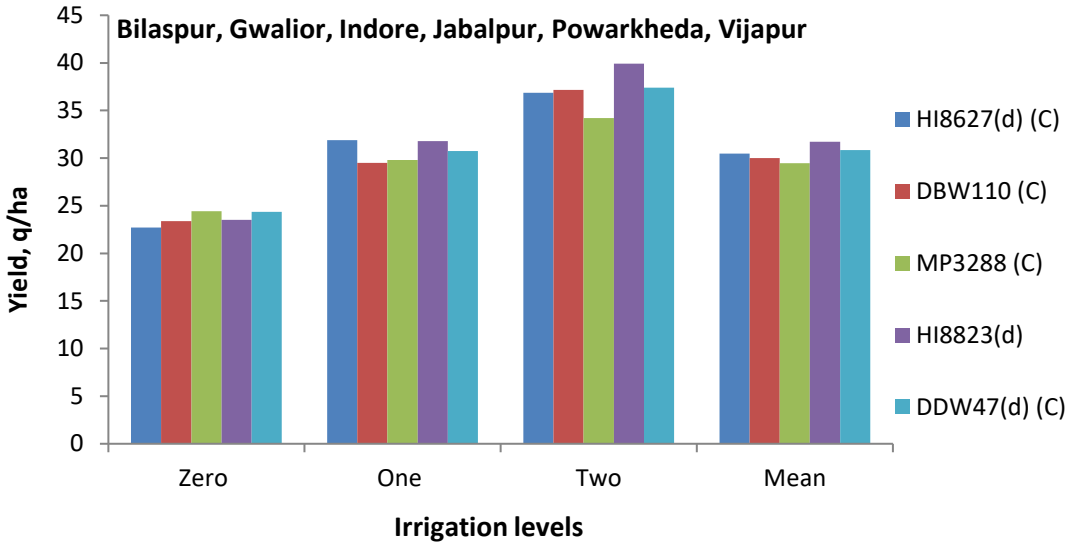

Fig. 5. Genotypes performance under restricted irrigations in CZ

HYPT trial was conducted at four locations (Gwalior, Jabalpur, Udaipur and Vijapur) to test 16 high yield potential genotypes under different nutrient management options. The data of Udaipur centre were not included in pooled analysis due to improper data reporting and data of Vijapur centre were not included due to low mean yield. The pooled analysis of data (Fig. 6) showed that 150% NPK + FYM 15 ton +GR gave 6.76 % higher grain yield (63.58 q/ha) over RDF (59.28 q/ha). On mean yield basis genotype DBW 370 ranked first and produced significantly higher grain yield (64.94 q/ha) followed by DBW 327 (64.82 q/ha).

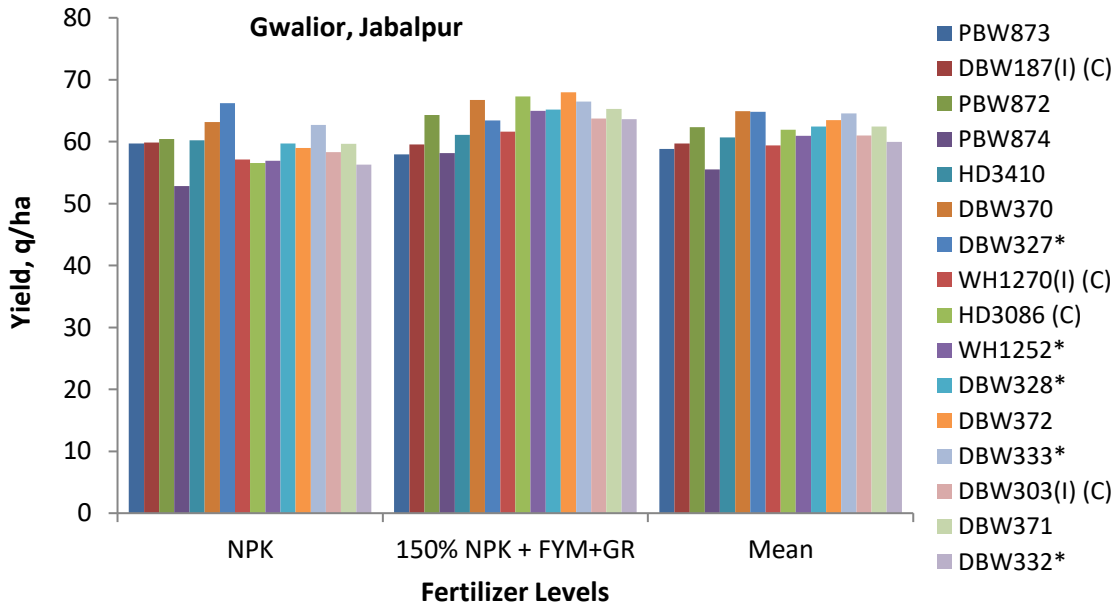

Fig. 6. Genotypes evaluation for high yield potential in CZ

PENINSULAR ZONE

In Peninsular Zone, one varietal evaluation trial (restricted irrigation) was conducted to evaluate the performance of new genotypes as compared to existing varieties as checks.The performance of one *aestivum* test entry (MP 1358) against five checks {NIDW 1149(d), NIAW 3170, AKDW 2997-16(d), HI 1605, UAS 446(d)} was evaluated at three locations (Dharwad, Niphad and Pune) under no, one and two irrigation levels. The perusal of pooled data for Dharwad and Pune indicated that grain yield significantly increased on shifting from no irrigation to one irrigation level (Fig. 7). The grain yield under two irrigation levels was at par with one irrigation level. The mean grain yield under no, one and two irrigations was recorded to be 25.98, 29.64 and 29.30 q/ha, respectively. In one irrigation level, test entry MP 1358 performed superior over the best checks {NIDW 1149(d) and NIAW 3170}. The mean yield of MP 1358 was 28.6 and 12.5%; 23.8 and 14.0% higher than the yield of best checks NIDW 1149(d) and NIAW 3170 under one irrigation and overall basis, respectively.

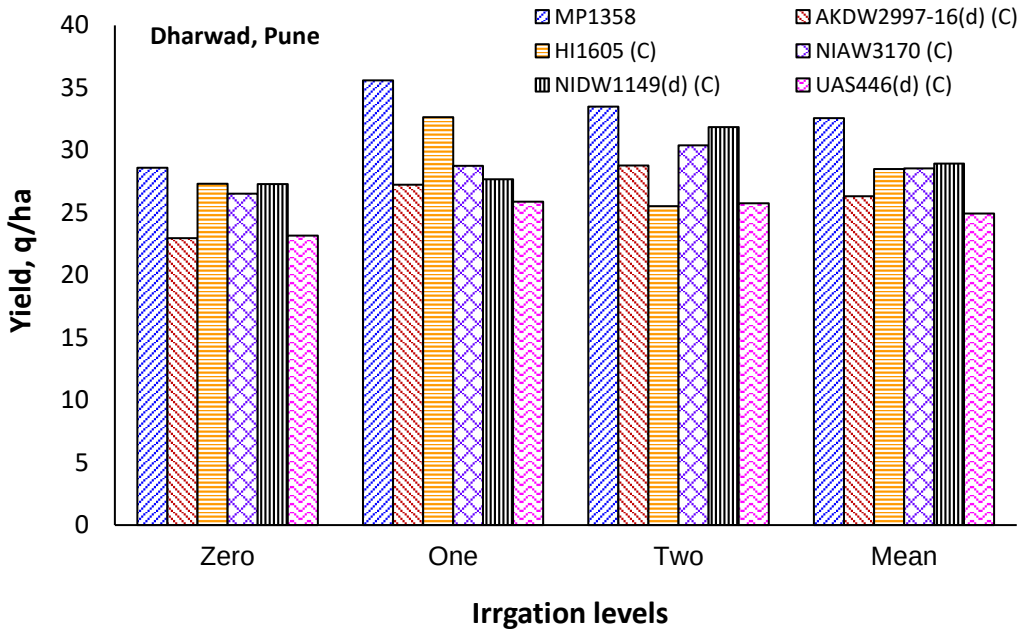

Fig. 7. Genotypes performance under restricted irrigations in PZ

PRODUCTION TECHNOLOGIES

Various special coordinated trials on optimising the sowing time in different zones, effect of seaweed extract, effect of surface seeding/ seed priming, optimisation of fertiliser doses in wheat, lodging management in *dicoccum* wheat, RCTs in

soybean-wheat and precision nutrient management through fertigation were conducted to address the various issues in different wheat growing zones.

SPL-1: Maximizing wheat productivity by fine tuning sowing time and fertilizers

Both major and micro nutrients as well as optimum sowing time play an important role in realizing the maximum yield potential of the crop. For exploring the role of higher nutrients with growth regulators and optimising the sowing time in improving productivity and nutrient usage in wheat under wheat based cropping systems field trials were conducted across the wheat growing zones. Hence, this experiment was conducted to maximize the wheat productivity by response of varieties to early sowing and higher fertilization under climatic variations.

The trial was laid out in a split plot design with sowing time (25th October, 05th November, 15th November and 25th November) in main plots and nutrient management {Recommended fertilizer dose (RFD), 150% RFD+ FYM 15 t/ha and 150% RFD+ FYM 15 t/ha + growth regulators (GR)} in sub plots with three replications. Two sprays of GR as tank mix-Chlormequat chloride (Lihocin) @0.2% + tebuconazole (Folicur 430 SC) @0.1% of commercial product dose at first node and flag leaf stages were done. 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. One third nitrogen, full phosphorus and potash as basal dose as per treatments and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and 1/3rd at second irrigation.

In NHZ, this trial was conducted at two locations (Bajaura and Malan) and pooled analyzed data revealed that significantly average maximum wheat grain yield (51.32 q/ha) was obtained by application of 150% RFD + GR owing to improvement in the earhead density and thousand grains weight (Fig. 8). Sowing on 25th October and 5th November produced significantly higher grain yield than 15th November and 25th November.

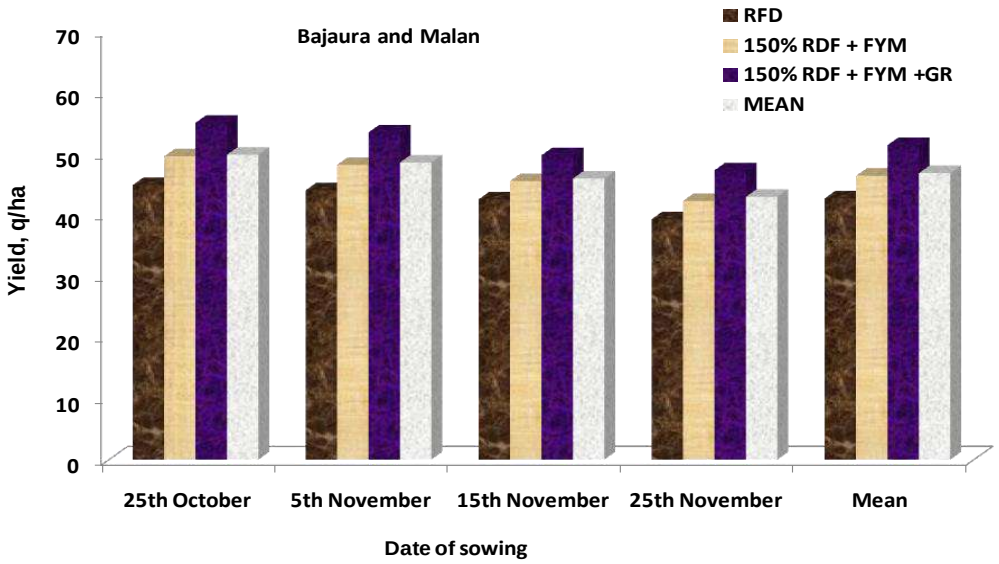

Fig. 8. Maximizing wheat productivity through sowing time and fertilizer in NHZ

In NWPZ, this trial was conducted at eight locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). For pooled analysis the data of Agra were not considered due to unrealistic response compared to other centres. The pooled analysis data (Fig. 9) revealed that the maximum wheat grain yield (57.75 q/ha) was obtained by application of 150% RFD + FYM 15 t/ha + GR owing to more earheads/m^2 and thousand grain weight. Early sowing (25th October to 5th November) resulted in significantly higher grain yield as compared to delayed sowing (15th and 25th November). Grain yield reduction in 15th and 25th November sowing was 4.6 per cent and 11.3 per cent, respectively, as compared to 5th November sowing.

Fig. 9. Maximizing wheat productivity through sowing time and fertilizer in NWPZ

In NEPZ, this experiment was conducted at six locations (Burdwan, Kalyani, Kanpur, Ranchi, Sabour and Shillongani). The pooled analyzed data of these centres except Ranchi and Sabour presented in Fig. 10 revealed that the maximum grain yield (42.22 q/ha) was obtained by application of 150% RFD + FYM 15 t/ha + GR. Similar results were obtained at Sabour, whereas in Ranchi maximum grain yield was realized by application of 150% RFD + FYM 15 t/ha. The increase in nutrient application over recommended rate caused an increase of 6.4 to 12 percent in wheat yield. Sowing on 15th November resulted in significantly higher grain yield compared to 25th October and 25th November sowing based on pooled data analysis.

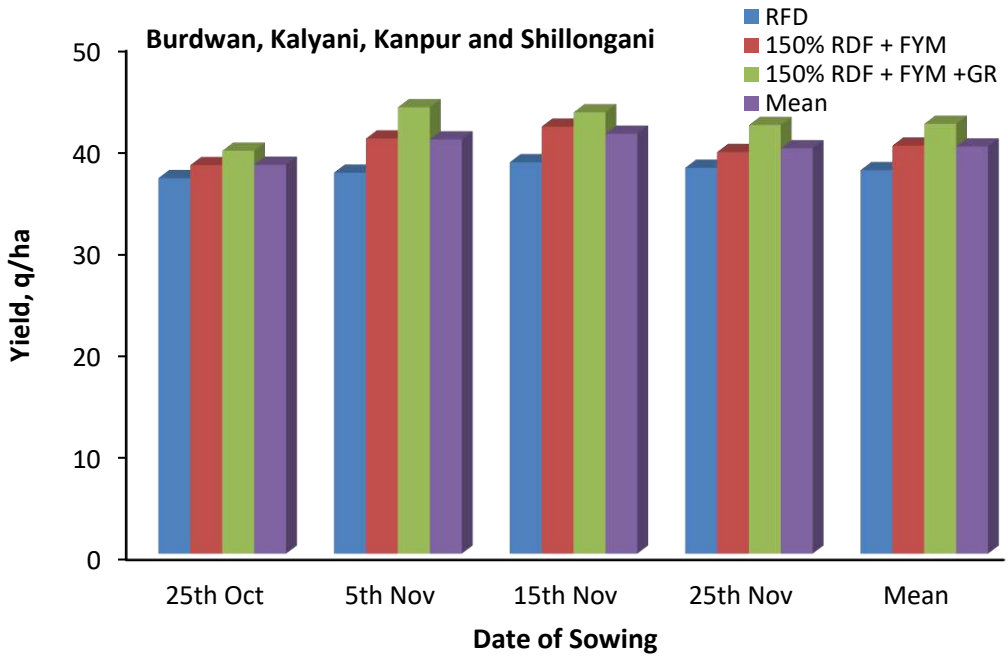

Fig.10. Maximizing wheat productivity through sowing time and fertilizer in NEPZ

In CZ, this trial was conducted at seven centres out of which six centres (Bilaspur, Gwalior, Jabalpur, Pawarkheda Udaipur and Vijapur) had four dates of sowing (Fig. 11) and one centre (Junagadh) had three dates of sowing (Fig. 12). The data of Udaipur centre was not included in pooled analysis due to improper data reporting. The pooled data revealed that third date of sowing (15th November) was the best suited sowing date for all nutrient management options which produced the maximum (52.76 q/ha) and significantly higher grain yield than other dates of sowing. Among nutrient management options, 150% RFD + FYM 15 t/ha + GR was found significantly superior with 51.29 q/ha grain yield over other options.

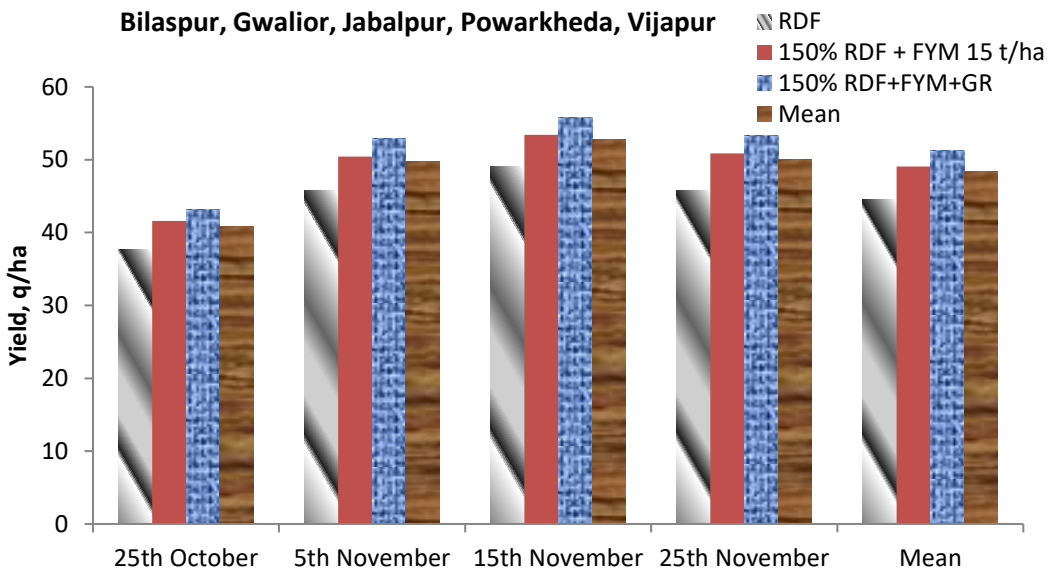

Fig. 11. Maximizing wheat productivity through sowing time and fertilizer in CZ

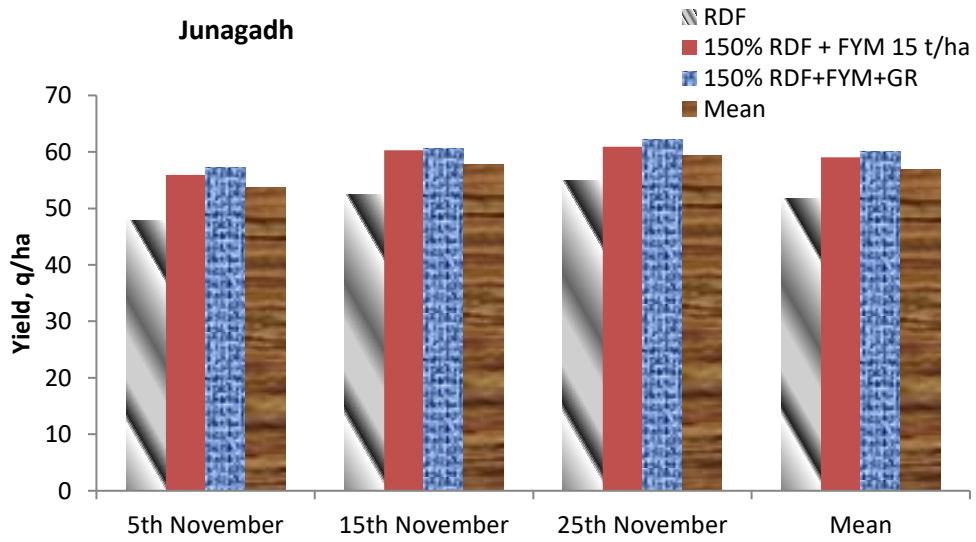

Fig. 12. Maximizing wheat productivity through sowing time and fertilizer in CZ

The results of Junagadh centre revealed that 25th November is the best time for wheat sowing (Fig. 12) which produced higher grain yield (59.36 q/ha) than earlier dates of sowing. Among nutrient management options, 150% RFD + FYM 15 t/ha + GR was significantly higher grain yield (59.99 q/ha) over other nutrient management options.

In Peninsular Zone, this trial was conducted at Dharwad and Pune centre. The data of Dharwad centre were rejected due to inappropriate data. The results of Pune centre are presented in Fig. 13. It was found that effect of sowing time and fertilizer on wheat yield was insignificant. Overall, the addition of FYM and growth regulator with RDF could not make any significant change.

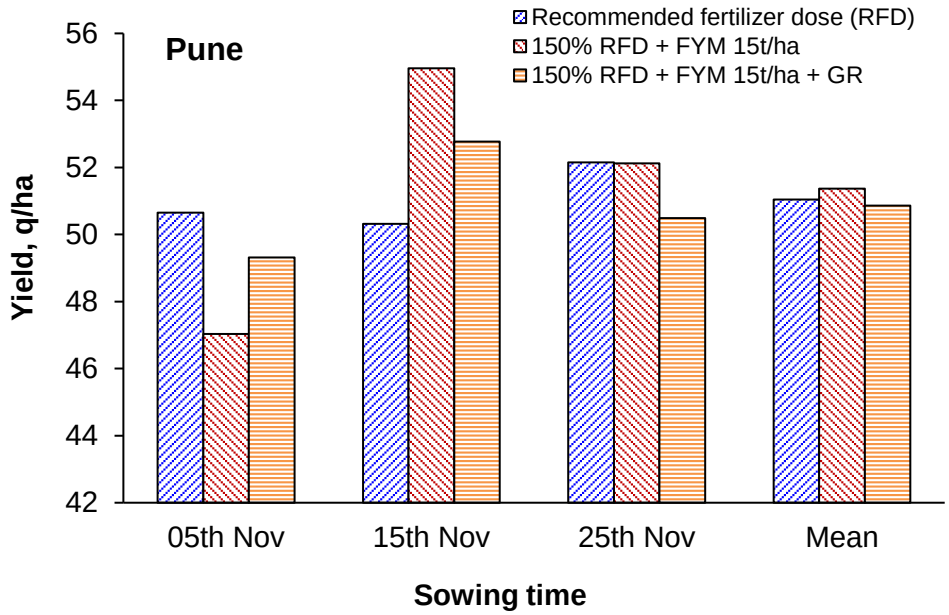

Fig. 13. Maximizing wheat productivity through sowing time and fertilizer in PZ

SPL-2: Sea weed extract usage in wheat

Sea weed is an important naturally occurring plant nutrients source, and hence its extract is being explored for supplying a variety of naturally available plant nutrients which may play a key role in realizing wheat crop yield potential and thus, making the best out of waste. For exploring the role of sea weed extract in wheat, a field trial was conducted across the wheat growing zones.

In NHZ, this experiment was conducted at two locations (Bajaura and Malan) and perusal of pooled data revealed that maximum wheat grain yield (47.44 q/ha) was obtained in treatment where wheat crop seeds were treated with sea weed extract followed by two foliar spray of sea weed extract @4ml/litre of water at tillering and heading owing to better earhead density (410/sq.m.), heavier grains (43.22 g/1000 grains weight), more number of grains per earhead (27.21) and the higher biomass production (110 q/ha). Seed treatment with sea weed extract at the rate of 3.0 ml per kg of seed before sowing of the crop also resulted in significantly higher yield and yield attributes as well as biomass production (Fig. 14) as compared to control (without seed treatment).

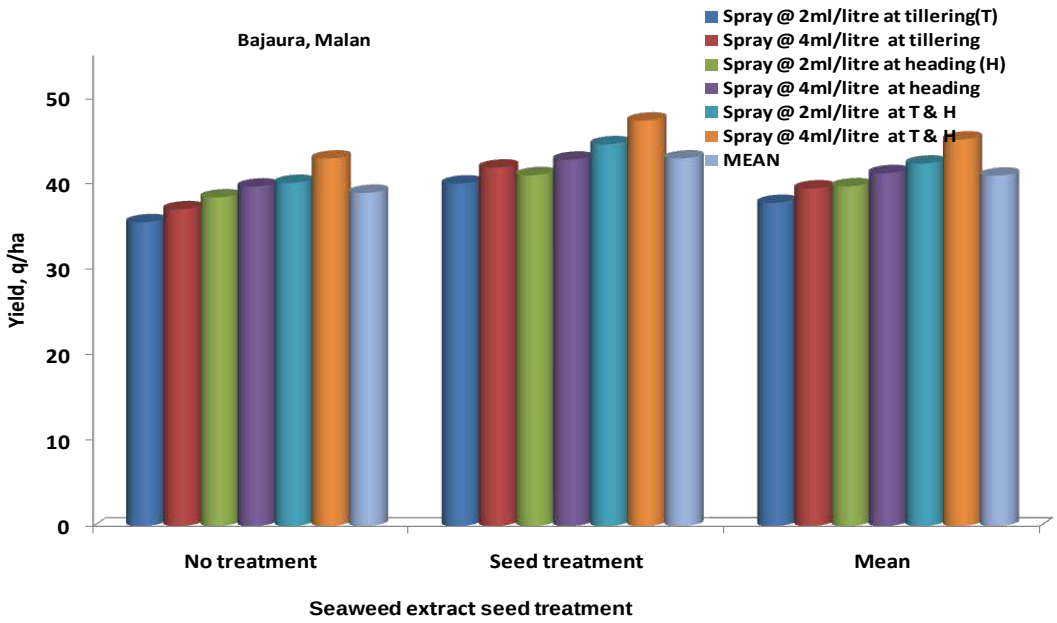

Fig. 14. Effect of seaweed extract on wheat productivity in NHZ

In NWPZ, this experiment was conducted at four locations (Agra, Durgapura, Gurdarpur and Jammu). The perusal of pooled analysis data (Fig. 15) revealed that seed treatment with seaweed extract caused significant improvement in grain yield (53.05 q/ha) compared to untreated control (49.48 q/ha). Among foliar spray treatments, two spray of seaweed extract at tillering and heading using either 2ml/lit or 4 ml/lit recorded better yield compared to when sprayed either at tillering or heading stage.

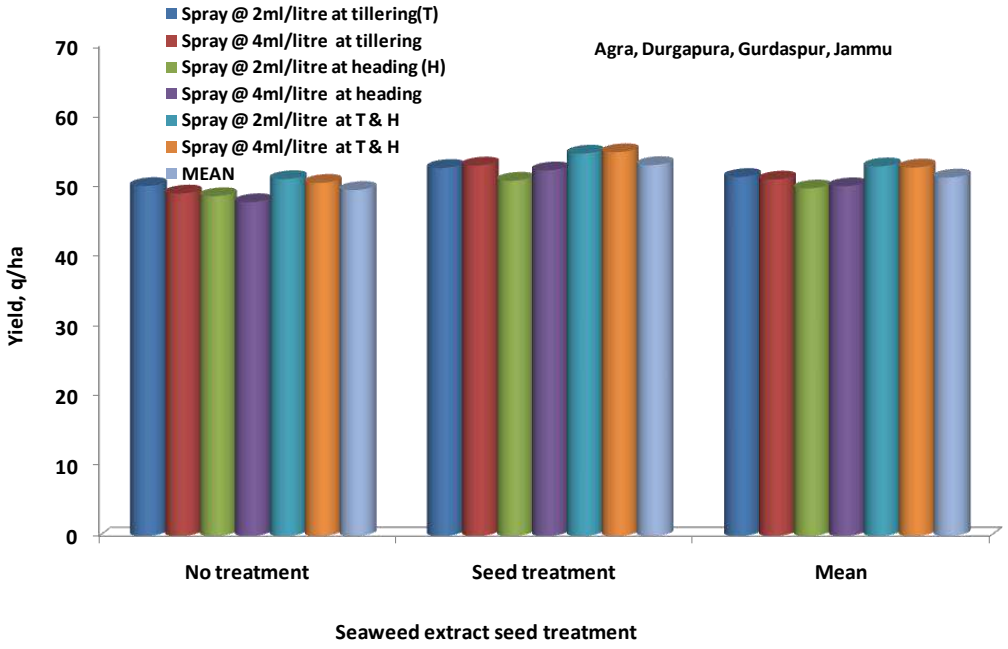

Fig. 15. Effect of seaweed extract on wheat productivity in NWPZ

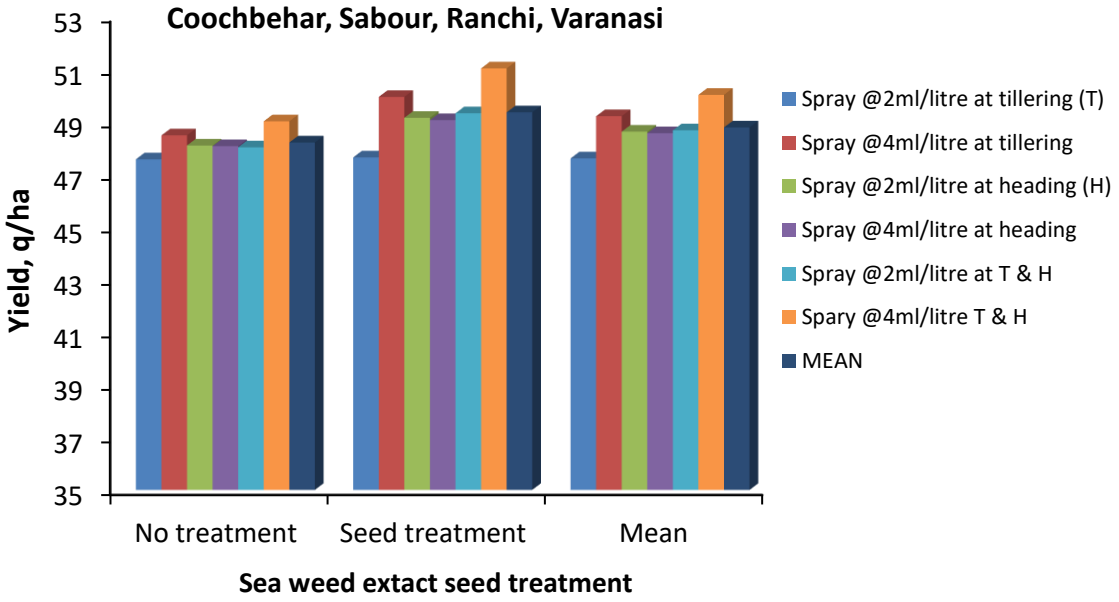

Fig. 16. Effect of seaweed extract on wheat productivity in NEPZ

In NEPZ, pooled data of this experiment conducted at four locations (Coochbehar, Sabour, Ranchi and Varanasi) revealed that the maximum grain yield (50.02 q/ha) was obtained by foliar application of seaweed extract @ 4ml/litre water at tillering & heading stages (Fig. 16). However, the effect of foliar application of seaweed extract at different doses and time on yield was at par among themselves.

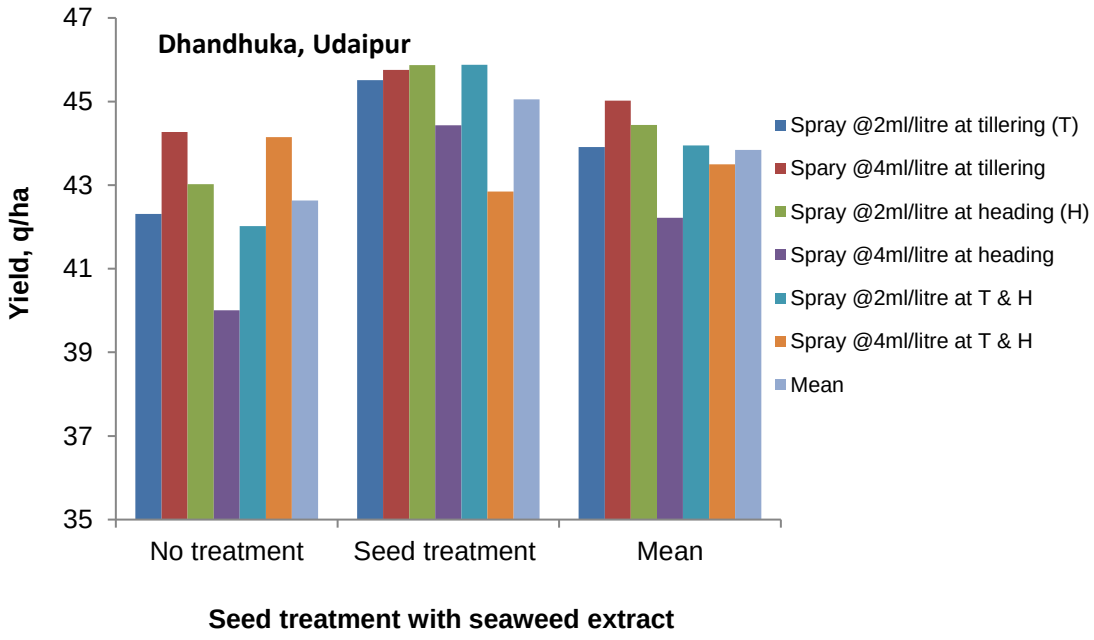

Fig. 17. Effect of seaweed extract on wheat productivity in CZ

In CZ, pooled data of this experiment conducted at two locations (Dhandhuka and Udaipur) revealed that maximum grain yield was obtained with seed treatment @ 3ml/kg seed (45.05 q/ha) over no seed treatment (42.63 q/ha) but statistically remained at par (Fig. 17). The effect of foliar application of seaweed extract at different doses and time on yield was at par among themselves.

In Peninsular Zone, the trial was followed at Dharwad and Niphad centre. The data of Dharwad centre were rejected due to improper data reporting. The results of Niphad centre revealed that seed treatment and foliar application of seaweed extract had significant effects on wheat yield (Fig. 18). The maximum wheat yield of 51.19 q/ha was observed with treatment having foliar application of seaweed extract @4ml/litre water at tillering & heading + seed treatment.

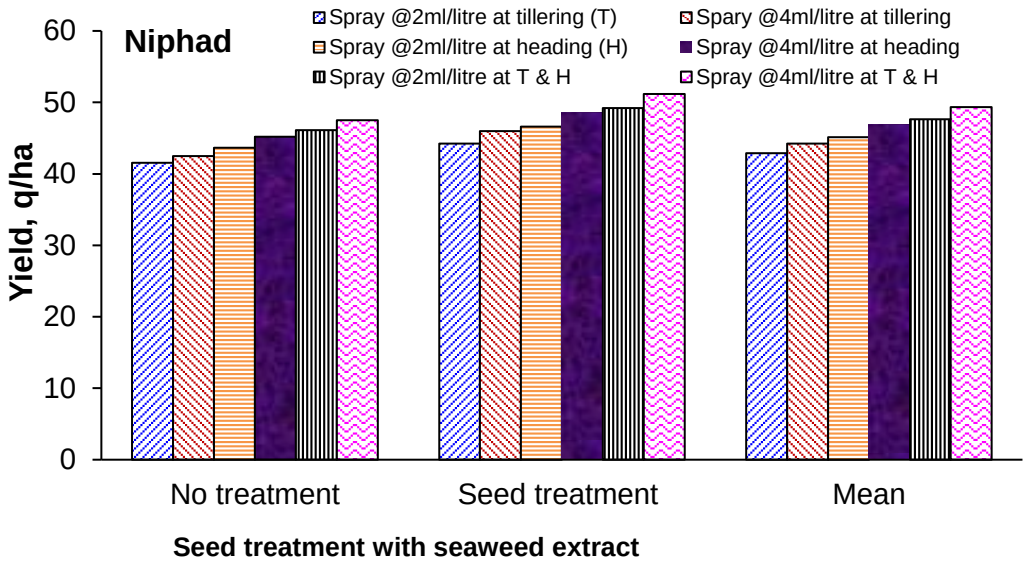

Fig. 18. Effect of seaweed extract on wheat productivity in PZ

SPL-3: Exploring surface seeding, seed priming and seed rate in NEPZ

In NEPZ, this experiment was conducted to explore the possibility of surface seeding for timely sowing of wheat to maximize the productivity in situations where fields remain wet for longer periods. This trial was conducted at six locations (Ayodhya, IARI Pusa, Kanpur, RPCAU Pusa, Sabour and Varanasi). The pooled analysis data of all the locations are presented in Fig. 19. The seed priming with 1% KNO_3 @150 kg/ha resulted in the highest wheat grain yield (45.35 q/ha) which was significantly higher than all other treatments except seed priming @1% KNO_3 having 125 kg/ha seed rate. In comparison to dry seed-surface seeding, all the treatments produced

significantly higher grain yield except soaked seed-surface seeding at lower seed rate (100 kg/ha).

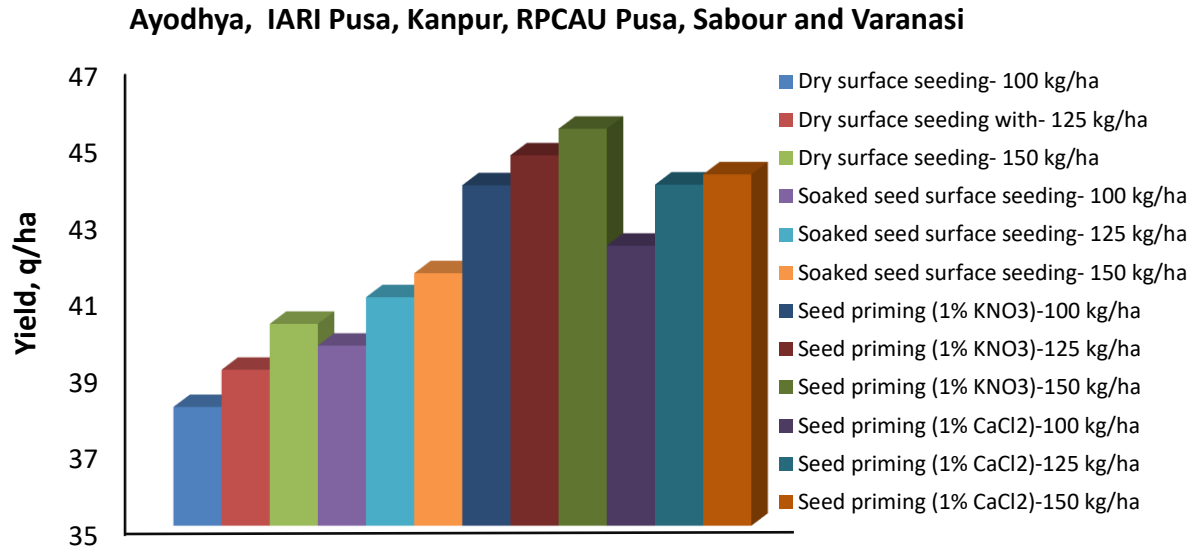

Fig.19. Effect of surface seeding, seed priming and rate on wheat yield in NEPZ

SPL- 4: Optimisation of NPK doses for high yield potential

Nitrogen, phosphorous and potash are main plant nutrients required in large quantity and respond to their application in majority of the Indian soils. Absence of nitrogen even inhibits the utilization of phosphorus, potash and other minor and micro nutrients. For exploring the optimization of NPK doses this trial was conducted across the zones. This experiment was conducted to maximize wheat productivity by optimizing the nitrogen dose. The experiment was laid out in randomised complete block design with ten fertilizer treatments *viz.* absolute control, 50, 75, 100, 125 and 150 % recommended dose of NPK, 125 and 150 % recommended dose of NPK with growth regulators spray at first node and boot leaf stage.

In NHZ, this trial was conducted at three locations namely Bajaura, Khudwani and Malan but Khudwani centre data were not considered due to late arrival. The pooled analysis of two centers (Bajaura, and Malan) clearly revealed that the highest wheat grain yield (49.57 q/ha) was obtained by applying 150 % recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stage (Fig. 20). The second best treatment was the application of 100% recommended NPK fertilizer with

GR, which produced 47.25 q/ha. The yield gain over 100 % recommended dose of NPK was 4.6%.

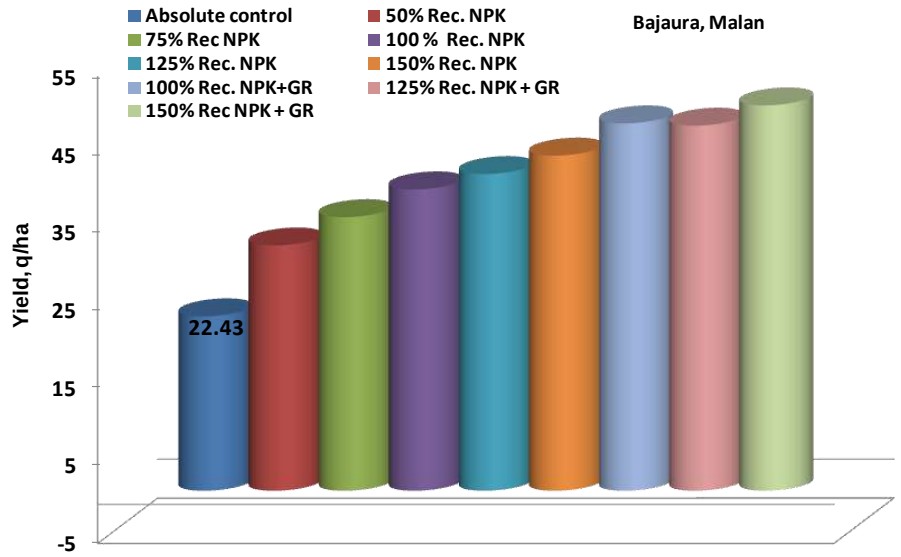

Fig. 20. Optimisation of fertilizer doses for high yield potential in NHZ

In NWPZ, this experiment was conducted at eight locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). The Karnal centre data were not included in pooled analysis due to different set of treatments. The pooled analysis data presented in Fig. 21 clearly revealed that maximum mean wheat grain yield (56.50 q/ha) was obtained by applying 150% recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stage but was at par with other treatments having 125% Rec NPK or more. The yield increased with the increase in

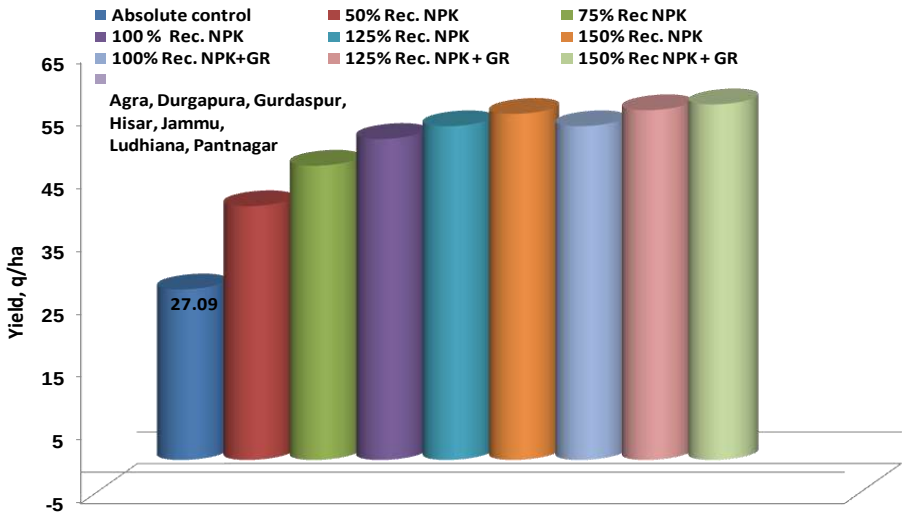

Fig. 21. Optimization of fertilizer dose for high yield in NWPZ

fertilizer rate over RDF and it ranged from 4.0 to 10.8%. Two sprays of growth regulators at first node and boot leaf stage also resulted in slightly higher yield over only application of recommended dose of NPK.

In NEPZ, this trial was conducted at 11 locations (Ayodhya, Burdwan, Coochbehar, IARI Pusa, Kalyani, Kanpur, Ranchi, RPCAU Pusa, Sabour, Shillongani and Varanasi). The pooled analyzed data except Ayodhya revealed that the highest grain yield (49.2 q/ha) was obtained by applying 125% recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stage as compared to other treatments (Fig. 22). The yield gain over 100% recommended dose of NPK was 9.55%. The application of growth regulators at first node and boot leaf stage resulted in significantly higher grain yield and lower plant height over the same dose of NPK without growth regulators.

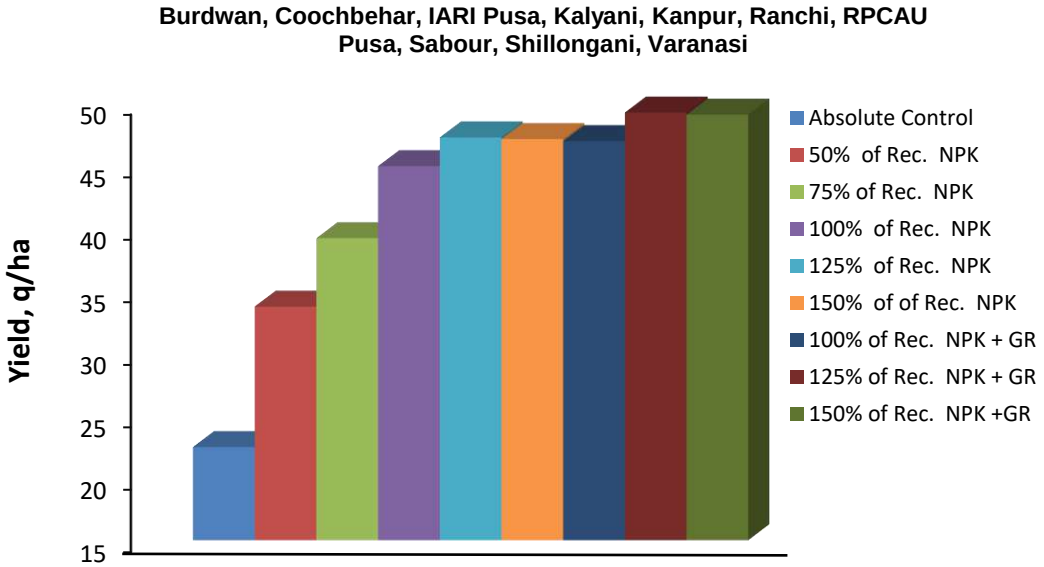

Fig. 22. Optimization of fertilizer dose for high yield in NEPZ

In CZ, this trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Pawarkheda, Udaipur, Vijapur). The data of Udaipur centre were not included in pooled analysis due to improper data reporting. The results revealed that the maximum yield (52.76 q/ha) was obtained with treatment having 150 percent recommended dose of NPK with growth regulators spray at first node and flag leaf stage (Fig. 23) followed by the treatments having 150 percent recommended dose of NPK (51.19 q/ha).

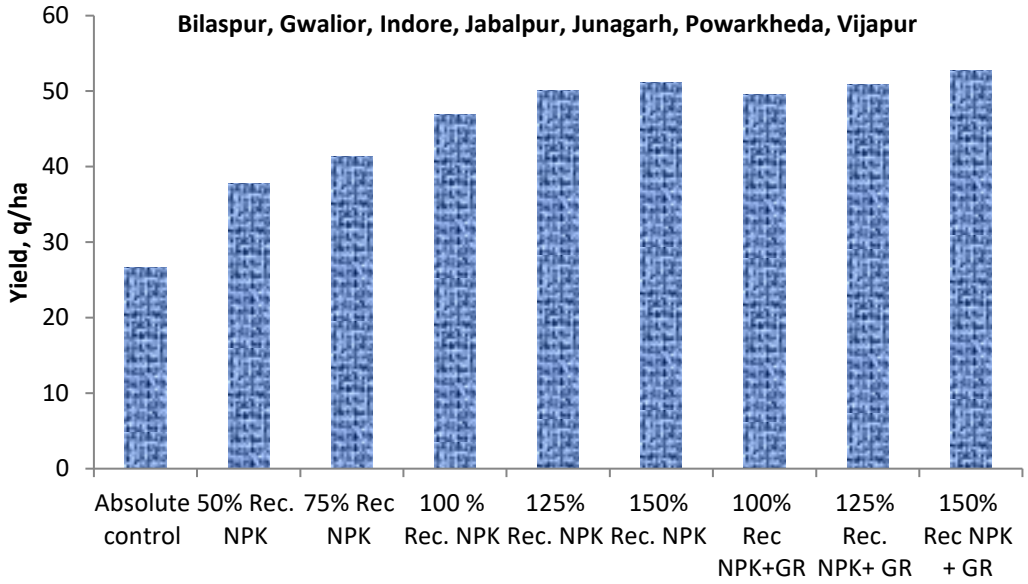

Fig. 23. Optimization of fertilizer dose for high yield in CZ

In Peninsular Zone, the trial was conducted at three centres (Dharwad, Niphad and Pune). The results presented in Fig. 24 revealed that wheat yield increased with NPK dose. The wheat yields with 100–150% recommended NPK + GR spray at first node and boot leaf stage were at par to treatment having 150% recommended dose of NPK. The highest yield of 46.17 q/ha was recorded with treatment having 150% recommended NPK + GR spray at first node and boot leaf stage followed by 45.11 q/ha with 150% recommended dose of NPK.

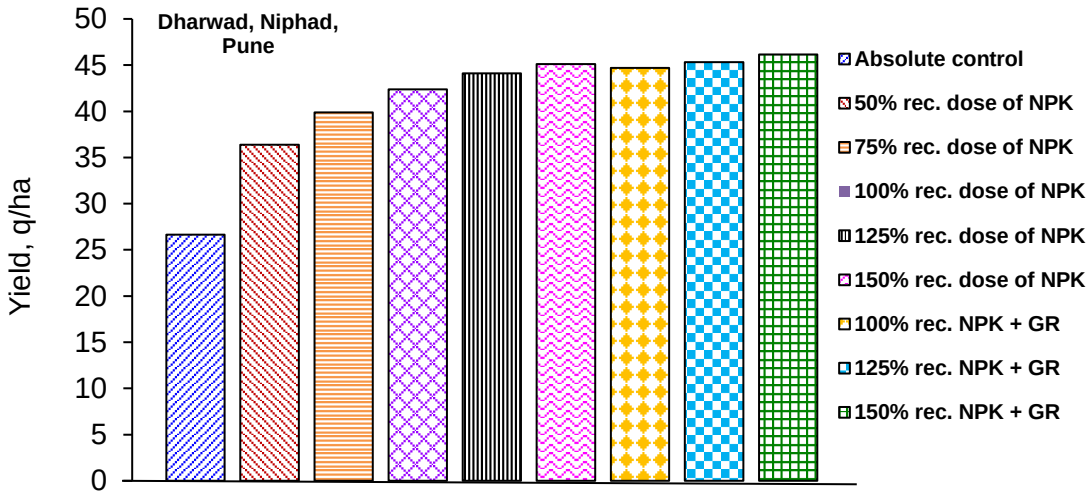

Fig. 24. Optimisation of fertilizer doses for high yield potential in PZ

SPL- 5: Lodging management for enhancing *dicoccum* wheat yield using PGR

In NWPZ, this experiment was conducted at Durgapura centre only to explore the possibility of reducing lodging for yield enhancement of *dicoccum* wheat using plant

growth regulators. The experiment was laid out in split plot design with three varieties (MACS 2971, DDK 1029 and HW 1098) in main plot treatments and five growth regulator treatments {G_1: Control; G_2: CCC (2 chloroethyl- trimethyl ammonium chloride) @ 1000 ppm; G_3: CCC @ 1500 ppm; G_4: Ethephon @ 10 ppm and G_5: Ethephon @ 30 ppm} in sub plots.

The data revealed that varietal differences were non-significant whereas, the effect of growth regulator was significant (Fig. 25). Among growth regulator treatments, the application of CCC @ 1500 ppm produced the maximum yield (41.20 q/ha) and it was at par with the lower rate of CCC @ 1000 ppm but significantly superior to control as well as both of the ethephon treatments.

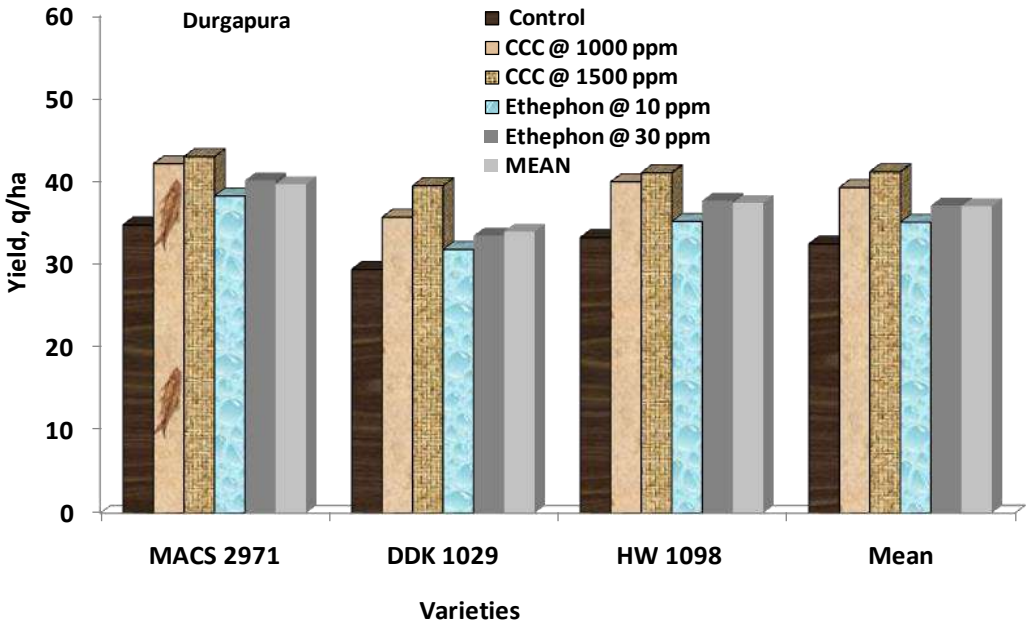

Fig. 25. Effect of PGR on *dicoccum* wheat in NWPZ

In Peninsular zone, this trial was conducted at three locations (Dharwad, Niphad and Pune). The data of Dharwad centre were rejected due to improper reporting. The pooled results (Niphad and Pune) revealed that the varietal effect on yield was insignificant (Fig. 26). The growth regulators produced significant effect on wheat yield. The maximum wheat yield (41.35 q/ha) was observed with the treatment having Ethephon @30 ppm followed by 40.39 and 39.13 q/ha for Ethephon @10 ppm and CCC @1500 ppm, respectively. The use of CCC @1000 ppm could not make any significant advantage in wheat yield. The use of Ethephon @10 ppm provided 18.08% advantage in wheat yield as compared to control (no growth regulator).

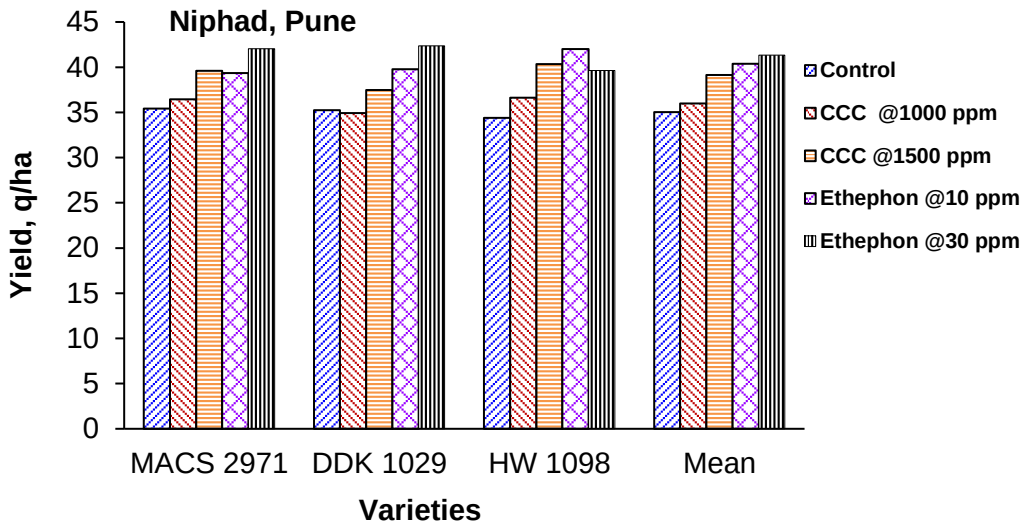

Fig. 26. Effect of PGR on *dicoccum* wheat in PZ

SPL-6: RCTs in soybean-wheat cropping system

In Peninsular Zone, this trial was conducted at three centres (Dharwad, Niphad and Pune). The data of Dharwad centre were rejected due to improper data reporting. The pooled results (Niphad and Pune) found that wheat yield on flat and broad bed under zero-till practice was significantly lower than that of CT-flat bed (Fig. 27). The wheat yield slightly improved under CT-broad bed; however, it was at par with CT-flat bed. The treatments having crop residue produced significantly higher yield than control treatment. The maximum mean wheat yield of 45.21 q/ha was recorded for the treatment having soybean + wheat residue @3t/ha, which was 7.08% higher than control treatment.

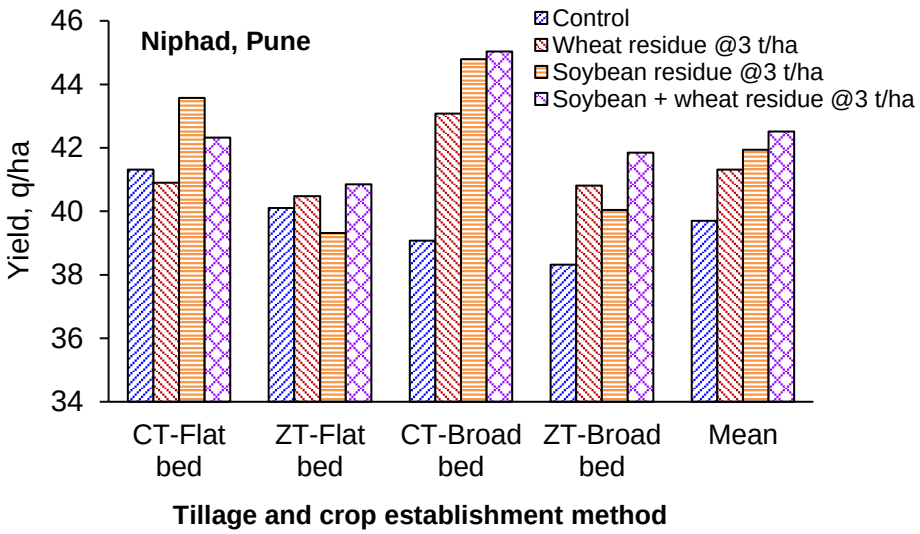

Fig. 27. Effect of RCTs on performance of soybean-wheat cropping system

Northern Hills Zone

The Northern Hills Zone represents Himachal Pradesh, parts of Jammu & Kashmir, Uttrakhand and North Eastern Hills. The three centres namely 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 have been reported in Annexure II. The rainfall was well distributed at all the locations; the highest rainfall of 378.4 mm was recorded at Bajaura during the crop growing period followed by 319.0 mm at Malan and 304.1 mm at Khudwani. The minimum and maximum temperatures were -1.9 ºC and 31.0 ºC at Bajaura, -8.5 ºC and 26.5 ºC at Khudwani, 5.5 ºC and 32.0 ºC at Malan, respectively. The soil data received from three centres (Bajaura, Khudwani and Malan) are presented in Annexure III. The texture of soil at all the three centres varied from silty loam to silty clay loam. The organic carbon content of Bajaura, Khudwani and Malan centres was 0.63, 1.15 and 0.77 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, three special coordinated trials on optimization of nutrient management, sea-weed extract seed treatment and foliar application, and yield maximization using growth regulators 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

The North Western Plains Zone (NWPZ) is the most important wheat growing zone of the country. In this zone, the areas covered are the states of Haryana, Punjab, Delhi, western UP, part of Rajasthan and Jammu area of J&K. Eleven centres in this zone namely Agra, Bisa Ludhiana, 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 0.28% 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 Jammu (206.0 mm) followed by Gurdaspur (146.1 mm), Karnal (113.0 mm), Delhi (82.0 mm), Ludhiana (79.8 mm), Hisar (43.6 mm), Durgapura (26.6 mm), Pantnagar (26.4 mm), Sriganganagar (24.3 mm) and the lowest amount of rain (9.0 mm) during the wheat crop season 2020-21 was received at Agra. The maximum and minimum temperatures at different locations were 39.3 ºC and 6.8 ºC at Agra, 36.9 and 3.3 ºC at Delhi, 38.2 and 6.0 ºC at Durgapura, 33.9 and 4.7 ºC at Gurdaspur, 37.0 ºC and 3.0 ºC at Hisar, 38.4 ºC and 2.7 ºC at Durgapura, 35.6 ºC and 2.9 ºC at Jammu, 35.9 ºC and 3.5 ºC at Karnal, 32.0 ºC and 3.5 ºC at Ludhiana, 36.8 and 4.1 ºC at Pantnagar, 38.6 ºC and 1.7 ºC at Sriganganagar, respectively. In this zone, three 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 test genotypes was evaluated under different sowing conditions, restricted irrigation conditions and at high fertility condition at different locations and the results are summarized here under;

Irrigated Late Sown

One test entry, JKW 261 was evaluated against four checks viz. DBW 173(c), WH 1124(c), HD 3059(c) and PBW 771(c) at nine locations (Agra, Durgapura,

Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar) under late (10th December to 16th December) and very late (1st January to 7th January) sown conditions. This trial was not conducted by the Delhi centre and Durgapura centre's data were not considered in pooled analysis due to low mean yield (<35 q/ha under late sown conditions). The trial was conducted in split plot design with dates of sowing in main plots and genotypes in sub plots. The sowing was done using the normalized (adjusted considering 1000 grains weight of 38 g) seed rate of 125 kg/ha at a row-to-row spacing of 20 cm. Nitrogen was applied in three splits (1/3rd at sowing, 1/3rd at first irrigation i.e. at 20-25 days after sowing and 1/3rd at second irrigation i.e. 40-45 days after sowing), whereas full phosphorus and potash was applied as basal.

The pooled data are presented in Table 2.2 and the centre wise data are in Annexure-I as Tables 2.2.1 to 2.2.9. The significant effect of sowing time and genotypes was observed on yield and yield attributes and interaction effects were also significant except for earhead density. Late sowing gave higher productivity of all genotypes compared to very late sowing and on an average, yield declined by 20.8% when sowing was delayed from late to very late situations. The yield decline was due to significant reduction in effective tillering, grains/earhead and grains weight under very late sown conditions as compared to late sown conditions. On an average basis, the check variety PBW 771 was the top yielder and recorded significantly higher yield compared to all checks. The test entry JKW 261 was at par with the second best check genotype HD 3059 but both were significantly superior to two other checks. The test entry JKW 261 had the highest effective tillering (380 earheads/sq.m). The highest grains/earhead were observed in check variety HD 3059 (33.2 grains/earhead) followed by DBW 173 (32.6 grains/earhead). The check variety PBW 771 also produced the boldest grains having mean 1000 grains weight of 37.80 g. The performance of genotypes at individual centres is presented in Table 2.2.1 to 2.2.9 in Annexure-I. The perusal of centre wise results indicated that the yield decline was the highest at Hisar (61.3%) followed by Sriganganagar (38.7%) and the lowest at Gurdaspur (7.2%) when sowing was delayed from second week of December to first week of January.

Table 2.1. North Western Plains Zone		IR-LS-TAS-DOS			Centrewise			Yield, q/ha		2020-21
Sowing time	**Genotype**	**Agra**	**Gurdaspur**	**Hisar**	**Jammu**	**Karnal**	**Ludhiana**	**Pantnagar**	**Sriganganagar**	**Zonal mean**
Late	JKW261	50.30	47.16	50.00	45.50	51.38	52.67	39.57	35.62	46.53
	DBW173 (C)	43.25	44.24	42.45	38.74	47.84	54.91	38.97	39.15	43.69
	WH1124 (C)	46.44	43.59	37.24	36.14	43.59	40.67	35.05	39.26	40.25
	HD3059 (C)	47.96	43.15	47.66	46.80	46.94	51.86	40.70	39.45	45.57
	PBW771 (C)	51.49	49.11	50.26	47.58	46.87	51.29	41.14	39.22	47.12
	Mean	47.89	45.45	45.52	42.95	47.32	50.28	39.09	38.54	44.63
Very Late	JKW261	39.97	41.77	20.83	36.40	47.35	44.87	28.67	21.15	35.13
	DBW173 (C)	33.28	41.74	21.35	37.96	49.57	35.49	34.64	23.95	34.75
	WH1124 (C)	34.43	41.78	20.57	35.62	37.98	34.95	34.47	23.17	32.87
	HD3059 (C)	36.58	41.54	23.96	36.01	48.22	42.60	36.32	23.70	36.12
	PBW771 (C)	42.58	44.19	24.22	41.34	46.02	42.66	36.61	26.21	37.98
	Mean	37.37	42.20	22.19	37.47	45.83	40.11	34.14	23.64	35.37
Mean	JKW261	45.14	44.47	35.42	40.95	49.37	48.77	34.12	28.39	40.83
	DBW173 (C)	38.27	42.99	31.90	38.35	48.71	45.20	36.80	31.55	39.22
	WH1124 (C)	40.44	42.68	28.91	35.88	40.78	37.81	34.76	31.21	36.56
	HD3059 (C)	42.27	42.34	35.81	41.41	47.58	47.23	38.51	31.58	40.84
	PBW771 (C)	47.04	46.65	37.24	44.46	46.44	46.97	38.87	32.72	42.55
	Mean	42.63	43.83	33.85	40.21	46.58	45.20	36.61	31.09	40.00
CD (0.05)	Date of sowing (A)	0.17	NS	14.97	NS	12.48	NS	4.91	1.43	1.52
	Genotype (B)	1.73	NS	3.36	NS	2.42	1.50	1.84	0.74	0.91
	B within A	NS	NS	4.75	NS	3.42	2.13	2.61	1.04	1.29
	A within B	NS	NS	8.51	NS	6.87	3.17	3.36	1.17	1.89
	DOS- Late	15.12.2020	10.12.2020	13.12.2020	12.12.2020	14.12.2020	15.12.2020	11.12.2020	15.12.2020	
	DOS-V.Late	05.01.2021	01.01.2021	16.01.2021	01.01.2021	15.01.2021	07.01.2021	01.01.2021	05.01.2021	
	Date of Harvesting:	10.04.2021	10.05.2021	17.04.2021	02.05.2021	29.04.2021	20.04.2021	14.04.2021	16.04.2021	
		19.04.2021	10.05.2021	24.04.2021	05.05.21	29.04.2021	30.04.2021	18.04.2021	25.04.2021	

Table 2.2. North Western Plains Zone			IR-LS-TAS-DOS		Pooled	2020-21
	Time of sowing					
Varieties	Late	Rk	Very late	Rk	Mean	Rk
			Yield, q/ha			
JKW261	46.53	2	35.13	3	40.83	3
DBW173 (C)	43.69	4	34.75	4	39.22	4
WH1124 (C)	40.25	5	32.87	5	36.56	5
HD3059 (C)	45.57	3	36.12	2	40.84	2
PBW771 (C)	47.12	1	37.98	1	42.55	1
Mean	44.63		35.37		40.00	
	Sowing (A)	Genotypes (B)	B within A		A within B	
CD (0.05)	1.52	0.91	1.29		1.89	
			Earhead/sq.m.			
JKW261	407	1	354	1	380	1
DBW173 (C)	362	5	335	4	349	5
WH1124 (C)	377	3	341	3	359	3
HD3059 (C)	374	4	333	5	354	4
PBW771 (C)	397	2	349	2	373	2
Mean	383		342		363	
	Sowing (A)	Genotypes (B)	B within A		A within B	
CD (0.05)	6.51	8.38	NS		NS	
			Grains/Earhead			
JKW261	32.48	4	31.70	3	32.09	4
DBW173 (C)	34.50	2	30.75	5	32.63	2
WH1124 (C)	31.32	5	31.15	4	31.24	5
HD3059 (C)	34.53	1	31.93	1	33.23	1
PBW771 (C)	32.56	3	31.85	2	32.21	3
Mean	33.08		31.48		32.28	
	Sowing (A)	Genotypes (B)	B within A		A within B	
CD (0.05)	1.08	0.95	1.34		1.60	
			1000 Grains Weight, g			
JKW261	38.13	3	33.43	4	35.78	4
DBW173 (C)	37.95	4	34.89	3	36.42	3
WH1124 (C)	37.03	5	32.71	5	34.87	5
HD3059 (C)	38.33	2	35.44	2	36.89	2
PBW771 (C)	39.68	1	35.92	1	37.80	1
Mean	38.23		34.48		36.35	
	Sowing (A)	Genotypes (B)	B within A		A within B	
CD (0.05)	0.52	0.58	0.82		0.89	
Centres: Agra, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar, Sriganganagar						

Restricted Irrigation

The restricted irrigation trial was conducted with the objective to evaluate the two aestivum test entries namely DBW 296 and HUW 838 against five checks [HI 1628 (c), NIAW 3170(c), WH 1142(c), HD 3043(c), PBW 644(c)] at nine locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). For pooled analysis, Durgapura centre data were not included due to low mean yield and rest eight centre data were pooled for statistical analysis. 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_2O5 and K_2O) were applied as full basal in I_1 treatment i.e. no irrigation, whereas 1/3rd N and full phosphorus potash were applied as basal at sowing and remaining 2/3rd 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 2.4 and the centre wise data are in Annexure-I in Tables 2.4.1 to 2.4.9.

The perusal of data in Table 2.4 indicates that increasing the irrigation level significantly increased the grain yield, earhead/m^2 and thousand grain weight. Maximum and significantly higher grain yield (49.26 q/ha) was obtained with two irrigations as compared with zero and one irrigations levels. Increasing irrigation level enhanced the grain yield mainly due to significant increase in earhead/m^2 and thousand grain weight. The test entry DBW 296 produced significantly higher mean grain yield (47.41 q/ha) as compared to other entries and checks. Among check varieties, NIAW 3170 produced significantly higher yield (46.28 q/ha) on mean basis. Irrigation level and genotypes interaction was significant for grain yield. Test entry DBW 296 ranked first at zero and one irrigation level, whereas check genotype NIAW 3170 (c) ranked first at two irrigation level for grain yield. The centre wise data are presented in Tables 2.4.1 to 2.4.9 in Annexure-I.

Table 2.3.	North Western Plains Zone			RIR-TS-TAS		Centrewise		Yield, q/ha		2020-21
Irrigation	**Genotype**	**Agra**	**Delhi**	**Gurdaspur**	**Hisar**	**Jammu**	**Karnal**	**Ludhiana**	**Pantnagar**	**Zonal mean**
Zero	DBW296	28.53	28.74	57.28	45.23	44.94	37.09	46.86	38.67	40.92
	HUW838	23.16	29.42	44.77	33.04	52.36	34.30	39.64	31.72	36.05
	HI1628 (C)	20.91	30.61	55.80	47.78	42.86	38.24	43.63	39.80	39.95
	NIAW3170 (C)	24.14	29.08	59.23	38.39	45.64	36.50	39.27	36.63	38.61
	WH1142 (C)	21.44	29.66	57.53	45.20	42.16	37.45	49.34	37.19	40.00
	HD3043 (C)	19.53	33.33	52.74	47.40	40.54	34.81	40.14	33.12	37.70
	PBW644 (C)	26.38	30.14	57.11	43.92	45.64	35.07	39.45	39.24	39.62
	Mean	23.44	30.14	54.92	43.00	44.88	36.21	42.62	36.62	38.98
One	DBW296	41.88	41.60	57.65	60.60	46.10	48.47	51.42	46.79	49.31
	HUW838	34.08	42.99	51.98	45.18	53.05	44.39	49.72	44.52	45.74
	HI1628 (C)	32.19	43.03	55.98	49.62	43.09	47.33	42.13	42.36	44.47
	NIAW3170 (C)	35.32	44.29	61.98	61.61	46.80	44.87	47.51	43.03	48.17
	WH1142 (C)	33.06	41.90	59.09	57.34	43.79	44.77	49.90	41.25	46.39
	HD3043 (C)	28.31	43.71	54.48	57.67	41.01	46.43	42.76	41.62	44.50
	PBW644 (C)	39.58	41.73	62.44	52.54	46.57	45.63	40.87	44.74	46.76
	Mean	34.92	42.75	57.66	54.94	45.77	45.98	46.33	43.47	46.48
Two	DBW296	46.32	42.86	65.41	62.15	43.09	55.61	54.33	46.30	52.01
	HUW838	41.85	44.05	55.83	52.54	51.43	47.59	50.26	53.93	49.68
	HI1628 (C)	39.89	43.47	58.07	59.67	41.24	51.10	46.93	44.59	48.12
	NIAW3170 (C)	42.53	45.24	63.04	64.73	44.25	55.76	52.47	48.31	52.04
	WH1142 (C)	40.45	41.84	62.02	58.03	40.77	51.47	51.13	44.74	48.81
	HD3043 (C)	38.64	44.39	55.44	55.03	39.62	49.79	42.37	43.77	46.13
	PBW644 (C)	43.67	42.93	64.00	52.66	43.55	46.54	48.49	42.25	48.01
	Mean	41.91	43.54	60.54	57.83	43.42	51.12	49.43	46.27	49.26
Mean	DBW296	38.91	37.73	60.12	55.99	44.71	47.06	50.87	43.92	47.41
	HUW838	33.03	38.82	50.86	43.59	52.28	42.09	46.54	43.39	43.82
	HI1628 (C)	31.00	39.04	56.62	52.36	42.40	45.56	44.23	42.25	44.18
	NIAW3170 (C)	34.00	39.54	61.42	54.91	45.56	45.71	46.42	42.66	46.28
	WH1142 (C)	31.65	37.80	59.55	53.52	42.24	44.56	50.12	41.06	45.06
	HD3043 (C)	28.83	40.48	54.22	53.37	40.39	43.68	41.75	39.50	42.78
	PBW644 (C)	36.54	38.27	61.19	49.71	45.25	42.41	42.94	42.07	44.80
	Mean	33.42	38.81	57.71	51.92	44.69	44.44	46.12	42.12	44.90
CD (0.05)	Irrigation (A)	1.43	5.28	3.29	2.41	NS	5.52	3.76	3.13	0.83
	Genotype (B)	1.57	1.40	2.01	3.11	4.38	2.85	2.76	NS	0.83
	B within A	NS	NS	3.48	5.39	NS	NS	4.78	6.37	1.43
	A within B	NS	NS	4.02	5.30	NS	NS	5.21	6.32	1.56
Date of Sowing:		05.11.2020	19.11.2020	09.11.2020	05.11.2020	12.11.2020	03.12.2020	24.10.2020	21.11.2020	
Date of Harvesting:		23.03.2021	25.04.2021	30.04.2021	03.04.2021	30.04.2021	17.04.2021	15.04.2021	12.04.2021	

Table 2.4. North Western Plains Zone RIR-TS-TAS Pooled 2020-21

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield, q/ha					
DBW296	40.92	1	49.31	1	52.01	2	47.41	1
HUW838	36.05	7	45.74	5	49.68	3	43.82	6
HI1628 (C)	39.95	3	44.47	7	48.12	5	44.18	5
NIAW3170 (C)	38.61	5	48.17	2	52.04	1	46.28	2
WH1142 (C)	40.00	2	46.39	4	48.81	4	45.06	3
HD3043 (C)	37.70	6	44.50	6	46.13	7	42.78	7
PBW644 (C)	39.62	4	46.76	3	48.01	6	44.80	4
Mean	38.98		46.48		49.26		44.90	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.83		0.83		1.43		1.56	
			Earhead/sqm					
DBW296	302	3	341	2	356	2	333	2
HUW838	280	7	303	7	317	7	300	7
HI1628 (C)	297	5	323	6	343	5	321	5
NIAW3170 (C)	311	1	344	1	355	3	337	1
WH1142 (C)	294	6	336	3	346	4	326	4
HD3043 (C)	299	4	324	5	333	6	319	6
PBW644 (C)	305	2	330	4	358	1	331	3
Mean	298		329		344		324	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	5.74		7.09		NS		NS	
			Grains/Earhead					
DBW296	37.34	6	39.05	5	38.96	4	38.45	4
HUW838	39.76	3	44.65	1	44.43	1	42.94	1
HI1628 (C)	37.86	4	37.86	6	37.54	7	37.75	6
NIAW3170 (C)	34.01	7	37.37	7	37.63	6	36.34	7
WH1142 (C)	43.89	1	42.20	3	40.89	2	42.33	2
HD3043 (C)	40.92	2	42.99	2	40.59	3	41.50	3
PBW644 (C)	37.65	5	39.59	4	37.65	5	38.29	5
Mean	38.77		40.53		39.67		39.66	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	NS		1.29		2.24		2.47	
			1000 Grains Weight, g					
DBW296	37.15	2	38.95	2	39.47	2	38.52	2
HUW838	33.88	5	35.62	5	37.55	4	35.69	5
HI1628 (C)	36.14	3	38.06	3	39.26	3	37.82	3
NIAW3170 (C)	37.29	1	39.47	1	40.75	1	39.17	1
WH1142 (C)	32.14	6	34.12	6	36.17	6	34.14	6
HD3043 (C)	32.13	7	33.23	7	35.46	7	33.61	7
PBW644 (C)	35.22	4	37.36	4	37.32	5	36.63	4
Mean	34.85		36.69		38.00		36.51	
	Sowing (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.51		0.62		NS		NS	

Centers: Agra, Delhi, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar

High Yield Potential Trial

This experiment was conducted to maximise the wheat yield with target yield of 8 t/ha by using higher level of inorganic and organic fertilisers combined with spraying of growth retardant to control lodging. Experiment consists of two nutrient management treatments viz. recommended doses of fertilizers (RDF) 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 stage, in main plots and 16 high yielding wheat genotypes in sub plots having three replications. The experiment was conducted at six centres namely Gurdaspur, Hisar, Karnal, Ludhiana, BISA Ladowal and Pantnagar. The sowing was done using normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation and weed control measures were applied as per recommended package of practices for the concerned zone.

For pooled analysis the data of Hisar and Pantnagar centres were not considered due to low mean yield (<65 q/ha) at highest fertility level. The pooled analysed data of four centres presented in Table 2.6 showed significant effect of fertiliser application and growth regulators on grain yield and yield attributes (Table 2.6). The grain yield enhanced significantly with increased fertiliser doses. Addition of 150% RDF and two sprays of growth retardants increased the grain yield (67.60 q/ha) significantly as compared to RDF (61.47 q/ha). This increase was to the tune of 10.0% over RDF. This showed that growth retardant in combination with fungicide tebuconazole was more effective for control of lodging and enhancing the grain yield. The application of growth retardant significantly increased the earheads/m2 grains/ear and biomass however, it reduced the plant height as compared to recommended fertiliser application. This confirms the 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 327 ranked first on mean yield basis with yield of 69.69 q/ha, which was significantly higher than other genotypes. This genotype also yielded 72.91 q/ha under 150% RDF + 15 t FYM/ha + two sprays of growth regulators at first node and flag leaf stage which was higher than other varieties. High yield in DBW 327 was due to its bolder grains. The second and third ranked high yielding genotypes were PBW 872 (67.83 q/ha) and DBW 370 (67.10 q/ha), respectively on mean yield basis. Centre wise data are presented in Annexure-I in Tables 2.6.1 to 2.6.6.

Table 2.5. North Western Plains Zone SPL-IR-ES-HYPT Centrewise Yield, q/ha 2020-21

Genotype	Gurdaspur			Karnal			Ludhiana			BISA Ludhiana			Zonal Mean		
	Nutrient management														
	Rec. NPK	150% RDF+ FYM+GR	Mean	Rec. NPK	150%+FY M+GR	Mean	Rec. NPK	150%+ FYM+GR	Mean	Rec. NPK	150%+ FYM+GR	Mean	Rec. NPK	150%+ FYM+GR	Mean
DBW327*	73.34	76.77	75.05	62.91	70.02	66.47	67.05	70.08	68.56	62.56	74.78	68.67	66.46	72.91	69.69
DBW328*	67.62	73.07	70.35	61.04	65.71	63.37	63.83	65.79	64.81	62.42	72.86	67.64	63.73	69.36	66.54
DBW332*	67.01	71.43	69.22	67.77	71.30	69.53	53.50	60.41	56.96	65.92	75.50	70.71	63.55	69.66	66.60
DBW333*	55.29	66.02	60.65	62.25	68.68	65.46	58.25	69.01	63.63	54.58	61.08	57.83	57.59	66.20	61.90
WH1252*	59.57	66.42	63.00	57.56	59.35	58.46	57.07	60.47	58.77	57.72	61.17	59.44	57.98	61.85	59.92
PBW873	61.67	66.66	64.17	58.88	65.33	62.11	52.83	61.23	57.03	58.17	65.53	61.85	57.89	64.69	61.29
PBW872	66.71	67.74	67.22	64.51	69.09	66.80	65.34	72.15	68.74	64.06	73.06	68.56	65.15	70.51	67.83
PBW874	62.75	64.72	63.73	62.61	68.68	65.65	66.33	69.33	67.83	60.55	68.81	64.68	63.06	67.89	65.47
HD3410	65.64	65.75	65.70	67.25	70.19	68.72	61.26	63.05	62.16	60.44	66.61	63.53	63.65	66.40	65.03
DBW370	67.77	70.76	69.27	68.87	69.23	69.05	55.78	61.97	58.87	67.03	75.42	71.22	64.86	69.34	67.10
DBW372	55.58	64.40	59.99	68.57	73.97	71.27	64.91	70.60	67.75	55.50	70.50	63.00	61.14	69.87	65.50
DBW371	67.56	68.31	67.93	64.84	72.43	68.63	54.28	66.89	60.58	63.89	70.19	67.04	62.64	69.45	66.05
DBW187(I) (C)	63.24	75.04	69.14	61.67	64.47	63.07	61.15	66.38	63.77	59.22	70.25	64.74	61.32	69.03	65.18
WH1270(I) (C)	60.77	67.59	64.18	58.90	65.74	62.32	56.86	59.65	58.25	58.25	62.61	60.43	58.69	63.90	61.30
HD3086 (C)	61.54	65.19	63.36	55.42	66.81	61.11	55.33	61.98	58.65	53.39	63.03	58.21	56.42	64.25	60.33
DBW303(I) (C)	59.86	67.52	63.69	60.67	67.85	64.26	61.39	65.17	63.28	55.64	64.78	60.21	59.39	66.33	62.86
Mean	63.50	68.59	66.04	62.73	68.05	65.39	59.70	65.26	62.48	59.96	68.51	64.23	61.47	67.60	64.54
		CD (0.05)			CD (0.05)			CD (0.05)			CD (0.05)			CD (0.05)	
Nutrients (A)		NS			1.63			4.89			4.98			1.00	
Genotype (B)		4.70			3.17			4.28			3.82			1.66	
B within A		NS			NS			NS			NS			NS	
A within B		NS			NS			NS			NS			NS	
Date of Sowing:		27.10.2020			24.10.2020			27.10.2020			23.10.2020				
Date of Harvesting:		14.04.2021			12.04.2021			07.05.2021			06.04.2021				

Table 2.6. North Western Plains Zone			SPL-IR-ES-HYPT		Pooled	2020-21
Genotype	Nutrient management				Mean	Rk
	Rec. NPK	Rk	150% NPK + FYM+GR	Rk		
			Yield,q/ha			
DBW327*	66.46	1	72.91	1	69.69	1
DBW328*	63.73	4	69.36	6	66.54	5
DBW332*	63.55	6	69.66	4	66.60	4
DBW333*	57.59	15	66.20	12	61.90	12
WH1252*	57.98	13	61.85	16	59.92	16
PBW873	57.89	14	64.69	13	61.29	14
PBW872	65.15	2	70.51	2	67.83	2
PBW874	63.06	7	67.89	9	65.47	8
HD3410	63.65	5	66.40	10	65.03	10
DBW370	64.86	3	69.34	7	67.10	3
DBW372	61.14	10	69.87	3	65.50	7
DBW371	62.64	8	69.45	5	66.05	6
DBW187(I) (C)	61.32	9	69.03	8	65.18	9
WH1270(I) (C)	58.69	12	63.90	15	61.30	13
HD3086 (C)	56.42	16	64.25	14	60.33	15
DBW303(I) (C)	59.39	11	66.33	11	62.86	11
Mean	61.47		67.60		64.54	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	1.00		1.66		NS	NS
			Earhead/sqm			
DBW327*	380	6	411	8	395	7
DBW328*	374	7	426	4	400	6
DBW332*	333	16	377	16	355	16
DBW333*	372	8	388	13	380	11
WH1252*	364	10	400	12	382	10
PBW873	356	12	387	14	372	14
PBW872	368	9	404	9	386	9
PBW874	421	1	451	2	436	1
HD3410	386	5	418	7	402	5
DBW370	361	11	422	6	392	8
DBW372	402	3	454	1	428	2
DBW371	343	15	403	11	373	13
DBW187(I) (C)	388	4	423	5	405	4
WH1270(I) (C)	349	13	386	15	368	15
HD3086 (C)	404	2	441	3	423	3
DBW303(I) (C)	347	14	403	10	375	12
Mean	372		412		392	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	12.01		17.19		NS	NS
			Grains/Earhead			
DBW327*	35.29	13	36.89	14	36.09	14
DBW328*	37.10	10	39.68	10	38.39	11
DBW332*	46.54	1	48.22	1	47.38	1
DBW333*	35.31	12	37.66	13	36.49	12
WH1252*	40.68	5	41.75	5	41.22	5
PBW873	40.03	6	45.58	3	42.81	4
PBW872	33.59	15	36.05	15	34.82	15
PBW874	36.52	11	41.05	8	38.79	9
HD3410	42.32	3	44.09	4	43.20	3
DBW370	46.50	2	47.18	2	46.84	2
DBW372	33.90	14	38.44	12	36.17	13
DBW371	39.40	8	40.44	9	39.92	8
DBW187(I) (C)	37.75	9	39.51	11	38.63	10
WH1270(I) (C)	39.48	7	41.27	7	40.37	7
HD3086 (C)	33.13	16	35.03	16	34.08	16
DBW303(I) (C)	40.79	4	41.58	6	41.18	6
Mean	38.65		40.90		39.77	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	0.91		2.38		NS	NS

1000 grains weight, g						
DBW327*	51.04	2	49.18	2	50.11	2
DBW328*	48.23	3	42.35	7	45.29	5
DBW332*	41.76	13	38.95	11	40.35	11
DBW333*	44.92	6	46.31	3	45.62	3
WH1252*	39.89	15	37.86	13	38.87	14
PBW873	42.12	11	37.52	14	39.82	13
PBW872	53.69	1	49.94	1	51.81	1
PBW874	42.02	12	37.95	12	39.99	12
HD3410	40.26	14	36.66	15	38.46	15
DBW370	39.12	16	36.07	16	37.60	16
DBW372	45.85	5	41.47	8	43.66	6
DBW371	46.93	4	44.29	4	45.61	4
DBW187(I) (C)	42.66	9	42.45	6	42.55	8
WH1270(I) (C)	43.76	8	40.98	9	42.37	9
HD3086 (C)	44.01	7	42.66	5	43.34	7
DBW303(I) (C)	42.54	10	40.81	10	41.68	10
Mean	44.30		41.59		42.94	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	0.27		1.34		1.89	1.85
Biomass, q/ha						
DBW327*	157.73	4	172.33	3	165.03	4
DBW328*	149.20	8	166.14	6	157.67	7
DBW332*	150.07	7	161.41	10	155.74	8
DBW333*	134.23	16	148.91	16	141.57	16
WH1252*	139.95	15	153.63	15	146.79	15
PBW873	148.60	9	157.23	13	152.91	11
PBW872	161.00	3	173.69	2	167.34	2
PBW874	163.84	1	177.61	1	170.73	1
HD3410	161.13	2	171.52	4	166.33	3
DBW370	154.34	5	163.49	7	158.91	6
DBW372	144.35	13	162.58	8	153.47	9
DBW371	145.76	12	160.57	11	153.17	10
DBW187(I) (C)	151.52	6	166.87	5	159.19	5
WH1270(I) (C)	146.17	11	157.56	12	151.86	14
HD3086 (C)	143.53	14	161.42	9	152.48	12
DBW303(I) (C)	148.27	10	156.63	14	152.45	13
Mean	149.98		163.22		156.60	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	3.80		4.87		NS	NS
Plant height, cm						
DBW327*	94.6	13	85.2	12	89.9	13
DBW328*	99.0	3	90.7	6	94.8	2
DBW332*	94.8	11	85.5	11	90.1	11
DBW333*	94.7	12	84.8	13	89.7	11
WH1252*	98.4	6	91.1	3	94.8	4
PBW873	97.6	9	90.7	5	94.1	6
PBW872	90.8	16	83.5	16	87.1	16
PBW874	92.0	15	86.1	10	89.0	15
HD3410	102.3	1	91.8	2	97.1	1
DBW370	98.0	7	92.3	1	95.1	5
DBW372	97.5	10	88.3	8	92.9	9
DBW371	98.9	4	90.7	4	94.8	3
DBW187(I) (C)	97.7	8	84.7	14	91.2	10
WH1270(I) (C)	99.5	2	88.0	9	93.7	7
HD3086 (C)	94.3	14	84.4	15	89.4	14
DBW303(I) (C)	98.7	5	89.3	7	94.0	8
Mean	96.8		87.9		92.4	
	NM (A)		Genotype (B)		B within A	A within B
CD (0.05)	0.89		1.43		2.03	2.14

		Lodging score	
DBW327*	6.6	5.4	6.0
DBW328*	8.9	10.5	9.7
DBW332*	4.1	12.2	8.1
DBW333*	4.8	8.4	6.6
WH1252*	17.3	31.4	24.4
PBW873	10.5	22.4	16.4
PBW872	9.3	11.1	10.2
PBW874	0.3	1.5	0.9
HD3410	14.3	20.9	17.6
DBW370	2.3	5.8	4.0
DBW372	1.8	1.8	1.8
DBW371	8.0	24.2	16.1
DBW187(I) (C)	18.9	19.4	19.2
WH1270(I) (C)	14.9	10.4	12.6
HD3086 (C)	6.4	3.0	4.7
DBW303(I) (C)	7.0	8.6	7.8
Mean	8.5	12.3	10.4

Centers: Gurdaspur, Karnal, Ludhiana, BISA Ludhiana

Central Zone

In central zone, nine centres namely Bilaspur, Dhanduka, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur are actively involved in the coordinated wheat programme of Resource Management. 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 however, soils vary between sandy loam to clay loam in texture.

In this zone three coordinated trials were conducted viz. performance of new wheat genotypes at different dates of sowing under irrigated conditions, restricted irrigation conditions and high yield potential trial. Besides this trial, three production technology trials were conducted at different locations of this zone. The soil at centres of Bilaspur and Gwalior was sandy clay loam, at Indore and Jabalpur centres Vertisols, at Junagadh centre medium black, at Udaipur clay loam and at Vijapur sandy loam, which were neutral to slightly alkaline in reaction (pH: 7.2 to 8.7). Soils of all the centres were low to medium in organic carbon (0.33-0.96 per cent), low to high available N (167-547 kg/ha), medium to high phosphorus (5.46-77.97 kg/ha) and high in potassium (200-475 kg/ha). The maximum rainfall in this zone during the wheat growing season 2020-21 was recorded at Jabalpur (70.8 mm) followed by Gawalior (62.0 mm), Junagadh (50.1 mm), Indore (40 mm), Udaipur (34.4 mm), Powarkheda (27.1 mm), Bilaspur (20.5 mm), Dhanduka (0.0 mm) and Vijapur (0.0 mm). The average maximum and minimum temperatures were Bilaspur (30.7 and 15.0 ºC), Dhanduka (30.0 and 16.9 ºC), Gwalior (30.4 and 12.0 ºC), Indore (30.5 and 14.4 ºC), Jabalpur (30.8 and 13.8 ºC), Junagadh (32.6 and 16.5 ºC), Powarkheda (32.7 and 12.3 ºC), Udaipur (30.4 and 12.3 ºC) and Vijapur (33.8 and 18.6 ºC).

EVALUATION OF GENOTYPES UNDER DIFFERENT SOWING DATES

In this trial two test entries (GW 513 and HI 1636) were evaluated against three check varieties (GW322, HI1544, HI8713(d)) under timely and late sown conditions. The trial was conducted at eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Pawarkheda, Udaipur and Vijapur) in split plot design with date of sowing in main plots and genotypes in sub plots having 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. Recommended rate of nitrogen, phosphorus and potash (120:60:40 kg N, P_2O_5 and K_2O) were applied. Full dose of phosphorus and potash and 1/3rd N was applied as basal dose and remaining 2/3rd N was applied in two equal splits with first and second irrigations.

The pooled analysis of eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagadh, Powarkheda, Udaipur and Vijapur) is presented in Table 4.2. The centre wise data have been presented in Annexure-I in Tables 4.2.1 to 4.2.8. The perusal of data in Table 4.2 revealed that the test entry HI 1636 was significantly superior in grain yield (48.01 q/ha) as compared to check varieties. Test entry HI 1636 ranked first in grain yield under late (47.05 q/ha) and second (48.98 q/ha) under timely sown conditions. On an average basis there was significant increase in yield (9.81%) when crop sown under normal sown conditions compared to late sown conditions. The significantly higher thousand grain weight was the main possible reason for maximum yield of test entry HI 1636 over to other test entry GW 513 and checks. Interaction between sowing time and genotypes was found significant for yield and thousand grain weight.

Table 4.1. Central Zone		IR-DOS-TAD		Centrewise		Yield, q/ha		2020-21		
	Genotype	**Bilaspur**	**Gwalior**	**Indore**	**Jabalpur**	**Junagadh**	**Powarkheda**	**Udaipur**	**Vijapur**	**Zonal mean**
Normal	HI1636	41.98	59.42	50.43	41.31	64.12	41.19	41	52.35	48.98
	GW513	46.65	58.68	43.77	42.6	62.66	41.41	39.27	52.69	48.47
	HI8713(d) (C)	42.59	60.38	50.6	47.49	55.11	48.34	47.57	52.19	50.53
	HI1544 (C)	44.56	59.69	48.53	38.26	63.23	39.68	40.87	50.88	48.21
	GW322 (C)	47.33	59.42	46.33	44.41	65.1	40.56	34.78	53.85	48.97
	Mean	44.62	59.52	47.93	42.81	62.04	42.23	40.70	52.39	49.03
Late	HI1636	35.21	52.77	52.37	40.22	53.03	40.83	57.36	44.63	47.05
	GW513	40.71	52.39	47.47	38.28	47.13	38.29	47.06	48.17	44.94
	HI8713(d) (C)	34.52	53.23	51.27	43.07	49.8	42.02	41.48	38.53	44.24
	HI1544 (C)	39.25	49.81	49.37	36.71	50.6	37.91	32.64	38.81	41.89
	GW322 (C)	41.9	51.07	45.23	42.45	55.32	36.29	37.77	33.72	42.97
	Mean	38.32	51.85	49.14	40.15	51.18	39.07	43.26	40.77	44.22
Mean	HI1636	38.6	56.1	51.4	40.76	58.58	41.01	49.18	48.49	48.01
	GW513	43.68	55.54	45.62	40.44	54.9	39.85	43.16	50.43	46.7
	HI8713(d) (C)	38.56	56.8	50.93	45.28	52.46	45.18	44.52	45.36	47.39
	HI1544 (C)	41.91	54.75	48.95	37.48	56.92	38.8	36.75	44.84	45.05
	GW322 (C)	44.62	55.24	45.78	43.43	60.21	38.42	36.28	43.79	45.97
	Mean	41.47	55.69	48.54	41.48	56.61	40.65	41.98	46.58	46.62
CD (0.05)	Sowing (A)	3.95	2.19	NS	1.42	3.78	NS	NS	10.71	0.76
	Genotype (B)	2.34	0.89	2.13	1.55	NS	2.14	5.25	4.03	0.94
	B within A	NS	1.26	NS	NS	NS	NS	7.42	5.69	1.33
	A within B	NS	1.56	NS	NS	NS	NS	7.53	7.33	1.40
DOS- Late		15.11.2020	18.11.2020	12.11.2020	15.11.2020	13.11.2020	20.11.2020	12.11.2020	13.11.2020	
DOS-V.Late		03.12.2020	09.12.2020	03.12.2020	06.12.2020	03.12.2020	09.12.2020	05.12.2020	03.12.2020	
Date of Harvesting:		19.03.2021	05.04.2021	19.03.2021	04.04.2021	10.03.2021	18.03.2021	25.03.2021	12.03.2021	
		10.04.2021	10.04.2021	19.04.2021	12.04.2021	18.03.2021	01.04.2021	04.04.2021	23.04.2021	

Table 4.2. Central Zone	IR-DOS-TAD				Pooled	2020-21
	Sowing Time					
Genotypes	Timely	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
HI1636	48.98	2	47.05	1	48.01	1
GW513	48.47	4	44.94	2	46.7	3
HI8713(d) (C)	50.53	1	44.24	3	47.39	2
HI1544 (C)	48.21	5	41.89	5	45.05	5
GW322 (C)	48.97	3	42.97	4	45.97	4
Mean	49.03		44.22		46.62	
	Sowing (A)		Genotypes (B)		B within A	A within B
CD (0.05)	0.76		0.94		1.33	1.40
			Earhead/sqm			
HI1636	368	3	334	5	351	5
GW513	367	4	343	2	355	2
HI8713(d) (C)	363	5	344	1	354	3
HI1544 (C)	370	2	336	4	353	4
GW322 (C)	371	1	341	3	356	1
Mean	368		339.57		354	
	Sowing (A)		Genotypes (B)		B within A	A within B
CD (0.05)	4.04		NS		NS	NS
			Grains/earhead			
HI1636	28.21	5	32.17	3	30.19	5
GW513	29.84	4	31.92	4	30.88	3
HI8713(d) (C)	30.24	2	31.34	5	30.79	4
HI1544 (C)	30	3	32.66	1	31.33	2
GW322 (C)	31.1	1	32.55	2	31.82	1
Mean	29.88		32.13		31.00	
	Sowing (A)		Genotypes (B)		B within A	A within B
CD (0.05)	0.64		NS		NS	NS
			1000 grains weight, g			
HI1636	49.77	1	45.26	1	47.51	1
GW513	46.18	3	42.56	2	44.37	3
HI8713(d) (C)	48.09	2	41.92	3	45	2
HI1544 (C)	44.49	4	39.08	5	41.79	4
GW322 (C)	43.89	5	39.67	4	41.78	5
Mean	46.48		41.70		44.09	
	Sowing (A)		Genotypes (B)		B within A	A within B
CD (0.05)	0.51		0.73		1.03	1.05

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

Restricted Irrigation

In this trial, one test entry HI 8823 (d) and four check varieties (HI8627(d), DBW110, MP3288, and DDW47(d)) were evaluated with no, one (CRI stage) and two irrigations (CRI and boot leaf stage) in split plot design with three replications. Main plots consisted of irrigation levels and the genotypes were kept in the sub-plots. The trial was conducted at seven locations (Bilaspur, Gwalior, Indore, Jabalpur, Powarkheda Udaipur and Vijapur). The data of Udaipur centre were not included in pooled analysis due to low mean yield. Full dose NPK (90:60:40 kg/ha) 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).

The pooled results presented in Table 4.4 showed that increasing number of irrigations successively and significantly produced higher grain yield than lower level. One and two irrigation application gave 22.9% and 36.1% higher grain yield, respectively over no irrigation. All the yield attributing parameters were significantly improved as level of irrigation increased. So, the yield increase was due to cumulative effect of all yield attributing parameters. The test entry HI 8823 (d) ranked 1st and produced significantly higher grain yield (31.73 q/ha) as compared to check varieties on mean basis. Significantly higher number of earheads/sq m and 1000 grains weight are the possible reasons for maximum yield of test entry HI 8823 (d). Interaction between irrigation levels and genotypes was found significant for all parameters. Centre wise data are given in Tables 4.4.1 to 4.4.7 of Annexure I.

Table 4.3. Central Zone	RIR-TS-TAD		Centrewise		Yield, q/ha		2020-21
Irrigation	**Genotype**	**Bilaspur**	**Gwalior**	**Indore**	**Jabalpur**	**Powarkheda**	**Vijapur**	**Zonal mean**
Zero	HI8823(d)	23.05	28.26	32.57	23.53	18.45	15.18	23.51
	HI8627(d) (C)	22.88	29.11	26.87	22.76	18.25	16.37	22.71
	DDW47(d) (C)	26.99	27.52	28.77	24.17	22.74	15.93	24.35
	DBW110 (C)	22.05	22.43	31.97	22.03	22	19.8	23.38
	MP3288 (C)	20.49	28.6	31.93	19.99	24.27	21.3	24.43
	Mean	23.09	27.18	30.42	22.50	21.14	17.72	23.68
One	HI8823(d)	31.93	31.66	38	31.99	30.28	26.75	31.77
	HI8627(d) (C)	30.23	35.77	38.53	31.17	31.55	24.15	31.9
	DDW47(d) (C)	33.72	29.82	33.73	33.9	29.92	23.32	30.74
	DBW110 (C)	28.84	33.02	37.03	28.37	26.39	23.28	29.49
	MP3288 (C)	27.23	31.43	36.8	26.8	27.76	28.78	29.8
	Mean	30.39	32.34	36.82	30.44	29.18	25.25	30.74
Two	HI8823(d)	36.41	47.56	43.4	36.3	40.28	35.53	39.91
	HI8627(d) (C)	32.4	43.63	42.8	33.63	34.52	34.1	36.85
	DDW47(d) (C)	39.27	43.33	42.07	38.83	32.99	27.88	37.39
	DBW110 (C)	34.46	46.73	41.77	32.17	33.73	34.07	37.15
	MP3288 (C)	29.04	39.44	39.03	28.53	32.61	36.58	34.21
	Mean	34.32	44.14	41.81	33.89	34.83	33.63	37.10
Mean	HI8823(d)	30.46	35.82	37.99	30.61	29.67	25.82	31.73
	HI8627(d) (C)	28.5	36.17	36.07	29.19	28.11	24.87	30.48
	DDW47(d) (C)	33.33	33.56	34.86	32.3	28.55	22.38	30.83
	DBW110 (C)	28.45	34.06	36.92	27.52	27.37	25.72	30.01
	MP3288 (C)	25.58	33.15	35.92	25.11	28.21	28.88	29.48
	Mean	29.27	34.55	36.35	28.94	28.38	25.53	30.51
CD (0.05)	Irrigation (A)	1.42	1.78	2.31	1.27	3.21	4.08	0.64
	Genotype (B)	1.83	1.55	1.74	1.45	NS	3.92	0.82
	B within A	NS	2.68	3.01	NS	5.78	NS	1.42
	A within B	NS	2.74	3.19	NS	5.70	NS	1.42
Date of Sowing:		05.11.2020	24.11.2020	05.11.2020	08.11.2020	07.11.2020	25.11.2020	
Date of Harvesting:		19.03.2021	06.04.2021		22.03.2021	18.03.2021	06.04.2021	

Table 4.4. Central Zone	RIR-TS-TAD				Pooled	2020-21		
	Irrigation level							
Genotypes	No Irrigation	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
HI8823(d)	23.51	3	31.77	2	39.91	1	31.7	1
HI8627(d) (C)	22.71	5	31.9	1	36.85	4	30.4	3
DDW47(d)	24.35	2	30.74	3	37.39	2	30.8	2
DBW110 (C)	23.38	4	29.49	5	37.15	3	30.0	4
MP3288 (C)	24.43	1	29.8	4	34.21	5	29.4	5
Mean	23.68		30.74		37.10		30.5	
	Irrigation (A)		Genotypes		B within A		A within	
CD (0.05)	0.64		0.82		1.42		1.42	
			Earhead/sqm					
HI8823(d)	248	1	284	2	325	1	286	1
HI8627(d) (C)	228	5	262	5	282	4	257	5
DDW47(d)	240	2	267	3	299	3	269	3
DBW110 (C)	238	3	265	4	276	5	260	4
MP3288 (C)	228	4	290	1	305	2	274	2
Mean	236		273		298		269	
	Irrigation (A)		Genotypes (B)		B within A		A within	
CD (0.05)	7.90		7.23		12.52		13.6	
			Grains/earhead					
HI8823(d)	22.97	5	27.25	5	28.15	5	26.1	5
HI8627(d) (C)	24.85	4	32.07	1	31.00	3	29.3	4
DDW47(d)	27.41	2	29.79	2	31.21	2	29.4	3
DBW110 (C)	26.61	3	28.85	3	36.55	1	30.6	1
MP3288 (C)	30.94	1	28.36	4	30.68	4	30.0	2
Mean	26.56		29.26		31.52		29.1	
	Irrigation (A)		Genotypes (B)		B within A		A within	
CD (0.05)	0.78		1.13		1.96		1.92	
			1000 Grains weight,					
HI8823(d)	43.00	1	42.70	1	44.73	1	43.4	1
HI8627(d) (C)	41.19	2	40.76	2	43.62	2	41.8	2
DDW47(d)	37.99	4	40.42	3	41.18	3	39.8	3
DBW110 (C)	38.68	3	40.17	4	39.42	4	39.4	4
MP3288 (C)	35.69	5	37.97	5	38.48	5	37.3	5
Mean	39.31		40.40		41.49		40.4	
	Irrigation (A)		Genotypes (B)		B within A		A within	
CD (0.05)	0.83		0.94		1.63		1.67	
Centres: Bilaspur, Gwalior, Indore, Jabalpur, Powarkheda,								

High Yield Potential Trial

This experiment was conducted to maximise the wheat yield with target yield of 8 t/ha by using higher level of inorganic and organic fertilisers and spraying of growth retardant for control of lodging. Experiment consists of two fertiliser treatments viz. recommended doses of fertilizers (RDF) and 150% NPK + 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 stage in main plots. Sub plots consist of 16 high yielding wheat varieties. The trial was conducted in split plot design with three replications at three centres namely Gwalior, BISA Jabalpur and Udaipur. The data of Udaipur centre were not included in pooled analysis due to improper data reporting.The sowing was done using 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 4.6). The mean grain yield enhanced significantly with increasing fertiliser doses. Addition of 15 t FYM/ha with 150% RDF significantly increased the grain yield (63.58 q/ha) as compared to RDF (59.28 q/ha). This increase was to the tune of 6.76% over RDF. The dose of 150%NPK + FYM+GR significantly enhanced number of earhead/sq m (318) as compared to RDF (289). The application of growth retardant significantly decreased plant height (86.8 cm) over control (94.4 cm). This showed that spray of growth retardants in combination with fungicide tebuconazole was effective to control of lodging and enhancing the grain yield. DBW 370 was the top yielder (64.94 q/ha) on mean basis followed by DBW 327 (64.82 q/ha).

Table 4.5. Central Zone	SPL-IR-ES-HYPT			Centrewise		Yield, q/ha		2020-21	
Genotype	Gwalior			BISA Jabalpur			Zonal Mean		
	Nutrient management								
	Rec. NPK	150%+FYM+GR	Mean	Rec.NPK	150%+FYM+GR	Mean	Rec.NPK	150%+FYM+GR	Mean
DBW327*	60.74	63.5	62.12	71.65	63.39	67.52	66.19	63.44	64.82
DBW328*	57.62	59.42	58.52	61.78	70.99	66.38	59.7	65.2	62.45
DBW332*	51.7	56.46	54.08	60.84	70.79	65.82	56.27	63.63	59.95
DBW333*	57.96	60.72	59.34	67.43	72.22	69.83	62.7	66.47	64.58
WH1252*	54.8	58.29	56.54	58.99	71.66	65.33	56.89	64.98	60.93
PBW873	56.31	57.23	56.77	63.1	58.61	60.86	59.71	57.92	58.81
PBW872	55.63	56.29	55.96	65.18	72.35	68.76	60.41	64.32	62.36
PBW874	53.84	56.7	55.27	51.8	59.61	55.71	52.82	58.16	55.49
HD3410	58.13	60.54	59.33	62.33	61.68	62.01	60.23	61.11	60.67
DBW370	56.31	59.35	57.83	70.03	74.07	72.05	63.17	66.71	64.94
DBW372	58.49	58.73	58.61	59.49	77.17	68.33	58.99	67.95	63.47
DBW371	53.26	58.63	55.94	66.04	71.93	68.99	59.65	65.28	62.46
DBW187(I) (C)	54.49	58.35	56.42	65.18	60.76	62.97	59.83	59.56	59.69
WH1270(I) (C)	58.58	61.62	60.1	55.69	61.61	58.65	57.14	61.62	59.38
HD3086 (C)	56.66	61.23	58.94	56.4	73.37	64.89	56.53	67.3	61.92
DBW303(I) (C)	55.92	56.87	56.4	60.69	70.54	65.62	58.31	63.71	61.01
Mean	56.28	58.99	57.64	62.29	68.17	65.23	59.28	63.58	61.43
		CD (0.05)			CD (0.05)			CD (0.05)	
Nutrients (A)		0.59			NS			1.20	
Genotype (B)		1.88			NS			2.57	
B within A		NS			NS			NS	
A within B		NS			NS			NS	
Date of Sowing:		06.11.2020			06.11.2020				
Date of Harvesting:		06.04.2021			05.04.2021				

Table 4.6. Central Zone	SPL-IR-ES-HYPT				Pooled	2020-21
	Nutrient management					
Genotypes	Rec.NPK	Rk	150% NPK + FYM+GR	Rk	Mean	Rk
			Yield, q/ha			
DBW327*	66.19	1	63.44	11	64.82	2
DBW328*	59.70	8	65.20	6	62.45	6
DBW332*	56.27	15	63.63	10	59.95	12
DBW333*	62.70	3	66.47	4	64.58	3
WH1252*	56.89	13	64.98	7	60.93	10
PBW873	59.71	7	57.92	16	58.81	15
PBW872	60.41	4	64.32	8	62.36	7
PBW874	52.82	16	58.16	15	55.49	16
HD3410	60.23	5	61.11	13	60.67	11
DBW370	63.17	2	66.71	3	64.94	1
DBW372	58.99	10	67.95	1	63.47	4
DBW371	59.65	9	65.28	5	62.46	5
DBW187(I) (C)	59.83	6	59.56	14	59.69	13
WH1270(I) (C)	57.14	12	61.62	12	59.38	14
HD3086 (C)	56.53	14	67.30	2	61.92	8
DBW303(I) (C)	58.31	11	63.71	9	61.01	9
Mean	59.28		63.58		61.43	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	2.06		3.87	NS		NS
			Earhead/sq.m.			
DBW327*	317	2	334	4	325	2
DBW328*	292	8	310	11	301	10
DBW332*	276	12	300	13	288	13
DBW333*	291	10	315	9	303	9
WH1252*	261	15	334	5	297	12
PBW873	302	3	329	6	316	5
PBW872	253	16	276	16	264	16
PBW874	300	4	337	3	318	4
HD3410	319	1	352	1	335	1
DBW370	291	9	324	7	307	6
DBW372	297	5	314	10	306	7
DBW371	267	14	296	15	282	15
DBW187(I) (C)	295	7	305	12	300	11
WH1270(I) (C)	296	6	346	2	321	3
HD3086 (C)	288	11	323	8	306	7
DBW303(I) (C)	275	13	299	14	287	14
Mean	289		318		303	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	12.36		16.01	NS		NS

Grains/Earhead						
DBW327*	42.26	13	39.87	15	41.07	15
DBW328*	42.03	14	43.48	10	42.75	11
DBW332*	45.05	6	47.29	5	46.17	5
DBW333*	44.72	8	42.90	11	43.81	9
WH1252*	48.71	1	44.51	8	46.61	3
PBW873	46.31	4	40.10	14	43.20	10
PBW872	44.93	7	48.16	2	46.55	4
PBW874	41.83	15	41.26	13	41.54	14
HD3410	42.75	10	41.42	12	42.08	13
DBW370	48.23	3	48.06	3	48.15	2
DBW372	42.38	11	47.83	4	45.10	7
DBW371	45.56	5	46.01	6	45.78	6
DBW187(I) (C)	40.53	16	43.78	9	42.15	12
WH1270(I) (C)	42.36	12	37.48	16	39.92	16
HD3086 (C)	43.73	9	45.76	7	44.74	8
DBW303(I) (C)	48.66	2	49.71	1	49.19	1
Mean	44.38		44.23		44.30	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	NS		3.36	NS		NS
1000 grains weight, g						
DBW327*	54.27	1	50.08	5	52.18	1
DBW328*	51.40	4	50.34	3	50.87	5
DBW332*	47.66	9	46.70	10	47.18	9
DBW333*	51.54	3	50.89	1	51.21	3
WH1252*	46.29	12	45.08	12	45.69	12
PBW873	44.87	15	45.20	11	45.03	14
PBW872	53.79	2	50.21	4	52.00	2
PBW874	43.79	16	43.10	15	43.44	16
HD3410	45.68	14	42.95	16	44.31	15
DBW370	46.85	11	44.00	14	45.43	13
DBW372	48.10	8	47.63	8	47.86	8
DBW371	51.22	6	50.82	2	51.02	4
DBW187(I) (C)	51.39	5	47.27	9	49.33	6
WH1270(I) (C)	49.38	7	48.52	6	48.95	7
HD3086 (C)	45.74	13	47.78	7	46.76	10
DBW303(I) (C)	46.96	10	44.75	13	45.86	11
Mean	48.68		47.21		47.94	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	0.93		1.52	NS		NS

			Biomass, q/ha			
DBW327*	133.20	2	124.11	10	128.65	2
DBW328*	128.38	4	122.44	13	125.41	6
DBW332*	113.69	11	120.15	16	116.92	15
DBW333*	115.12	10	122.11	15	118.62	13
WH1252*	122.30	6	132.93	4	127.61	3
PBW873	125.30	5	122.35	14	123.82	8
PBW872	113.29	12	132.63	5	122.96	10
PBW874	103.63	16	135.29	2	119.46	11
HD3410	121.86	7	125.65	9	123.75	9
DBW370	140.48	1	134.61	3	137.55	1
DBW372	104.42	15	132.60	6	118.51	14
DBW371	115.63	8	122.49	12	119.06	12
DBW187(I) (C)	131.03	3	123.26	11	127.14	5
WH1270(I) (C)	106.56	14	126.28	8	116.42	16
HD3086 (C)	112.96	13	141.97	1	127.46	4
DBW303(I) (C)	115.33	9	132.45	7	123.89	7
Mean	118.95		128.21		123.58	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	NS		NS	16.09		18.13
			Plant height, cm			
DBW327*	93.70	12	85.12	12	89.41	12
DBW328*	97.03	1	89.15	5	93.09	2
DBW332*	92.82	14	87.07	9	89.94	10
DBW333*	95.03	7	89.32	3	92.18	5
WH1252*	95.53	4	89.45	2	92.49	4
PBW873	95.85	3	90.60	1	93.23	1
PBW872	92.23	15	81.78	16	87.01	16
PBW874	90.08	16	85.92	10	88.00	15
HD3410	95.07	6	85.30	11	90.18	9
DBW370	94.07	11	87.97	8	91.02	7
DBW372	95.35	5	83.30	14	89.33	13
DBW371	94.88	8	84.70	13	89.79	11
DBW187(I) (C)	96.80	2	88.48	6	92.64	3
WH1270(I) (C)	94.13	10	89.32	3	91.73	6
HD3086 (C)	93.55	13	88.18	7	90.87	8
DBW303(I) (C)	94.85	9	83.08	15	88.97	14
Mean	94.44		86.80		90.62	
	Nutrients (A)		Genotypes (B)	B within A		A within B
CD (0.05)	2.25		2.32	NS		NS

Centres: Gwalior, Jabalpur

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 0.30-1.05 per cent. The available soil nitrogen is low in content ranging between (89 to 272 kg N/ha); while the content of phosphorus is generally high (up to 43 kg/ha) except in few cases where it falls under medium category. The potash content in soil is very high (up to 418 kg/ha) except in few cases where it falls under low category. 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 324.5 mm at Pune, followed by 240.2 mm at Dharwad and 114.3 mm at Niphad.The average maximum and minimum temperatures were 32.2 °C and 16.5 °C at Pune, 32.0 °C and 15.1 °C at Niphad and 30.4 °C and 16.9 °C at Dharwad.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

The performance of genotypes was evaluated for restricted irrigation conditions at different locations and the results are summarized:

Restricted Irrigation

In this trial, one bread wheat test entry MP 1358 was evaluated against five checks viz. NIAW 3170, AKDW 2997-16(d), HI 1605, UAS 446(d), and NIDW 1149(d). The trial was conducted to evaluate the performance of timely sown genotype at three levels of irrigation i.e. at no irrigation, one irrigation at CRI and two irrigations at CRI and boot leaf at four locations (Dharwad, Niphad, Pune and Washim) in split plot design with irrigation levels in main and genotypes in sub plots with three replications. The data from Niphad centre were not considered for pooled analysis due to low mean yield. Also, the data from Washim centre were excluded from pooled analysis due to incomplete data. Sowing was done using the normalized (adjusted considering 1000 grains weight as 38 g) seed rate of 100 kg/ha. NPK fertilizers @ 90:60:40 kg/ha were

applied as full basal in I_1 treatment i.e. no irrigation, whereas 1/3rd N, full P and K as basal application at sowing and the remaining 2/3rd N at first irrigation i.e. at 20-25 days after sowing in I_2 and I_3.

The centrewise and zonal yield of the trial is given in Table 5.1. The pooled analysis and centre wise data of yield and yield attributes are presented in Table 5.2 and Annexure-I (Tables 5.2.1 to 5.2.4), respectively. The perusal of pooled data shows that grain yield significantly increased on shifting from no irrigation to one irrigation level. The mean yield under two irrigation levels was at par to one irrigation level. The mean grain yield under zero, one and two irrigation levels was found to be 25.98, 29.64 and 29.30 q/ha, respectively. Increased irrigation level enhanced the grain yield mainly due to significant increase in earheads/sqm and 1000 grains weight. The maximum mean yield (32.57 q/ha) was recorded for test entry MP1358, which was also highest yielder of 28.61, 35.61 and 33.49 q/ha under zero, one and two irrigation levels, respectively.

Table 5.1 Peninsular Zone **RIR-TS-TAD** **Centrewise** **Yield, q/ha** **2020-21**

Genotype	Dharwad				Pune				Zonal Mean			
	Irrigation levels											
	Zero	One	Two	Mean	Zero	One	Two	Mean	Zero	One	Two	Mean
MP1358	19.51	34.10	32.15	28.59	37.70	37.11	34.83	36.55	28.61	35.61	33.49	32.57
AKDW2997-16(d) (C)	20.76	30.69	33.26	28.24	25.16	23.79	24.31	24.42	22.96	27.24	28.79	26.33
HI1605 (C)	19.93	31.24	29.37	26.85	34.70	34.04	21.67	30.14	27.32	32.64	25.52	28.49
NIAW3170 (C)	20.49	28.75	28.54	25.93	32.56	28.78	32.25	31.20	26.52	28.77	30.40	28.56
NIDW1149(d) (C)	23.79	28.60	33.89	28.76	30.82	26.76	29.81	29.13	27.31	27.68	31.85	28.94
UAS446(d) (C)	17.99	22.64	21.25	20.62	28.37	29.14	30.25	29.25	23.18	25.89	25.75	24.94
Mean	20.41	29.34	29.75	26.50	31.55	29.94	28.85	30.11	25.98	29.64	29.30	28.31
		CD (0.05)				CD (0.05)				CD (0.05)		
Irrigation (A)		6.62				3.03				2.44		
Genotype (B)		3.21				3.36				1.90		
B within A		NS				5.82				3.29		
A within B		NS				5.76				3.83		
Date of Sowing:		10.11.2020				06.11.2020						
Date of Harvesting:	05.03.2021	10.03.2021	15.03.2021			23.02.2021						

Table 5.2. Peninsular Zone			**RIR-TS-TAD**		**Pooled**		**2020-21**	
Genotype	Irrigation levels							
	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
MP1358	28.61	1	35.61	1	33.49	1	32.57	1
AKDW2997-16(d) (C)	22.96	6	27.24	5	28.79	4	26.33	5
HI1605 (C)	27.32	2	32.64	2	25.52	6	28.49	4
NIAW3170 (C)	26.52	4	28.77	3	30.40	3	28.56	3
NIDW1149(d) (C)	27.31	3	27.68	4	31.85	2	28.94	2
UAS446(d) (C)	23.18	5	25.89	6	25.75	5	24.94	6
Mean	25.98		29.64		29.30		28.31	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	2.44		1.90		3.29		3.83	
			Earheads/sqm					
MP1358	204	5	273	5	270	5	249	5
AKDW2997-16(d) (C)	200	6	276	4	288	1	255	4
HI1605 (C)	220	3	279	3	282	3	260	3
NIAW3170 (C)	215	4	283	2	283	2	260	2
NIDW1149(d) (C)	225	2	232	6	223	6	227	6
UAS446(d) (C)	227	1	288	1	281	4	265	1
Mean	215		272		271		253	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	9.20		13.95		24.16		23.78	
			Grains/Earhead					
MP1358	37.01	1	35.67	1	32.36	2	35.01	1
AKDW2997-16(d) (C)	32.59	4	28.42	4	30.17	3	30.39	4
HI1605 (C)	34.75	2	34.72	2	25.23	6	31.57	2
NIAW3170 (C)	32.92	3	26.84	5	26.86	4	28.87	5
NIDW1149(d) (C)	30.45	5	28.86	3	34.56	1	31.29	3
UAS446(d) (C)	28.89	6	24.39	6	26.55	5	26.61	6
Mean	32.77		29.82		29.29		30.62	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	2.97		2.87		4.98		5.38	
			1000 grains weight, g					
MP1358	37.90	2	38.56	3	39.61	3	38.69	3
AKDW2997-16(d) (C)	35.73	6	36.74	5	35.38	6	35.95	6
HI1605 (C)	36.42	4	35.69	6	37.67	4	36.59	4
NIAW3170 (C)	37.63	3	40.43	2	41.65	1	39.90	2
NIDW1149(d) (C)	40.85	1	41.99	1	41.56	2	41.46	1
UAS446(d) (C)	36.06	5	37.83	4	35.78	5	36.55	5
Mean	37.43		38.54		38.61		38.19	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	0.35		0.73		1.26		1.20	
			Biomass, q/ha					
MP1358	51.01	5	75.80	3	101.12	2	75.98	2
AKDW2997-16(d) (C)	52.87	4	70.78	5	82.17	6	68.60	6
HI1605 (C)	52.94	3	82.91	1	106.23	1	80.69	1
NIAW3170 (C)	53.52	2	80.68	2	90.42	4	74.87	3
NIDW1149(d) (C)	54.95	1	71.40	4	84.29	5	70.21	4
UAS446(d) (C)	49.88	6	67.29	6	91.88	3	69.68	5
Mean	52.53		74.81		92.68		73.34	
	Irrigation (A)		Genotype (B)		B within A		A within B	
CD (0.05)	3.48		2.85		4.93		5.63	
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 early wheat sowing with higher N rate and use of growth regulators, optimising nutrient usage, maximising production, use of sea-weed extract, surface seeding, seed priming, use of RCTs in soybean-wheat system, fertigation in wheat were conducted to address the various issues in different wheat growing zones of the country.

SPL -1: Maximizing the wheat productivity by fine tuning sowing time and fertilizer rates.

Both major and micro nutrients as well as optimum sowing time play an important role in realizing the maximum yield potential of the crop. For exploring the role of higher nutrients with growth regulators and optimising the sowing time in improving productivity and nutrient usage in wheat under wheat based cropping systems field trials were conducted across the wheat growing zones. Hence, this experiment was conducted to maximize the wheat productivity by response of varieties to early sowing and higher fertilization under climatic variations.

The trial was laid out in a split plot design with sowing time (25th October, 05th November, 15th November and 25th November) in main plots and nutrient management {Recommended Fertilizer Dose (RFD), 150% RFD+ FYM 15 t/ha and 150% RFD+ FYM 15 t/ha + Growth Regulators (GR)} in sub plots with three replications. Two sprays of growth regulators as tank-mix Chlormequat Chloride (Lihocin) @ 0.2% + tebuconazole (Folicur 430 SC) @ 0.1% of commercial product dose at first node and flag leaf stages (Tank mix application) were done. 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. One third nitrogen, full phosphorus and potash as basal dose as per treatments and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and 1/3rd at second irrigation. Irrigation and weed control measures were followed as per recommended package of practices for the concerned zone.

In NHZ, this trial was conducted at two locations (Bajaura and Malan). The pooled analysed data of two centres namely Bajaura and Malan are presented in Table 6.1. The perusal of data revealed that significantly average maximum wheat grain yield (51.32 q/ha) was obtained by application of 150% RFD +Growth Regulators and this yield gain was due to improvement in the earhead density and thousand grain weight.

Table 6.1. Northern Hill Zone **SPL-1** **Pooled** **2021-21**

	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
				Yield, q/ha						
RDF	44.80	3	43.96	3	42.47	3	39.23	3	42.61	3
150% RDF + FYM	49.49	2	48.11	2	45.47	2	42.22	2	46.32	2
150% RDF + FYM +GR	54.98	1	53.41	1	49.67	1	47.21	1	51.32	1
Mean	49.76		48.49		45.87		42.89		46.75	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.99		1.72		NS		NS			
				Earhead/sqm						
RDF	407	3	432	3	402	3	359	3	400	3
150% RDF + FYM	460	2	475	2	479	2	405	2	455	2
150% RDF + FYM +GR	478	1	488	1	482	1	423	1	468	1
Mean	448		465		454		396		441	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	14.69		14.60		NS		NS			
				Grains/earhead						
RDF	25.15	1	23.61	2	24.17	1	24.86	1	24.45	1
150% RDF + FYM	23.93	3	22.63	3	21.19	3	23.64	3	22.85	3
150% RDF + FYM +GR	25.11	2	24.18	1	22.91	2	24.79	2	24.25	2
Mean	24.73		23.48		22.75		24.43		23.85	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.01		0.74		NS		NS			
				1000 grains weight, g						
RFD	45.35	3	45.27	3	44.17	3	44.13	3	44.73	3
150% RDF + FYM	45.75	2	46.03	2	46.32	2	44.95	2	45.76	2
150% RDF + FYM +GR	47.25	1	47.80	1	47.37	1	46.47	1	47.22	1
Mean	46.12		46.37		45.95		45.18		45.90	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.02		0.88		NS		NS			
				Plant height, cm						
RDF	97.92	2	95.75	2	94.08	2	88.58	2	94.08	2
150%RDF + FYM	101.25	1	99.25	1	95.42	1	91.63	1	96.89	1
150%RDF +FYM+ GR	95.42	3	91.92	3	91.08	3	84.92	3	90.83	3
Mean	98.19		95.64		93.53		88.38		93.93	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.79		1.35		NS		NS			

Centres: Bajaura and Malan

The increase in nutrient application over recommended rate led to an increase in wheat yield to the tune of 3.71 to 8.71 q/ha. Sowing dates also significantly affected the wheat

grain yield. Sowing on 25th October and 5th November produced significantly higher grain yield compared to 15th November and 25th November sowing. Grain yield reduction in 15th and 25th November sowing was 7.82 per cent and 13.81 per cent respectively as compared to 25th October sowing. Centre wise data are given in Annexure- I as Tables 6.1.1 and 6.1.2.

In NWPZ, this trial was conducted at eight locations namely Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar. For pooled analysis the data of Agra was not considered due to unrealistic response compared to other centres. The pooled analysis of data as given in Table 6.2 revealed that significantly maximum wheat grain yield (57.75 q/ha) was obtained by application of 150% RDF + FYM15 t/ha + GR and this yield gain was due to more earheads/m^2 and thousand grain weight. Sowing of wheat up to 5th of November resulted in significantly higher grain yield as compared to delay in sowing (15th and 25th Nov.). Grain yield reduction in 15th and 25th November sowing was 4.6 per cent and 11.3 percent, respectively, as compared to 5th November sowing. Centre wise data are given in Annexure- I as Tables 6.2.1 and 6.2.7.

Table 6.2. North Western Plains Zone **SPL-1** **Pooled** **2020-21**

	Date of sowing									
Nutrient Management	25th Oct.	Rk	5th Nov.	Rk	15th Nov.	Rk	25th Nov.	Rk	Mean	Rk
					Yield, q/ha					
RDF	51.50	3	54.11	3	52.50	3	49.14	3	51.81	3
150% RDF + FYM 15t/ha	56.64	2	57.59	2	54.65	2	51.30	2	55.04	2
150% RDF + FYM 15t/ha +GR	59.87	1	60.96	1	57.52	1	52.68	1	57.75	1
Mean	56.00		57.55		54.89		51.04		54.87	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			1.48		1.24		NS		NS	
					Earhead/sqm					
RDF	382.31	3	376.25	3	370.83	3	359.73	3	372.28	3
150% RDF + FYM 15t/ha	416.14	2	412.18	2	402.36	2	395.20	2	406.47	2
150% RDF + FYM 15t/ha +GR	433.92	1	437.64	1	420.15	1	396.64	1	422.09	1
Mean	410.79		408.69		397.78		383.86		400.28	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			9.87		7.59		NS		NS	

Grains/earhead										
RDF	33.46	3	37.50	1	39.94	1	38.20	1	37.28	1
150% RDF + FYM 15t/ha	33.90	2	36.40	2	36.71	2	35.86	3	35.72	3
150% RDF + FYM 15t/ha +GR	35.03	1	35.83	3	35.86	3	36.94	2	35.92	2
Mean	34.13		36.58		37.50		37.00		36.30	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			1.51		NS		NS		NS	
1000 grains weight, g										
RDF	40.24	3	40.07	3	38.22	3	37.52	2	39.01	3
150% RDF + FYM 15t/ha	40.54	2	40.41	2	38.50	2	37.37	3	39.20	2
150% RDF + FYM 15t/ha +GR	40.69	1	40.72	1	39.82	1	37.77	1	39.75	1
Mean	40.49		40.40		38.84		37.55		39.32	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			0.95		NS		NS		NS	
Biomass, q/ha										
RDF	142.65	3	149.99	3	134.87	3	128.29	3	138.95	3
150% RDF + FYM 15t/ha	159.29	1	153.93	2	147.56	2	131.57	2	148.09	2
150% RDF + FYM 15t/ha +GR	158.80	2	156.86	1	151.08	1	133.15	1	149.97	1
Mean	153.58		153.59		144.50		131.00		145.67	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			5.10		4.32		NS		NS	
Plant height, cm										
RDF	93.01	2	96.83	2	93.12	2	92.39	2	93.84	2
150% RDF + FYM 15t/ha	96.54	1	97.75	1	96.28	1	92.87	1	95.86	1
150% RDF + FYM 15t/ha +GR	91.30	3	89.79	3	88.38	3	86.31	3	88.95	3
Mean	93.62		94.79		92.59		90.53		92.88	
			Sowing time (A)		Nutrient(B)		B within A		A within B	
CD (0.05)			1.29		1.03		2.06		2.12	

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

In NEPZ, this experiment was conducted at six locations namely Burdwan, Kalyani, Kanpur, Ranchi, Sabour and Shillongani. The pooled analyzed data of these centres except Ranchi and Sabour are presented in Table 6.3. The perusal of data revealed that the maximum grain yield (42.22 q/ha) was obtained by application of 150% RFD + FYM 15 t/ha + growth regulators and this yield gain was due to improvement in the earhead density and grains per earhead. Similar results were obtained at Sabour whereas in Ranchi maximum grain yield was realized by application of 150% RFD + FYM15 t/ha.

The application of 150% RFD + FYM and 150% RFD + FYM + GR over recommended rate caused an increase of 6.4 and 12% in wheat yield, respectively. Sowing date also significantly affected the wheat grain yield. Sowing on 15th November resulted in significantly higher grain yield compared to 25th October and 25th November sowing based on pooled data. Centre wise data are given in Tables 6.3.1 to 6.3.6 of Annexure-I

Table 6.3. North Eastern Plains Zone **SPL-1** **Pooled** **2020-21**

	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield,q/ha					
RDF	36.89	3	37.43	3	38.45	3	37.91	3	37.67	3
150% RDF + FYM	38.17	2	40.78	2	41.95	2	39.45	2	40.09	2
150% RDF + FYM +GR	39.58	1	43.85	1	43.35	1	42.10	1	42.22	1
Mean	38.21		40.69		41.25		39.82		39.99	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.31		1.5		NS		NS			
					Earhead/sqm					
RDF	287	3	298	3	307	3	287	3	295	3
150% RDF + FYM	289	2	318	2	320	2	303	2	307	2
150% RDF+FYM+GR	305	1	325	1	332	1	308	1	318	1
Mean	293		313		320		299		306	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	9		7		NS		NS			
					Grains/earhead					
RDF	37.57	2	41.73	2	43.17	2	42.37	2	41.21	2
150% RDF + FYM	37.23	3	41.50	3	42.69	3	42.26	3	40.92	3
150% RDF+FYM+GR	38.26	1	44.16	1	43.19	1	44.05	1	42.41	1
Mean	37.68		42.46		43.01		42.89		41.51	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.71		NS		NS		NS			
					1000 grains weight, g					
RDF	41.47	2	41.94	3	40.56	3	40.12	1	41.02	3
150% RDF + FYM	42.17	1	42.54	1	41.60	1	39.38	3	41.42	1
150% RDF+FYM+GR	41.30	3	42.23	2	41.26	2	40.10	2	41.22	2
Mean	41.65		42.24		41.14		39.86		41.22	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	0.85		NS		NS		NS			

Centres: Burdwan, Kalyani, Kanpur and Shillongani

In CZ, this trial was conducted at six locations (Bilaspur, Gwalior, Jabalpur, Powarkheda, Udaipur, Vijapur) with four dates of sowing and with three dates of sowing at one centre (Junagadh). The data of Udaipur centre were not included in pooled analysis due to improper data reporting.

Table 6.4. Central Zone **SPL-1** **Pooled** **2020-21**

	Date of Sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
RDF	37.71	3	45.76	3	49.08	3	45.83	3	44.60	3
150% RDF + FYM 15 t/ha	41.58	2	50.41	2	53.43	2	50.89	2	49.08	2
150% RDF+FYM+GR	43.21	1	52.95	1	55.76	1	53.26	1	51.29	1
Mean	40.83		49.71		52.76		49.99		48.32	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.11		0.74		NS		NS			
Earhead/sqm										
RDF	304	3	354	3	363	3	359	3	345	3
150% RDF + FYM 15 t/ha	327	2	370	2	380	2	377	2	364	2
150% RDF+FYM+GR	342	1	390	1	403	1	397	1	383	1
Mean	324		371		382		377		364	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	6.58		6.03		NS		NS			
Grains/earhead										
RDF	28.45	1	28.40	1	29.55	1	30.54	1	29.23	1
150% RDF + FYM 15 t/ha	27.70	2	28.18	2	28.30	2	30.23	2	28.60	2
150% RDF+FYM+GR	27.29	3	27.90	3	27.83	3	29.44	3	28.12	3
Mean	27.82		28.16		28.56		30.07		28.65	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	0.65		0.63		NS		NS			
1000 grains weight, g										
RDF	46.94	3	46.79	3	48.05	3	44.64	3	46.60	3
150% RDF + FYM 15 t/ha	48.09	1	48.60	2	50.79	1	46.28	2	48.44	2
150% RDF+FYM+GR	47.87	2	48.82	1	50.18	2	46.91	1	48.44	1
Mean	47.88		48.47		48.14		45.98		47.62	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	0.60		0.57		NS		NS			
Biomass, q/ha										
RDF	73.58	3	84.16	3	95.26	3	93.89	3	86.72	3
150% RDF + FYM 15 t/ha	78.56	2	94.62	2	105.46	2	102.95	2	95.40	2
150% RDF+FYM+GR	83.28	1	102.51	1	106.28	1	107.19	1	99.81	1
Mean	78.47		93.76		102.33		101.34		93.98	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.21		1.66		3.31		3.49			
Plant height, cm										
RDF	80.00	2	85.71	2	87.20	2	87.89	2	85.20	2
150% RDF + FYM 15 t/ha	81.36	1	89.20	1	91.01	1	90.07	1	87.91	1
150% RDF+FYM+GR	78.60	3	84.88	3	83.89	3	84.47	3	82.96	3
Mean	79.99		86.60		87.37		87.48		85.36	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.24		0.99		1.99		2.04			

Centres: Bilaspur, Gwalior, Jabalpur, Powarkheda, Vijapur

The pooled data analysis of five centres (Bilaspur, Gwalior, Jabalpur, Powarkheda and Vijapur) is presented in Table 6.4. A perusal of pooled data revealed that among various

nutrient management options, there were significant differences in grain yield and yield attributing characters. Treatment having 150% RFD + FYM 15 t/ha + growth regulators produced significantly higher grain yield (51.29 q/ha), earhead/m^2 (383) and biomass (99.81 q/ha) as compared other treatments. Among sowing time, 15th November sowing recorded the highest yield (52.76 q/ha) which was significantly higher than 25th Oct (40.83 q/ha), 05th Nov (49.71) and 25th Nov (49.99 q/ha) sown conditions. The centre wise data have been illustrated in Tables 6.4.1 to 6.4.7 of Annexure-I.

Table 6.5. Peninsular Zone			**SPL-1**		**Pune**		**2020-21**	
Fertilization	Sowing time						Mean	Rk
	05th Nov	Rk	15th Nov	Rk	25th Nov	Rk		
				Yield, q/ha				
Recommended fertiliser dose (RFD)	50.65	1	50.32	3	52.15	1	51.04	2
150% RFD+FYM15 t/ha	47.03	3	54.96	1	52.12	2	51.37	1
150% RFD+FYM15 t/ha+GR	49.32	2	52.78	2	50.49	3	50.86	3
Mean	49.00		52.69		51.59		51.09	
	Sowing (A)		Fertilization (B)		B within A		A within B	
CD (0.05)	4.46		2.91		5.04		5.40	
				Earheads/sqm				
Recommended fertiliser dose (RFD)	343	3	325	3	422	1	363	3
150% RFD+FYM15 t/ha	360	1	362	2	418	2	380	1
150% RFD+FYM15 t/ha+GR	358	2	387	1	392	3	379	2
Mean	354		358		411		374	
	Sowing (A)		Fertilization (B)		B within A		A within B	
CD (0.05)	47.88		60.62		105.00		93.61	
				Grains/Earhead				
Recommended fertiliser dose (RFD)	38.81	1	38.30	1	28.25	2	35.12	1
150% RFD+FYM15 t/ha	38.31	2	37.07	2	27.91	3	34.43	2
150% RFD+FYM15 t/ha+GR	37.84	3	30.36	3	30.68	1	32.96	3
Mean	38.32		35.24		28.94		34.17	
	Sowing (A)		Fertilization (B)		B within A		A within B	
CD (0.05)	7.95		5.16		8.94		9.60	
				1000 grains weight, g				
Recommended fertiliser dose (RFD)	38.17	1	40.53	3	44.10	2	40.93	2
150% RFD+FYM15 t/ha	35.33	3	42.33	2	44.97	1	40.88	3
150% RFD+FYM15 t/ha+GR	36.40	2	45.37	1	42.83	3	41.53	1
Mean	36.63		42.74		43.97		41.11	
	Sowing (A)		Fertilization (B)		B within A		A within B	
CD (0.05)	4.01		2.23		3.85		4.45	
				Biomass, q/ha				
Recommended fertiliser dose (RFD)	123.85	1	128.02	3	134.28	2	128.72	3
150% RFD+FYM15 t/ha	118.18	3	143.81	1	138.13	1	133.37	1
150% RFD+FYM15 t/ha+GR	123.45	2	128.77	2	133.97	3	128.73	2
Mean	121.83		133.53		135.46		130.27	
	Sowing (A)		Fertilization (B)		B within A		A within B	
CD (0.05)	17.12		7.85		13.60		17.43	

In Peninsular Zone, this trial was conducted at Dharwad and Pune centres. The data of Dharwad centre were rejected due to improper data reported. At Pune centre, sowing could not done at first date (25th October) due to heavy rainfall. The analysis of Pune centre data as shown in Table 6.5 revealed that sowing time did not cause any significant variation in wheat yield. Nutrient management options also showed similar trend. The maximum mean yield was recorded to be 52.69 q/ha, when sowing was done on 15th November as compared to 49.0 and 51.59 q/ha for date of sowing as 05th and 25th November, respectively. The mean yield under all three nutrient management options was found in the range of 50.9–51.4 q/ha.

SPL-2: Sea weed extract usage in wheat

Sea weed is an important naturally occurring plant nutrients source, and hence its extract is being explored for supplying a variety of naturally available plant nutrients which may play a key role in realizing wheat crop yield potential and thus, making the best out of waste. For exploring the role of sea weed extract in improving nutrients usage in wheat under wheat based cropping systems a field trials were conducted across the wheat growing zones.

In NHZ, this experiment was conducted at two locations (Bajaura and Malan). The perusal of pooled data presented in Table 6.6 revealed that maximum wheat grain yield (47.44 q/ha) was obtained in treatment where wheat crop seed was treated with sea weed extract followed by two foliar spray of sea weed extract 4ml/litre of water at tillering and heading. This treatment resulted in higher yield due to better earhead density (410/sq.m.), heavier grains weight 43.22 g/1000 grains weight, more number of grains per earhead (27.21) and the highest biomass production (110q/ha). Seed treatment with sea weed extract at the rate of 3.0 ml per kg of weed seed before sowing of the crop also resulted in significantly higher yield and yield attributes as well as biomass production (Table 6.2) as compared to control (without seed treatment). Sea weed extract foliar application alone or in combination of seed treatment resulted in significantly higher yield when applied at both tillering and heading stages at 4.0 ml/litre of water as compared to all other stages of crop growth and lower dose (2.0 ml/litre of

water) of sea weed extract spray. Centre wise data are given in Annexure- I as Tables 6.6.1 and 6.6.2.

Table 6.6. Northern Hill Zone	**SPL-2**		**Pooled**		**2020-21**	
	Seed treatment with sea weed extract					
Sea weed extract spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	35.54	6	40.07	6	37.81	6
Seaweed ext 4ml/lit tillering	37.07	5	41.94	4	39.50	5
Seaweed ext 2ml/lit heading	38.45	4	41.05	5	39.75	4
Seaweed ext 4ml/lit heading	39.72	3	42.87	3	41.29	3
Seaweed ext 2ml/lit tillering & heading	40.15	2	44.67	2	42.41	2
Seaweed ext 4ml/lit tillering & heading	43.00	1	47.44	1	45.22	1
Mean	38.99		43.01		41.00	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	1.02		1.38		NS	NS
			Earheads/sq.m.			
Seaweed ext 2ml/lit tillering	369	4	385	6	377	6
Seaweed ext 4ml/lit tillering	367	6	390	5	378	5
Seaweed ext 2ml/lit heading	374	2	394	3	384	3
Seaweed ext 4ml/lit heading	367	5	393	4	380	4
Seaweed ext 2ml/lit tillering & heading	374	2	398	2	386	2
Seaweed ext 4ml/lit tillering & heading	375	1	410	1	393	1
Mean	371		395		383	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	6.42		NS		NS	NS
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	40.61	6	40.86	6	40.73	6
Seaweed ext 4ml/lit tillering	40.71	5	42.08	5	41.39	5
Seaweed ext 2ml/lit heading	41.37	3	42.44	4	41.90	4
Seaweed ext 4ml/lit heading	41.78	2	42.45	3	42.11	2
Seaweed ext 2ml/lit tillering & heading	41.24	4	42.83	2	42.03	3
Seaweed ext 4ml/lit tillering & heading	41.97	1	43.22	1	42.60	1
Mean	41.28		42.31		41.79	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	0.72		0.74		NS	NS
			Grains/Earhead			
Seaweed ext 2ml/lit tillering	24.18	6	25.78	5	24.98	6
Seaweed ext 4ml/lit tillering	25.44	4	25.88	4	25.66	4
Seaweed ext 2ml/lit heading	25.42	5	24.77	6	25.09	5
Seaweed ext 4ml/lit heading	26.58	3	25.98	3	26.28	3
Seaweed ext 2ml/lit tillering & heading	26.66	2	26.51	2	26.58	2
Seaweed ext 4ml/lit tillering & heading	27.83	1	27.21	1	27.52	1
Mean	26.02		26.02		26.02	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	NS		1.37		NS	NS
			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	83.39	6	93.52	6	88.46	6
Seaweed ext 4ml/lit tillering	87.27	5	98.04	5	92.65	5
Seaweed ext 2ml/lit heading	91.91	4	99.99	4	95.95	4
Seaweed ext 4ml/lit heading	94.88	2	102.39	3	98.63	3
Seaweed ext 2ml/lit tillering & heading	93.64	3	103.81	2	98.73	2
Seaweed ext 4ml/lit tillering & heading	99.36	1	110.00	1	104.68	1
Mean	91.74		101.29		96.52	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	2.53		3.33		NS	NS
Centres: Bajaura and Malan						

Table 6.7. North Western Plains Zone			SPL-2		Pooled	2020-21
	Seed treatment with sea weed extract					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	50.04	3	52.63	4	51.34	3
Seaweed ext 4ml/lit tillering	48.98	4	52.98	3	50.98	4
Seaweed ext 2ml/lit heading	48.60	5	50.81	6	49.70	6
Seaweed ext 4ml/lit heading	47.74	6	52.28	5	50.01	5
Seaweed ext 2ml/lit tillering & heading	51.04	1	54.69	2	52.86	1
Seaweed ext 4ml/lit tillering & heading	50.50	2	54.89	1	52.70	2
Mean	49.48		53.05		51.27	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	0.93		1.97		NS	NS
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	321	5	345	5	333	5
Seaweed ext 4ml/lit tillering	327	4	352	2	340	2
Seaweed ext 2ml/lit heading	319	6	341	6	330	6
Seaweed ext 4ml/lit heading	328	3	348	4	338	4
Seaweed ext 2ml/lit tillering & heading	330	2	349	3	339	3
Seaweed ext 4ml/lit tillering & heading	337	1	355	1	346	1
Mean	327		348		338	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	5.78		NS		NS	NS
			Grains/earhead			
Seaweed ext 2ml/lit tillering	39.39	1	38.60	5	39.00	4
Seaweed ext 4ml/lit tillering	38.96	4	39.13	2	39.05	3
Seaweed ext 2ml/lit heading	38.94	5	38.55	6	38.75	6
Seaweed ext 4ml/lit heading	38.86	6	38.79	4	38.82	5
Seaweed ext 2ml/lit tillering & heading	39.19	3	39.37	1	39.28	1
Seaweed ext 4ml/lit tillering & heading	39.21	2	39.04	3	39.12	2
Mean	39.09		38.91		39.00	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	NS		NS		NS	NS
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	40.21	2	40.89	3	40.55	3
Seaweed ext 4ml/lit tillering	39.51	5	40.24	6	39.88	5
Seaweed ext 2ml/lit heading	40.00	3	40.44	5	40.22	4
Seaweed ext 4ml/lit heading	38.78	6	40.51	4	39.64	6
Seaweed ext 2ml/lit tillering & heading	40.91	1	41.56	1	41.23	1
Seaweed ext 4ml/lit tillering & heading	39.80	4	41.51	2	40.65	2
Mean	39.87		40.86		40.36	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	NS		NS		NS	NS
			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	120.75	3	127.07	4	123.91	3
Seaweed ext 4ml/lit tillering	115.98	5	127.74	3	121.86	4
Seaweed ext 2ml/lit heading	118.44	4	122.89	6	120.67	5
Seaweed ext 4ml/lit heading	113.41	6	126.91	5	120.16	6
Seaweed ext 2ml/lit tillering & heading	124.66	1	133.83	1	129.25	1
Seaweed ext 4ml/lit tillering & heading	121.22	2	131.82	2	126.52	2
Mean	119.08		128.38		123.73	
	Seed treatment (A)		Spray (B)		B within A	A within B
CD (0.05)	3.13		4.92		NS	NS

Centres: Agra, Durgapura, Gurdaspur, Jammu

In NWPZ, this experiment was conducted at four locations (Agra, Durgapura, Gurdaspur and Jammu). The perusal of pooled analysis data presented in Table 6.7 revealed that seed treatment with seaweed extract caused significant improvement in grain yield (53.05 q/ha) compared to untreated control (49.48 q/ha). Among foliar spray treatments, two spray of seaweed extract at tillering and heading using either 2ml/lit or 4 ml/lit recorded better yield compared to when sprayed either at tillering or heading stage.

The increased wheat yield with seed treatment compared to untreated control was mainly due to increased tillering (7.0%). If we see the performance of individual centre then, there was response of sea-weed extract seed treatment except Gurdaspur centre. The data of individual centre area presented in Table 6.7.1 to 6.7.4 of Annexure-I.

In NEPZ, this experiment was conducted at four locations (Coochbehar, Sabour, Ranchi and Varanasi). The pooled analyzed data of these centres are presented in Table 6.8. The perusal of data revealed that the maximum grain yield (50.02 q/ha) was obtained by foliar application of seaweed extract @4ml/litre water at tillering & heading stage and this yield gain was due to improvement in the earhead density, grains per earhead and thousand grains weight. The effect of foliar application of seaweed extract at different doses and time was non-significant. Seed treatment with seaweed extract @3ml/kg seed also resulted in higher grain yield but non-significantly. Centre wise data are given in Tables 6.8.1 to 6.8.4 of Annexure-I.

In CZ, this trial was conducted with an objective to maximize wheat productivity by the use of seaweed extract as seed treatment and foliar application at two locations (Dhanduka and Udaipur). A perusal of pooled data as given in Table 6.9 revealed that among various nutrient management options, there were no significant differences in grain yield. Seed treatment with seaweed extract @ 3ml/kg seed produced numerically higher yield (45.05 q/ha) than no seed treatment (42.63 q/ha). There was no significant effect of seaweed extract as foliar application on yield and other parameters except 1000 grains weight, where treatment of 2 ml/litre at tillering & heading produced significantly higher thousand grains weight (46.88 g). Centre wise data are given in Tables 6.9.1 to 6.9.2 of Annexure-I.

Table 6.8. North Eastern Plains Zone	SPL-2	Pooled			2020-21
	Seed treatment with sea weed extract				
Foliar application	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	47.57	6	47.64	6	47.61	6
Seaweed ext 4ml/lit tillering	48.48	2	49.94	2	49.21	2
Seaweed ext 2ml/lit heading	48.10	3	49.15	4	48.62	4
Seaweed ext 4ml/lit heading	48.07	4	49.06	5	48.57	5
Seaweed ext 2ml/lit tillering & heading	48.03	5	49.32	3	48.68	3
Seaweed ext 4ml/lit tillering & heading	49.02	1	51.03	1	50.02	1
Mean	48.21		49.36		48.78	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	NS		NS		NS	NS
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	339	2	331	5	335	5
Seaweed ext 4ml/lit tillering	333	5	340	3	336	4
Seaweed ext 2ml/lit heading	332	6	323	6	328	6
Seaweed ext 4ml/lit heading	340	1	335	4	337	3
Seaweed ext 2ml/lit tillering & heading	335	4	354	2	345	2
Seaweed ext 4ml/lit tillering & heading	336	3	370	1	353	1
Mean	336		342		339	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	NS		11		16	19
			Grains/earhead			
Seaweed ext 2ml/lit tillering	38.22	6	40.69	4	39.46	5
Seaweed ext 4ml/lit tillering	40.12	2	41.15	3	40.64	3
Seaweed ext 2ml/lit heading	39.14	3	42.25	1	40.69	2
Seaweed ext 4ml/lit heading	38.45	5	42.21	2	40.33	4
Seaweed ext 2ml/lit tillering & heading	38.99	4	39.63	6	39.31	6
Seaweed ext 4ml/lit tillering & heading	41.70	1	40.47	5	41.08	1
Mean	39.43		41.07		40.25	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	0.81		NS		1.65	1.69
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	39.48	5	39.51	3	39.49	5
Seaweed ext 4ml/lit tillering	39.77	2	39.01	6	39.39	6
Seaweed ext 2ml/lit heading	40.09	1	39.27	4	39.68	2
Seaweed ext 4ml/lit heading	39.32	6	39.83	2	39.57	3
Seaweed ext 2ml/lit tillering & heading	39.74	3	39.26	5	39.50	4
Seaweed ext 4ml/lit tillering & heading	39.74	4	40.07	1	39.90	1
Mean	39.69		39.49		39.59	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	NS		NS		NS	NS

Centres: Coochbehar, Sabour, Ranchi and Varanasi

Table 6.9. Central Zone	SPL-2				Pooled	2020-21
	Seed treatment with sea weed extract					
Seaweed extract	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	42.31	4	45.51	4	43.91	4
Seaweed ext 4ml/lit tillering	44.27	1	45.76	3	45.02	1
Seaweed ext 2ml/lit heading	43.02	3	45.87	2	44.44	2
Seaweed ext 4ml/lit heading	40.01	6	44.43	5	42.22	6
Seaweed ext 2ml/lit tillering & heading	42.02	5	45.88	1	43.95	3
Seaweed ext 4ml/lit tillering & heading	44.15	2	42.85	6	43.50	5
Mean	42.63		45.05		43.84	
	Seed Treatment (A)		Foliar Application (B)		B within A	A within B
CD(0.05)	NS		NS		NS	NS
			Earhead/sq.m.			
Seaweed ext 2ml/lit tillering	342	3	336	6	339	6
Seaweed ext 4ml/lit tillering	338	4	347	5	343	5
Seaweed ext 2ml/lit heading	331	6	356	3	343	4
Seaweed ext 4ml/lit heading	334	5	360	2	347	3
Seaweed ext 2ml/lit tillering & heading	350	1	366	1	358	1
Seaweed ext 4ml/lit tillering & heading	347	2	355	4	351	2
Mean	340		353		347	
	Seed Treatment (A)		Foliar Application (B)		B within A	A within B
CD(0.05)	4.95		NS		NS	NS
			Grains/earhead			
Seaweed ext 2ml/lit tillering	26.47	4	29.60	1	28.03	2
Seaweed ext 4ml/lit tillering	28.77	1	28.65	2	28.71	1
Seaweed ext 2ml/lit heading	26.72	3	27.91	3	27.32	3
Seaweed ext 4ml/lit heading	24.46	6	26.15	5	25.31	6
Seaweed ext 2ml/lit tillering & heading	25.69	5	25.60	6	25.65	5
Seaweed ext 4ml/lit tillering & heading	27.58	2	26.18	4	26.88	4
Mean	26.47	4	29.60	1	28.03	2
	Seed Treatment (A)		Foliar Application (B)		B within A	A within B
CD(0.05)	0.64		NS		NS	NS
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	44.33	5	44.24	6	44.29	5
Seaweed ext 4ml/lit tillering	43.41	6	44.38	5	43.89	6
Seaweed ext 2ml/lit heading	46.49	2	44.92	4	45.70	3
Seaweed ext 4ml/lit heading	46.83	1	45.97	2	46.40	2
Seaweed ext 2ml/lit tillering & heading	45.64	3	48.12	1	46.88	1
Seaweed ext 4ml/lit tillering & heading	44.51	4	45.31	3	44.91	4
Mean	45.20		45.49		45.34	
Seed Treatment (A)			Foliar Application (B)		B within A	A within B
CD (0.05)	NS		1.44		NS	NS

Centres: Dhanduka, Udaipur

Table 6.10. Peninsular Zone	SPL-2		Niphad		2020-21	
Foliar application	Seed treatment with sea weed extract				Mean	Rk
	Control	Rk	Seed treatment	Rk		
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	41.55	6	44.23	6	42.89	6
Seaweed ext 4ml/lit tillering	42.47	5	45.98	5	44.23	5
Seaweed ext 2ml/lit heading	43.66	4	46.59	4	45.13	4
Seaweed ext 4ml/lit heading	45.20	3	48.64	3	46.92	3
Seaweed ext 2ml/lit tillering & heading	46.11	2	49.19	2	47.65	2
Seaweed ext 4ml/lit tillering & heading	47.51	1	51.19	1	49.35	1
Mean	44.42		47.64		46.03	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	2.81		1.77		2.50	3.19
			Earheads/sqm			
Seaweed ext 2ml/lit tillering	376	5	392	6	384	6
Seaweed ext 4ml/lit tillering	407	3	414	3	411	3
Seaweed ext 2ml/lit heading	375	6	396	5	386	5
Seaweed ext 4ml/lit heading	417	1	416	2	417	2
Seaweed ext 2ml/lit tillering & heading	390	4	408	4	399	4
Seaweed ext 4ml/lit tillering & heading	413	2	427	1	420	1
Mean	397		409		403	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	11.46		13.22		18.69	17.95
			Grains/Earhead			
Seaweed ext 2ml/lit tillering	31.27	3	29.44	3	30.35	3
Seaweed ext 4ml/lit tillering	26.54	6	27.25	6	26.89	6
Seaweed ext 2ml/lit heading	31.79	1	30.26	2	31.03	2
Seaweed ext 4ml/lit heading	27.13	5	28.53	5	27.83	5
Seaweed ext 2ml/lit tillering & heading	31.57	2	30.79	1	31.18	1
Seaweed ext 4ml/lit tillering & heading	28.56	4	28.95	4	28.76	4
Mean	29.48		29.20		29.34	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	2.46		1.79		2.53	2.60
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	35.32	6	38.35	6	36.84	6
Seaweed ext 4ml/lit tillering	39.32	3	40.81	3	40.06	3
Seaweed ext 2ml/lit heading	36.63	5	38.92	5	37.78	5
Seaweed ext 4ml/lit heading	39.98	2	40.96	2	40.47	2
Seaweed ext 2ml/lit tillering & heading	37.49	4	39.20	4	38.35	4
Seaweed ext 4ml/lit tillering & heading	40.25	1	41.45	1	40.85	1
Mean	38.17		39.95		39.06	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	1.51		1.00		1.42	1.49
			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	49.86	6	53.96	6	51.91	6
Seaweed ext 4ml/lit tillering	51.82	5	56.79	5	54.30	5
Seaweed ext 2ml/lit heading	53.71	4	58.00	4	55.85	4
Seaweed ext 4ml/lit heading	56.04	3	61.04	3	58.54	3
Seaweed ext 2ml/lit tillering & heading	57.63	2	62.23	2	59.93	2
Seaweed ext 4ml/lit tillering & heading	59.86	1	65.53	1	62.70	1
Mean	54.82		59.59		57.21	
	Seed treatment (A)		Foliar application (B)		B within A	A within B
CD (0.05)	3.48		2.19		3.10	3.29

In Peninsular Zone, this experiment was conducted at two locations (Dharwad and Niphad). The data of Dharwad centre were rejected due to improper data reporting. The perusal of pooled analysis data presented in Table 6.10 revealed that seed treatment with seaweed extract made significant improvement in grain yield (47.64 q/ha) over untreated control (44.42 q/ha). The mean wheat yield was higher when two foliar spray of seaweed extract was done at tillering and heading stages using either 2ml/lit or 4 ml/lit as compared to treatments having one spray either at tillering or heading stage. The mean wheat yield with seed treatment was 7.25% higher than the practice of untreated seed. The data of Dharwad centre are given in Table 6.10.1 of Annexure-I.

SPL-3: Effect of surface seeding, seed priming and rate under rice-wheat system

In NEPZ, this experiment was conducted to explore the possibility of surface seeding for timely wheat seeding to maximize wheat productivity in situations where field remain wet for longer periods after harvesting of rice. The experiment was laid out in randomised complete block design with twelve seeding treatments *viz.*dry seed surface seeding @100, 125 and 150 kg/ha; surface seeding with 12 hour soaked seed @100, 125 and 150 kg/ha; seed priming (1% KNO_3 *i.e.* 10 g/litre) @100, 125 and 150 kg/ha and seed priming (1% $CaCl_2$ *i.e.* 10 g/litre) @100, 125 and 150 kg/ha. One third nitrogen, full phosphorus and potash as basal dose as per treatments and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and 1/3rd at second irrigation. Irrigation and weed control measures were followed as per recommended package of practices for the concerned zone. This trial was conducted at six locations namely Ayodhya, IARI Pusa, Kanpur, RPCAU Pusa, Sabour and Varanasi

The pooled analysis data of six locations are presented in Table 6.11. The seed priming with 1% KNO_3 @150 kg/ha resulted in significantly highest wheat grain yield (45.35 q/ha) except seed priming with 1% KNO3 @125kg/ha (44.46 q/ha). In comparison to dry seed-surface seeding all the treatments produced significantly higher grain yield except soaked seed-surface seeding at lower seed @ 100 kg/ha. Centre wise data are given in Tables 6.11.1 to 6.11.6 of Annexure- I.

Table 6.11. North Eastern Plains Zone		SPL-3	Pooled	2020-21
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding- 100 kg/ha	278	44.80	37.77	38.10
Dry surface seeding with- 125 kg/ha	286	44.79	37.14	39.07
Dry surface seeding- 150 kg/ha	295	43.51	37.64	40.27
Soaked seed surface seeding- 100 kg/ha	289	43.59	37.96	39.70
Soaked seed surface seeding- 125 kg/ha	297	45.30	38.18	40.97
Soaked seed surface seeding- 150 kg/ha	306	45.23	38.34	41.59
Seed priming (1% KNO_3)-100 kg/ha	303	48.30	38.01	43.88
Seed priming (1% KNO_3)-125 kg/ha	314	48.95	39.26	44.66
Seed priming (1% KNO_3)-150 kg/ha	328	48.60	38.75	45.35
Seed priming (1% $CaCl_2$)-100 kg/ha	303	47.79	38.42	42.31
Seed priming (1% $CaCl_2$)-125 kg/ha	311	51.06	39.41	43.90
Seed priming (1% $CaCl_2$)-150 kg/ha	318	49.78	38.81	44.17
CD (0.05)	4.00	0.98	0.65	0.73

Centres: Ayodhya, IARI Pusa, Kanpur, RPCAU Pusa, Sabour and Varanasi

SPL- 4: Optimisation of NPK doses for high yield potential

Nitrogen, phosphorus and potash are the primary and widely deficient plant nutrient in majority of the Indian soils. Absence of nitrogen even inhibits the utilization of phosphorus, potash and other micro nutrients. For exploring the optimization of nitrogen doses this trial was conducted across the zones. This experiment was conducted to maximize wheat productivity by optimizing the nitrogen dose. The experiment was laid out in randomised complete block design with nine fertilizer treatments *viz.* absolute control, 50, 75, 100, 125 and 150% recommended dose of NPK 100, 125 and 150% recommended dose of NPK with growth regulators spray at first node and boot leaf stage.

In NHZ, this trial was conducted at three locations namely Bajaura, Khudwanin and Malan but Khudwani centre data were not considered due to late arrival and improper data reporting. The pooled analysis of two centers (Bajaura, and Malan) data presented in Table 6.12 clearly reveal that significantly highest wheat grain yield (49.57 q/ha) was obtained by applying 150% recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stage as compared to all other fertilizer treatments. The second best treatment was the application of 100% recommended NPK fertilizer with GR, which produced 47.25 q/ha. The application of growth regulators at first node and boot leaf stage resulted in significant yield gain compared to when same dose of NPK were applied without growth regulator. The yield gain over 100% recommended

dose of NPK was 27.89%. Centre wise data are given in Table 6.12.1 and 6.12.2 of Annexure-I.

Table 6.12. Northern Hill Zone **SPL-4** **Pooled** **2020-21**

Treatments	Earheads /sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
*Absolute control	275	38.91	21.37	22.43	59.03	76.01
**50% Rec. NPK	343	40.36	23.56	31.55	81.25	81.58
75% Rec. NPK	359	41.30	24.20	35.19	85.87	85.92
100% Rec. NPK	390	42.14	23.70	38.76	92.71	90.25
125% Rec. NPK	408	41.87	23.84	40.73	95.93	93.43
150% Rec. NPK	415	41.82	24.84	43.11	102.98	95.92
100% Rec. NPK + GR	420	43.92	25.80	47.25	105.80	90.22
125% Rec. NPK + GR	427	43.84	25.21	46.96	105.83	90.67
150% Rec. NPK + GR	421	44.65	26.51	49.57	105.72	91.05
CD(0.05)	18.90	1.26	2.33	3.65	7.97	1.92

Centres: Bajaura and Malan

*Absolute control (No fertilizers and no growth regulators spray) **Recommended doses of NPK

In NWPZ, this experiment was conducted at eight locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). Karnal centre data were not included in pooled analysis due to different set of treatments. The pooled analysis data presented in Table 6.13 clearly revealed that maximum mean wheat grain yield (56.50 q/ha) was obtained by applying 150% recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stage but was at par with other treatments having 125% Rec NPK or more. The yield increase with the increase in fertilizer rate over RDF ranged 4.0 to 10.8%. Two sprays of growth regulators at first node and boot leaf stage also resulted in slightly higher yield over only application of recommended dose of N. Centre wise data are given in Tables 6.13.1 to 6.13.8 of Annexure-I.

Table 6.13. North Western Plains Zone **SPL-4** **Pooled** **2020-21**

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	251	36.8	30.17	27.09	66.99	76.8
50% Rec. NPK	300	38.3	36.11	40.32	108.54	85.5
75% Rec NPK	328	39.1	37.75	46.76	125.39	87.3
100 % Rec. NPK	350	39.4	37.96	51.00	137.41	90.0
125% Rec. NPK	365	39.9	37.34	53.03	143.85	91.4
150% Rec. NPK	373	39.8	37.95	54.99	146.96	93.2
100% Rec. NPK+GR	359	39.9	37.80	53.03	141.09	86.3
125% Rec. NPK + GR	377	40.4	37.44	55.57	145.64	88.0
150% Rec NPK + GR	382	40.8	37.17	56.50	148.03	88.9
CD (0.05)	11.82	1.14	2.14	5.03	7.21	1.94

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

In NEPZ, this trial was conducted at eleven locations namely Ayodhya, Burdwan, Coochbehar, IARI Pusa, Kalyani, Kanpur, Ranchi, RPCAU Pusa, Sabour, Shillongani and Varanasi. Ayodhya centre data were not included in pooled analysis due to different set of treatments. The pooled analyzed data presented in Table 6.14 revealed that the highest grain yield (49.2 q/ha) was obtained by applying 125% recommended dose of NPK and two sprays of growth regulators at first node and boot leaf stages as compared to other treatments. The highest yield was due to maximum grains per earhead and thousand grain weight. The application of growth regulators at first node and boot leaf stage resulted in significantly higher grain yield and lower plant height over the same dose of NPK without growth regulators. The yield gain over 100% recommended dose of NPK was 9.55%. Centre wise data are given in Tables 6.14.1 to 6.14.11 Annexure-I.

Table 6.14. North Eastern Plains Zone SPL-4 Pooled 2020-21

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	219	35.8	37.63	22.45	54.53	81.7
50% Rec. NPK	248	40.4	39.14	33.68	80.64	89.9
75% Rec NPK	288	44.1	39.35	39.15	94.12	93.2
100% Rec. NPK	308	44.0	40.20	44.91	108.23	96.3
125% Rec. NPK	324	45.7	40.25	47.21	116.87	97.9
150% Rec. NPK	328	46.6	40.57	47.08	113.88	99.0
100% Rec. NPK+GR	322	45.0	40.87	46.91	110.48	91.2
125% Rec. NPK + GR	333	46.8	41.20	49.20	118.39	91.1
150% Rec NPK + GR	344	46.0	40.94	49.03	117.27	91.9
CD (0.05)	11.00	1.50	0.70	1.25	2.90	1.6

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

In CZ, this trial was conducted at eight centres (Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Udaipur, Vijapur). The data of Udaipur centre were not included in pooled analysis due to improper data reporting. All agronomic practices were followed as per recommendations except nutrient application. The pooled data presented in Table 6.15 revealed that there was significant difference in grain yield and other parameters due to graded dose of NPK and growth regulators. The highest yield (52.76 q/ha) was obtained in treatment where 150 per cent of recommended dose of NPK was applied plus growth regulators spray at first node and boot leaf stages followed by 150 per cent of recommended dose of NPK (51.19 q/ha) and both treatments remained significantly different. The third highest yield was obtained with treatment having 125

per cent recommended dose of NPK with growth regulators spray at first node and boot leaf stage (50.86 q/ha). Centre wise data have been illustrated in Tables 6.15.1 to 6.15.8 of Annexure-I.

Table 6.15. Central Zone **SPL-4 Pooled** **2020-21**

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	268	39.40	27.39	26.66	62.61	74.26
50% Rec. NPK	314	41.02	30.23	37.74	82.34	80.87
75% Rec NPK	339	41.73	30.37	41.29	87.78	83.37
100 % Rec. NPK	368	42.86	30.29	46.97	99.37	87.36
125% Rec. NPK	384	43.32	31.12	50.05	102.55	88.46
150% Rec. NPK	392	42.89	31.37	51.19	104.89	89.03
100% Rec. NPK+GR	393	42.37	29.64	49.61	103.11	80.14
125% Rec. NPK + GR	405	44.40	29.00	50.86	105.63	81.22
150% Rec NPK + GR	424	43.96	28.74	52.76	110.81	82.79
CD (0.05)	8.80	0.79	1.23	1.27	2.50	1.43

Centres: Bilaspur, Gwalior, Indore, Jabalpur, Junagarh, Powarkheda, Vijapur

In Peninsular Zone, this trial was conducted at three locations (Dharwad, Niphad and Pune). The analysis of pooled data was done by considering all three centres. A perusal of pooled data presented in Table 6.16 revealed that yield increased with NPK dose. The inclusion of growth regulator spray with 100–150% recommended dose of NPK could not make any significant change in wheat yield. The maximum yield was found to be 46.17 q/ha with the treatment having 150% recommended NPK+GR spray at first node and boot leaf stage, which was at par to yield of 45.11 q/ha with 150% recommended dose of NPK. The centre wise data have been illustrated in Table 6.16.1-6.16.3 of Annexure-I.

Table 6.16. Peninsular Zone **SPL-4** **Pooled** **2020-21**

Fertilization	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha
Absolute control	277	41.66	26.20	26.65	62.53
50% Rec. NPK	320	42.39	28.40	36.38	79.45
75% Rec. NPK	333	42.68	28.98	39.87	84.47
100 % Rec. NPK	343	42.58	30.06	42.37	90.66
125% Rec. NPK	365	43.52	28.85	44.09	90.68
150% Rec. NPK	367	44.17	28.62	45.11	96.46
100% Rec. NPK+GR	352	43.91	31.32	44.68	89.51
125% Rec. NPK+ GR	377	43.73	29.14	45.32	95.01
150% Rec. NPK + GR	374	44.76	30.21	46.17	97.81
CD (0.05)	19.0	0.80	2.90	3.50	4.90

Centres: Dharwad, Niphad, Pune

SPL- 5: Lodging management of dicoccum wheat using plant growth regulators

In NWPZ, this experiment was conducted at Durgapura centre only to explore the possibility of reducing lodging for yield enhancement of dicoccum wheat using plant growth regulators. The experiment was laid out in split plot design with three varieties (MACS 2971, DDK 1029 and HW 1098) in main plot treatments and five growth regulator treatments (G1: Control; G2: CCC (2 chloroethyl- trimethyl ammonium chloride) @1000 ppm; G3: CCC (2 chloroethyl- trimethyl ammonium chloride) @1500 ppm; G4: Ethephon @10 ppm and G5: Ethephon @30 ppm) in sub plots.. Nutrient application consisted of 120:60:40 kg N, P_2O_5 and K_2O/ha. One third nitrogen, full phosphorus and potash were applied as basal dose and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and 1/3rd at second irrigation. Irrigation and weed control measures were followed as per recommended package of practices for the concerned zone.

The data presented in Table 6.17 revealed that varietal differences were non-significant whereas, the effect of growth regulator was significant. Among growth regulator treatments, the application of CCC (2-Chloroethyl Trimethyl Ammonium Chloride) @1500 ppm produced maximum yield of 41.20 q/ha and it was at par with the lower rate of CCC @1000 ppm but significantly superior to control as well as both the ethephon treatments. The yield improvement with CCC application treatments was due to improvement in earhead density.

Table 6.17. North Western Plains Zone SPL-5 Durgapura 2020-21

	Varieties							
Growth regulator	MACS 2971	Rk	DDK 1029	Rk	HW 1098	Rk	Mean	Rk
			Yield,q/ha					
Control	34.78	5	29.41	5	33.25	5	32.48	5
CCC @ 1000 ppm	42.16	2	35.70	2	39.98	2	39.28	2
CCC @ 1500 ppm	43.01	1	39.51	1	41.07	1	41.20	1
Ethephon @ 10 ppm	38.28	4	31.82	4	35.19	4	35.10	4
Ethephon @ 30 ppm	40.15	3	33.49	3	37.71	3	37.12	3
Mean	39.68		33.99		37.44		37.04	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	7.24		2.18		3.78		6.36	

			Earhead/sqm					
Control	300	5	275	5	278	5	284	5
CCC @ 1000 ppm	365	2	335	2	352	2	351	2
CCC @ 1500 ppm	367	1	352	1	356	1	358	1
Ethephon @ 10 ppm	331	4	289	4	308	4	309	4
Ethephon @ 30 ppm	349	3	301	3	332	3	327	3
Mean	342		310		325		326	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	56.79		17.93		31.06		50.54	
			Grains/Earhead					
Control	30.50	1	28.81	1	31.85	1	30.39	1
CCC @ 1000 ppm	27.27	5	27.65	4	29.23	5	28.05	5
CCC @ 1500 ppm	28.78	4	28.69	3	31.24	2	29.57	2
Ethephon @ 10 ppm	30.49	2	28.74	2	29.23	4	29.49	3
Ethephon @ 30 ppm	29.63	3	27.42	5	29.64	3	28.90	4
Mean	29.34		28.26		30.24		29.28	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	2.57		3.11		5.39		5.19	
			1000 grains weight, g					
Control	38.72	4	37.26	5	37.64	4	37.87	5
CCC @ 1000 ppm	42.36	1	39.03	3	38.78	2	40.06	1
CCC @ 1500 ppm	40.79	2	39.34	2	37.40	5	39.18	3
Ethephon @ 10 ppm	38.36	5	38.79	4	39.29	1	38.81	4
Ethephon @ 30 ppm	39.02	3	40.75	1	38.72	3	39.50	2
Mean	39.85		39.03		38.37		39.08	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	3.10		4.15		7.19		6.83	
			Biomass, q/ha					
Control	79.34	5	66.17	5	76.61	5	74.04	5
CCC @ 1000 ppm	92.64	2	84.11	2	93.16	2	89.97	2
CCC @ 1500 ppm	96.43	1	91.91	1	95.50	1	94.61	1
Ethephon @ 10 ppm	80.59	4	76.01	4	82.09	4	79.57	4
Ethephon @ 30 ppm	91.84	3	78.07	3	89.32	3	86.41	3
Mean	88.17		79.25		87.34		84.92	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	15.99		9.64		16.70		19.09	

In Peninsular Zone, this experiment was conducted at three locations (Dharwad, Niphad and Pune). The data of Dharwad centre were rejected due to improper data reported. The perusal of pooled analysis data presented in Table 6.18 revealed that there was no varietal effect on yield.

Table 6.18. Peninsular Zone	SPL-5						Pooled	2020-21
Growth regulator	Variety						Mean	Rk
	MACS 2971	Rk	DDK 1029	Rk	HW 1098	Rk		
				Yield, q/ha				
Control	35.43	5	35.24	4	34.39	5	35.02	5
CCC @ 1000 ppm	36.45	4	34.94	5	36.62	4	36.00	4
CCC @ 1500 ppm	39.59	2	37.47	3	40.34	2	39.13	3
Ethephon @ 10 ppm	39.36	3	39.79	2	42.02	1	40.39	2
Ethephon @ 30 ppm	42.04	1	42.37	1	39.63	3	41.35	1
Mean	38.57		37.96		38.60		38.38	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	1.48		1.64		2.85		2.92	
				Earheads/sqm				
Control	411	4	404	5	405	5	407	5
CCC @ 1000 ppm	418	2	415	4	412	4	415	3
CCC @ 1500 ppm	402	5	424	2	414	3	413	4
Ethephon @ 10 ppm	414	3	419	3	423	2	419	2
Ethephon @ 30 ppm	425	1	441	1	447	1	438	1
Mean	414		421		420		418	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	12.09		24.10		41.73		39.12	
				Grains/Earhead				
Control	21.90	4	19.49	4	20.63	5	20.67	5
CCC @ 1000 ppm	21.81	5	19.35	5	21.32	4	20.83	4
CCC @ 1500 ppm	25.07	1	20.38	3	23.77	2	23.07	2
Ethephon @ 10 ppm	24.10	3	22.33	1	24.59	1	23.68	1
Ethephon @ 30 ppm	24.19	2	21.58	2	22.18	3	22.65	3
Mean	23.42		20.63		22.50		22.18	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	1.01		1.57		2.71		2.61	
				1000 grains weight, g				
Control	39.49	5	44.92	1	41.60	2	42.00	3
CCC @ 1000 ppm	40.26	2	43.89	4	42.14	1	42.10	1
CCC @ 1500 ppm	39.79	4	44.02	3	41.10	3	41.63	4
Ethephon @ 10 ppm	39.96	3	43.14	5	40.35	5	41.15	5
Ethephon @ 30 ppm	41.02	1	44.45	2	40.61	4	42.03	2
Mean	40.11		44.08		41.16		41.78	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	0.60		0.47		0.82		0.94	
				Biomass, q/ha				
Control	71.46	5	75.67	4	70.42	5	72.52	5
CCC @ 1000 ppm	76.10	4	75.26	5	78.76	3	76.71	4
CCC @ 1500 ppm	81.67	3	78.01	3	74.70	4	78.13	3
Ethephon @ 10 ppm	83.42	2	79.81	2	87.54	1	83.59	1
Ethephon @ 30 ppm	83.98	1	82.83	1	81.43	2	82.74	2
Mean	79.32		78.32		78.57		78.74	
	Variety (A)		Growth regulator (B)		B within A		A within B	
CD (0.05)	4.37		4.41		7.64		8.04	
Centres: Niphad, Pune								

The use of plant growth regulator CCC @1500 ppm, Ethephon @10ppm and Ethephon @30 ppm produced significantly higher yield over control treatment. The mean wheat yield with CCC @1000 ppm was at par to control treatment. The maximum yield of 41.35 q/ha was found with Ethephon @30 ppm followed by 40.39 and 39.13 q/ha with Ethephon @30 ppm and CCC @1500 ppm, respectively. The yield improvement with growth regulators was due to improvement in earhead density. Centre wise data are given in Tables 6.18.1–6.18.3 of Annexure-I.

SPL-6: RCTs in soybean-wheat cropping system

In Peninsular Zone, this experiment was conducted at three locations (Dharwad, Niphad and Pune). The experiment was conducted in split-plot design having tillage and crop establishment (Conventional tillage-flat bed, zero tillage-flat bed, conventional tillage-broad bed and zero tillage-broad bed) as main plots and residue managements (Control, wheat residue 3t/ha, soybean residue @3t/ha and soybean + wheat residue @3t/ha) in sub-plots. Nutrient application consisted of 120:60:40 kg N, P_2O_5 and K_2O/ha. One third nitrogen, full phosphorus and potash were applied as basal dose and the remaining 2/3rd nitrogen as 1/3rd at first irrigation and 1/3rd at second irrigation. The data of Dharwad centre were rejected due to improper data reported. The perusal of pooled analysis data presented in Table 6.19 revealed that the yield of wheat grown on flat or broad bed under zero tillage was significantly lower than wheat yield under conventional tillage-flat bed. The maximum wheat yield of 43 q/ha was recorded under conventional tillage-broad bed; however, it was at par to wheat yield of 42.03 q/ha under conventional tillage-flat bed. The use of soybean residue either alone or in combination with wheat residue produced significantly higher yield than control treatment. The maximum yield of 42.51 q/ha was recorded under the treatment having soybean + wheat residue @3t/ha followed by 41.93 and 41.31 and 39.70 q/ha for the treatments having soybean residue @3t/ha, wheat residue @3t/ha and no residue, respectively. Centre wise data are given in Tables 6.19.1–6.19.3 of Annexure-I.

Table 6.19. Peninsular Zone		**SPL-6**		**Pooled**	**2020-21**
Residue management	Tillage				Mean
	CT-Flat bed	ZT-Flat bed	CT-Broad bed	ZT-Broad bed	
			Yield, q/ha		
Control	41.31	40.11	39.07	38.32	39.70
Wheat residue @3 t/ha	40.90	40.47	43.08	40.81	41.31
Soybean residue @3 t/ha	43.57	39.32	44.80	40.05	41.93
Soybean + wheat residue @3 t/ha	42.32	40.85	45.04	41.85	42.51
Mean	42.03	40.19	43.00	40.26	41.37
	Tillage (A)	Residue (B)		B within A	A within B
CD (0.05)	1.65	1.42		2.85	2.96
			Earheads/sqm		
Control	373	352	368	356	362
Wheat residue @3 t/ha	359	360	366	346	358
Soybean residue @3 t/ha	380	367	379	362	372
Soybean + wheat residue @3 t/ha	367	368	387	388	377
Mean	370	362	375	363	367
	Tillage (A)	Residue (B)		B within A	A within B
CD (0.05)	8.18	10.50		20.99	19.89
			Grains/Earhead		
Control	26.04	27.07	26.85	26.72	26.67
Wheat residue @3 t/ha	27.48	27.14	28.62	29.38	28.15
Soybean residue @3 t/ha	27.59	26.09	29.95	27.62	27.81
Soybean + wheat residue @3 t/ha	26.83	26.62	28.67	27.53	27.41
Mean	26.98	26.73	28.52	27.81	27.51
	Tillage (A)	Residue (B)		B within A	A within B
CD (0.05)	1.12	1.26		2.52	2.44
			1000 grains weight, g		
Control	42.60	42.58	39.74	40.45	41.34
Wheat residue @3 t/ha	41.46	41.57	41.02	40.29	41.08
Soybean residue @3 t/ha	41.36	41.27	39.49	40.15	40.57
Soybean + wheat residue @3 t/ha	43.09	41.87	40.65	39.57	41.29
Mean	42.13	41.82	40.22	40.12	41.07
	Tillage (A)	Residue (B)		B within A	A within B
CD (0.05)	0.47	0.56		1.12	1.08
			Biomass, q/ha		
Control	72.04	69.50	68.65	68.02	69.55
Wheat residue @3 t/ha	70.81	69.66	73.65	69.27	70.84
Soybean residue @3 t/ha	74.58	69.13	73.30	70.20	71.80
Soybean + wheat residue @3 t/ha	72.67	71.84	76.86	71.24	73.15
Mean	72.53	70.03	73.11	69.68	71.34
	Tillage (A)	Residue (B)		B within A	A within B
CD (0.05)	2.52	1.94		3.89	4.19
Centres: Niphad, Pune					

Table 2.2.1. North Western Plains Zone **IR-LS-DOS** **Agra 2020-21**

Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	50.30	2	39.97	2	45.14	2
DBW173 (C)	43.25	5	33.28	5	38.27	5
WH1124 (C)	46.44	4	34.43	4	40.44	4
HD3059 (C)	47.96	3	36.58	3	42.27	3
PBW771 (C)	51.49	1	42.58	1	47.04	1
Mean	47.89		37.37		42.63	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		0.03		0.17	0.25
Genotype (B)	**		0.58		1.73	3.32
B within A	N.S.		0.82		2.45	
A within B			0.73		2.19	
			Earhead/sqm			
JKW261	239	2	229	2	234	2
DBW173 (C)	234	5	223	5	229	5
WH1124 (C)	235	4	225	4	230	4
HD3059 (C)	236	3	226	3	231	3
PBW771 (C)	240	1	230	1	235	1
Mean	237		227		232	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		0.17		1.05	0.29
Genotype (B)	**		0.76		2.29	0.81
B within A	N.S.		1.08		3.23	
A within B			0.98		2.94	
			Grains/earhead			
JKW261	49.10	4	45.52	2	47.31	3
DBW173 (C)	48.94	5	41.59	5	45.27	5
WH1124 (C)	51.89	2	41.88	4	46.88	4
HD3059 (C)	52.13	1	43.01	3	47.57	2
PBW771 (C)	49.59	3	47.16	1	48.38	1
Mean	50.33		43.83		47.08	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		0.26		1.58	2.14
Genotype (B)	N.S.		0.91		2.71	4.71
B within A	*		1.28		3.84	
A within B			1.17		3.52	
			1000 grains weight, g			
JKW261	42.92	2	38.39	2	40.66	2
DBW173 (C)	37.84	5	35.87	5	36.86	5
WH1124 (C)	38.17	4	36.55	4	37.36	4
HD3059 (C)	38.98	3	37.62	3	38.30	3
PBW771 (C)	43.24	1	39.36	1	41.30	1
Mean	40.23		37.56		38.89	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.19		1.18	1.93
Genotype (B)	**		0.60		1.80	3.79
B within A	N.S.		0.85		2.55	
A within B			0.79		2.35	
Date of Sowing:	15.12.2020		05.01.2021			
Date of Harvesting:	10.04.2021		19.04.2021			

Table 2.2.2. North Western Plains Zone **IR-LS-DOS** **Durgapura 2020-21**

Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	38.42	1	18.36	5	28.39	3
DBW173 (C)	27.07	5	18.67	4	22.87	5
WH1124 (C)	30.94	4	19.82	3	25.38	4
HD3059 (C)	34.01	3	23.26	1	28.64	2
PBW771 (C)	35.94	2	22.90	2	29.42	1
Mean	33.28		20.60		26.94	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		2.04		12.43	29.37
Genotype (B)	**		1.16		3.46	10.50
B within A	*		1.63		4.90	
A within B			2.51		7.53	
			Earhead/sqm			
JKW261	345	1	235	4	290	3
DBW173 (C)	278	5	239	3	259	5
WH1124 (C)	305	4	235	5	270	4
HD3059 (C)	329	3	260	1	295	2
PBW771 (C)	341	2	257	2	299	1
Mean	320		245		282	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		11.73		71.41	16.09
Genotype (B)	**		5.27		15.79	4.57
B within A	**		7.45		22.33	
A within B			13.49		40.46	

Not included in pooled due to low mean yield

			Grains/earhead			
JKW261	28.33	1	21.07	4	24.70	2
DBW173 (C)	24.84	5	20.58	5	22.71	5
WH1124 (C)	26.81	2	22.29	3	24.55	3
HD3059 (C)	26.14	4	22.94	2	24.54	4
PBW771 (C)	26.62	3	22.96	1	24.79	1
Mean	26.55		21.97		24.26	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.78		4.77	12.51
Genotype (B)	N.S.		1.20		3.58	12.07
B within A	N.S.		1.69		5.07	
A within B			1.70		5.11	
			1000 grains weight, g			
JKW261	39.20	3	37.30	5	38.25	4
DBW173 (C)	38.87	4	37.95	4	38.41	3
WH1124 (C)	37.97	5	38.05	3	38.01	5
HD3059 (C)	39.73	2	39.00	2	39.36	2
PBW771 (C)	39.99	1	39.14	1	39.56	1
Mean	39.15		38.29		38.72	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.70		4.23	6.95
Genotype (B)	N.S.		1.35		4.04	8.53
B within A	N.S.		1.91		5.71	
A within B			1.84		5.52	
Date of Sowing:	09.12.2020		06.01.2021			
Date of Harvesting:	06.04.2021		15.04.2021			

Table 2.2.3. North Western Plains Zone **IR-LS-DOS** **Gurdaspur 2020-21**

Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	47.16	2	41.77	3	44.47	2
DBW173 (C)	44.24	3	41.74	4	42.99	3
WH1124 (C)	43.59	4	41.78	2	42.68	4
HD3059 (C)	43.15	5	41.54	5	42.34	5
PBW771 (C)	49.11	1	44.19	1	46.65	1
Mean	45.45		42.20		43.83	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		1.03		6.27	9.11
Genotype (B)	N.S.		1.12		3.36	6.27
B within A	N.S.		1.59		4.75	
A within B			1.75		5.26	
			Earhead/sqm			
JKW261	368	2	331	3	350	2
DBW173 (C)	341	4	334	2	337	4
WH1124 (C)	360	3	324	4	342	3
HD3059 (C)	334	5	308	5	321	5
PBW771 (C)	396	1	355	1	375	1
Mean	360		330		345	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		8.19		49.82	9.19
Genotype (B)	**		6.74		20.19	4.78
B within A	N.S.		9.53		28.56	
A within B			11.82		35.42	
			Grains/earhead			
JKW261	34.54	1	35.73	3	35.13	1
DBW173 (C)	33.75	2	35.68	4	34.72	3
WH1124 (C)	33.30	3	35.98	2	34.64	4
HD3059 (C)	33.18	4	36.65	1	34.92	2
PBW771 (C)	31.05	5	31.65	5	31.35	5
Mean	33.17		35.14		34.15	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.26		1.61	3.00
Genotype (B)	*		0.83		2.50	5.98
B within A	N.S.		1.18		3.53	
A within B			1.09		3.26	
			1000 grains weight, g			
JKW261	37.11	4	35.29	4	36.20	4
DBW173 (C)	38.63	3	35.09	5	36.86	3
WH1124 (C)	36.45	5	35.89	3	36.17	5
HD3059 (C)	38.95	2	36.78	2	37.87	2
PBW771 (C)	40.06	1	39.35	1	39.70	1
Mean	38.24		36.48		37.36	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.17		1.05	1.78
Genotype (B)	**		0.52		1.57	3.44
B within A	N.S.		0.74		2.22	
A within B			0.68		2.05	
Date of Sowing:	10.12.2020		01.01.2021			
Date of Harvesting:	10.05.2021		10.05.2021			

Table 2.2.4. North Western Plains Zone			**IR-LS-DOS**			**Hisar 2020-21**
Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	50.00	2	20.83	4	35.42	3
DBW173 (C)	42.45	4	21.35	3	31.90	4
WH1124 (C)	37.24	5	20.57	5	28.91	5
HD3059 (C)	47.66	3	23.96	2	35.81	2
PBW771 (C)	50.26	1	24.22	1	37.24	1
Mean	45.52		22.19		33.85	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		2.46		14.97	28.13
Genotype (B)	**		1.12		3.36	8.10
B within A	*		1.58		4.75	
A within B			2.84		8.51	
			Earhead/sqm			
JKW261	477	2	378	2	428	2
DBW173 (C)	379	4	329	5	354	5
WH1124 (C)	370	5	356	4	363	4
HD3059 (C)	430	3	362	3	396	3
PBW771 (C)	488	1	390	1	439	1
Mean	429		363		396	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		3.78		22.98	3.69
Genotype (B)	**		9.99		29.95	6.18
B within A	*		14.13		42.35	
A within B			13.19		39.54	
			Grains/earhead			
JKW261	29.51	2	22.07	4	25.79	4
DBW173 (C)	32.44	1	22.11	3	27.28	1
WH1124 (C)	29.23	3	23.50	1	26.37	2
HD3059 (C)	29.13	4	23.41	2	26.27	3
PBW771 (C)	27.08	5	22.05	5	24.57	5
Mean	29.48		22.63		26.05	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		1.36		8.30	20.27
Genotype (B)	N.S.		1.46		4.39	13.76
B within A	N.S.		2.07		6.21	
A within B			2.30		6.89	
			1000 grains weight, g			
JKW261	36.08	3	24.75	4	30.42	4
DBW173 (C)	34.80	4	29.33	1	32.07	3
WH1124 (C)	34.23	5	24.58	5	29.41	5
HD3059 (C)	37.93	2	28.32	2	33.13	2
PBW771 (C)	38.33	1	27.93	3	33.13	1
Mean	36.28		26.98		31.63	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.81		4.92	9.90
Genotype (B)	N.S.		1.21		3.63	9.37
B within A	N.S.		1.71		5.13	
A within B			1.73		5.19	
Date of Sowing:	13.12.2020		16.01.2021			
Date of Harvesting:	17.04.2021		24.04.2021			

Table 2.2.5. North Western Plains Zone			**IR-LS-DOS**			**Jammu 2020-21**
Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	45.50	3	36.40	3	40.95	3
DBW173 (C)	38.74	4	37.96	2	38.35	4
WH1124 (C)	36.14	5	35.62	5	35.88	5
HD3059 (C)	46.80	2	36.01	4	41.41	2
PBW771 (C)	47.58	1	41.34	1	44.46	1
Mean	42.95		37.47		40.21	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		3.39		20.65	32.69
Genotype (B)	N.S.		2.34		7.00	14.22
B within A	N.S.		3.30		9.90	
A within B			4.50		13.49	
			Earhead/sqm			
JKW261	433	1	392	1	413	1
DBW173 (C)	425	4	371	4	398	4
WH1124 (C)	430	2	375	3	403	3
HD3059 (C)	385	5	352	5	368	5
PBW771 (C)	428	3	377	2	403	2
Mean	420		373		397	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		6.55		39.89	6.40
Genotype (B)	*		9.37		28.10	5.79
B within A	N.S.		13.25		39.74	
A within B			13.55		40.62	

			Grains/earhead			
JKW261	28.24	3	24.90	5	26.57	3
DBW173 (C)	24.71	4	27.13	3	25.92	4
WH1124 (C)	22.66	5	26.00	4	24.33	5
HD3059 (C)	31.90	1	28.57	1	30.23	1
PBW771 (C)	28.50	2	28.38	2	28.44	2
Mean	27.20		27.00		27.10	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		2.93		17.83	41.88
Genotype (B)	N.S.		1.74		5.22	15.74
B within A	N.S.		2.46		7.38	
A within B			3.67		10.99	
			1000 grains weight, g			
JKW261	37.28	3	37.63	3	37.46	3
DBW173 (C)	36.93	5	38.00	2	37.47	2
WH1124 (C)	37.27	4	36.95	4	37.11	5
HD3059 (C)	38.15	2	36.23	5	37.19	4
PBW771 (C)	39.08	1	38.72	1	38.90	1
Mean	37.74		37.51		37.63	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.73		4.43	7.50
Genotype (B)	N.S.		0.61		1.82	3.94
B within A	N.S.		0.86		2.57	
A within B			1.06		3.17	
Date of Sowing:	12.12.20		01.01.21			
Date of Harvesting:	02.05.21		05.05.21			

Table 2.2.6. North Western Plains Zone **IR-LS-DOS** **Karnal 2020-21**

Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	51.38	1	47.35	3	49.37	1
DBW173 (C)	47.84	2	49.57	1	48.71	2
WH1124 (C)	43.59	5	37.98	5	40.78	5
HD3059 (C)	46.94	3	48.22	2	47.58	3
PBW771 (C)	46.87	4	46.02	4	46.44	4
Mean	47.32		45.83		46.58	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		2.05		12.48	17.06
Genotype (B)	**		0.81		2.42	4.24
B within A	*		1.14		3.42	
A within B			2.29		6.87	
			Earhead/sqm			
JKW261	463	1	480	2	472	1
DBW173 (C)	344	5	448	4	396	4
WH1124 (C)	391	2	466	3	428	3
HD3059 (C)	363	4	429	5	396	4
PBW771 (C)	373	3	511	1	442	2
Mean	387		467		427	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		13.83		84.14	12.55
Genotype (B)	*		17.01		50.99	9.76
B within A	N.S.		24.05		72.11	
A within B			25.57		76.67	
			Grains/earhead			
JKW261	30.02	4	29.49	3	29.76	4
DBW173 (C)	35.85	1	30.98	2	33.41	1
WH1124 (C)	29.64	5	26.56	5	28.10	5
HD3059 (C)	33.24	2	31.95	1	32.59	2
PBW771 (C)	32.66	3	27.06	4	29.86	3
Mean	32.28		29.21		30.74	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.62		3.75	7.76
Genotype (B)	N.S.		1.29		3.88	10.31
B within A	N.S.		1.83		5.48	
A within B			1.75		5.24	
			1000 grains weight, g			
JKW261	37.39	5	33.69	3	35.54	4
DBW173 (C)	38.85	3	36.33	1	37.59	1
WH1124 (C)	37.56	4	30.75	5	34.16	5
HD3059 (C)	39.21	1	35.57	2	37.39	2
PBW771 (C)	39.03	2	33.59	4	36.31	3
Mean	38.41		33.99		36.20	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.78		4.75	8.36
Genotype (B)	**		0.45		1.34	3.01
B within A	*		0.63		1.89	
A within B			0.96		2.89	
Date of Sowing:	14.12.2020		15.01.2021			
Date of Harvesting:	29.04.2021		29.04.2021			

Table 2.2.7. North Western Plains Zone			**IR-LS-DOS**		**Ludhiana 2020-21**	
Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	52.67	2	44.87	1	48.77	1
DBW173 (C)	54.91	1	35.49	4	45.20	4
WH1124 (C)	40.67	5	34.95	5	37.81	5
HD3059 (C)	51.86	3	42.60	3	47.23	2
PBW771 (C)	51.29	4	42.66	2	46.97	3
Mean	50.28		40.11		45.20	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.84		5.14	7.24
Genotype (B)	**		0.50		1.50	2.72
B within A	**		0.71		2.13	
A within B			1.06		3.17	
			Earhead/sqm			
JKW261	259	1	230	2	244	1
DBW173 (C)	236	3	222	4	229	4
WH1124 (C)	236	4	211	5	223	5
HD3059 (C)	235	5	230	3	232	3
PBW771 (C)	239	2	232	1	235	2
Mean	241		225		233	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		1.86		11.35	3.10
Genotype (B)	**		2.50		7.50	2.63
B within A	*		3.54		10.61	
A within B			3.67		11.01	
			Grains/earhead			
JKW261	45.35	4	55.22	1	50.29	1
DBW173 (C)	53.79	1	40.83	5	47.31	3
WH1124 (C)	40.09	5	47.07	2	43.58	5
HD3059 (C)	50.49	2	46.20	3	48.35	2
PBW771 (C)	46.06	3	44.06	4	45.06	4
Mean	47.16		46.67		46.92	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.76		4.65	6.31
Genotype (B)	**		0.79		2.38	4.14
B within A	**		1.12		3.36	
A within B			1.26		3.78	
			1000 grains weight, g			
JKW261	44.94	2	35.34	4	40.14	4
DBW173 (C)	43.23	4	39.11	3	41.17	3
WH1124 (C)	43.02	5	35.21	5	39.12	5
HD3059 (C)	43.73	3	40.20	2	41.96	2
PBW771 (C)	46.63	1	41.88	1	44.25	1
Mean	44.31		38.35		41.33	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		0.05		0.31	0.48
Genotype (B)	**		0.50		1.51	2.98
B within A	**		0.71		2.13	
A within B			0.64		1.91	
Date of Sowing:	15.12.2020		07.01.2021			
Date of Harvesting:	20.04.2021		30.04.2021			

Table 2.2.8. North Western Plains Zone			**IR-LS-DOS**		**Pantnagar 2020-21**	
Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	39.57	3	28.67	5	34.12	5
DBW173 (C)	38.97	4	34.64	3	36.80	3
WH1124 (C)	35.05	5	34.47	4	34.76	4
HD3059 (C)	40.70	2	36.32	2	38.51	2
PBW771 (C)	41.14	1	36.61	1	38.87	1
Mean	39.09		34.14		36.61	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.81		4.91	8.54
Genotype (B)	**		0.62		1.84	4.12
B within A	**		0.87		2.61	
A within B			1.12		3.36	
			Earhead/sqm			
JKW261	484	1	436	1	460	1
DBW173 (C)	394	5	405	3	399	5
WH1124 (C)	433	4	397	5	415	4
HD3059 (C)	480	2	413	2	447	2
PBW771 (C)	446	3	401	4	423	3
Mean	447		410		429	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		7.43		45.19	6.71
Genotype (B)	*		13.66		40.94	7.80
B within A	N.S.		19.31		57.90	
A within B			18.80		56.37	

			Grains/earhead			
JKW261	24.34	4	22.28	5	23.31	5
DBW173 (C)	26.00	1	24.54	4	25.27	3
WH1124 (C)	23.49	5	27.91	1	25.70	2
HD3059 (C)	24.72	3	25.07	3	24.89	4
PBW771 (C)	25.52	2	26.27	2	25.89	1
Mean	24.81		25.21		25.01	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.70		4.29	10.91
Genotype (B)	N.S.		1.00		2.99	9.75
B within A	N.S.		1.41		4.22	
A within B			1.44		4.33	
			1000 grains weight, g			
JKW261	33.60	5	30.05	5	31.82	5
DBW173 (C)	38.11	1	35.42	2	36.76	1
WH1124 (C)	34.79	3	31.30	4	33.05	4
HD3059 (C)	34.58	4	35.47	1	35.02	3
PBW771 (C)	36.30	2	34.96	3	35.63	2
Mean	35.48		33.44		34.46	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.93		5.63	10.40
Genotype (B)	*		0.97		2.91	6.89
B within A	N.S.		1.37		4.11	
A within B			1.54		4.61	
Date of Sowing:	11.12.2020		01.01.2021			
Date of Harvesting:	14.04.2021		18.04.2021			

Table 2.2.9. North Western Plains Zone **IR-LS-DOS** **Sriganganagar 2020-21**

Genotype	Date of sowing					
	Late	Rk	Very Late	Rk	Mean	Rk
			Yield,q/ha			
JKW261	35.62	5	21.15	5	28.39	5
DBW173 (C)	39.15	4	23.95	2	31.55	3
WH1124 (C)	39.26	2	23.17	4	31.21	4
HD3059 (C)	39.45	1	23.70	3	31.58	2
PBW771 (C)	39.22	3	26.21	1	32.72	1
Mean	38.54		23.64		31.09	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		0.23		1.43	2.93
Genotype (B)	**		0.25		0.74	1.94
B within A	**		0.35		1.04	
A within B			0.39		1.17	
			Earhead/sqm			
JKW261	531	4	357	2	444	3
DBW173 (C)	543	3	349	3	446	2
WH1124 (C)	558	2	376	1	467	1
HD3059 (C)	528	5	345	4	437	4
PBW771 (C)	564	1	296	5	430	5
Mean	545		345		445	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	**		8.45		51.42	7.36
Genotype (B)	N.S.		10.06		30.16	5.54
B within A	*		14.23		42.66	
A within B			15.28		45.80	
			Grains/earhead			
JKW261	18.78	5	18.40	5	18.59	5
DBW173 (C)	20.54	2	23.11	2	21.83	2
WH1124 (C)	20.27	3	20.33	4	20.30	4
HD3059 (C)	21.42	1	20.61	3	21.01	3
PBW771 (C)	20.02	4	28.17	1	24.10	1
Mean	20.21		22.12		21.16	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	N.S.		0.43		2.60	7.83
Genotype (B)	**		0.67		1.99	7.70
B within A	**		0.94		2.82	
A within B			0.94		2.83	
			1000 grains weight, g			
JKW261	35.74	1	32.28	2	34.01	2
DBW173 (C)	35.17	2	29.93	5	32.55	5
WH1124 (C)	34.78	5	30.45	4	32.61	4
HD3059 (C)	35.12	3	33.33	1	34.23	1
PBW771 (C)	34.79	4	31.60	3	33.20	3
Mean	35.12		31.52		33.32	
	F Test		SEm		CD (0.05)	CV (%)
Date of sowing (A)	*		0.27		1.64	3.14
Genotype (B)	**		0.30		0.91	2.22
B within A	*		0.43		1.28	
A within B			0.47		1.40	
Date of Sowing:	15.12.2020		05.01.2021			
Date of Harvesting:	16.04.2021		25.04.2021			

Table 2.4.1. North Western Plains Zone **RIR-TS-TAS** **Agra** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	28.53	1	41.88	1	46.32	1	38.91	1
HI1628 (C)	20.91	6	32.19	6	39.89	6	31.00	6
HUW838	23.16	4	34.08	4	41.85	4	33.03	4
NIAW3170 (C)	24.14	3	35.32	3	42.53	3	34.00	3
WH1142 (C)	21.44	5	33.06	5	40.45	5	31.65	5
HD3043 (C)	19.53	7	28.31	7	38.64	7	28.83	7
PBW644 (C)	26.38	2	39.58	2	43.67	2	36.54	2
Mean	23.44		34.92		41.91		33.42	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.37		1.43		5.01	
Genotype (B)	**		0.55		1.57		4.93	
B within A	N.S.		0.95		2.73			
A within B			0.95		2.73			
			Earhead/sqm					
DBW296	201	7	209	7	224	7	211	7
HI1628 (C)	208	4	214	4	227	5	216	4
HUW838	209	3	215	3	226	6	216	3
NIAW3170 (C)	211	1	212	6	227	4	217	2
WH1142 (C)	206	5	213	5	229	2	216	5
HD3043 (C)	210	2	215	1	230	1	218	1
PBW644 (C)	203	6	215	2	228	3	215	6
Mean	207		213		227		216	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.57		2.23		1.21	
Genotype (B)	**		1.05		3.00		1.46	
B within A	N.S.		1.81		5.20			
A within B			1.77		5.09			
			Grains/Earhead					
DBW296	44.08	1	61.05	1	60.28	1	55.13	1
HI1628 (C)	36.09	6	53.08	4	55.04	4	48.07	4
HUW838	37.03	3	53.20	3	56.79	3	49.01	3
NIAW3170 (C)	36.64	4	52.18	5	54.26	5	47.69	5
WH1142 (C)	35.02	7	45.04	7	44.24	7	41.43	7
HD3043 (C)	36.16	5	50.84	6	53.32	6	46.78	6
PBW644 (C)	40.21	2	56.54	2	58.23	2	51.66	2
Mean	37.89		53.13		54.60		48.54	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.09		4.28		10.29	
Genotype (B)	**		1.37		3.92		8.45	
B within A	N.S.		2.37		6.79			
A within B			2.45		7.02			
			1000 grains weight, g					
DBW296	32.33	2	32.96	2	34.46	3	33.25	2
HI1628 (C)	27.97	6	28.51	6	32.12	6	29.53	6
HUW838	29.96	4	30.00	5	32.71	5	30.89	5
NIAW3170 (C)	31.31	3	31.98	4	34.61	2	32.63	4
WH1142 (C)	29.84	5	34.58	1	39.97	1	34.80	1
HD3043 (C)	25.77	7	25.99	7	31.59	7	27.78	7
PBW644 (C)	32.39	1	32.65	3	32.99	4	32.68	3
Mean	29.94		30.95		34.06		31.65	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.39		1.52		5.60	
Genotype (B)	**		0.49		1.40		4.64	
B within A	**		0.85		2.43			
A within B			0.87		2.51			
Date of Sowing:			05.11.2020					
Date of Harvesting:			23.03.2021					

Table 2.4.2. North Western Plains Zone **RIR-TS-TAS** **Delhi** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	28.74	7	41.60	7	42.86	6	37.73	7
HI1628 (C)	30.61	2	43.03	3	43.47	4	39.04	3
HUW838	29.42	5	42.99	4	44.05	3	38.82	4
NIAW3170 (C)	29.08	6	44.29	1	45.24	1	39.54	2
WH1142 (C)	29.66	4	41.90	5	41.84	7	37.80	6
HD3043 (C)	33.33	1	43.71	2	44.39	2	40.48	1
PBW644 (C)	30.14	3	41.73	6	42.93	5	38.27	5
Mean	30.14		42.75		43.54		38.81	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.34		5.28		15.87	
Genotype (B)	**		0.49		1.40		3.77	
B within A	N.S.		0.85		2.43			
A within B			1.56		4.46			
			Earhead/sqm					
DBW296	218	4	281	1	301	1	267	1
HI1628 (C)	228	2	269	3	289	4	262	2
HUW838	195	6	247	6	271	6	238	6
NIAW3170 (C)	231	1	265	5	285	5	260	3
WH1142 (C)	173	7	275	2	293	2	247	5
HD3043 (C)	197	5	238	7	259	7	232	7
PBW644 (C)	219	3	266	4	290	3	258	4
Mean	209		263		284		252	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		4.93		19.36		8.97	
Genotype (B)	N.S.		8.79		25.22		10.46	
B within A	N.S.		15.22		43.69			
A within B			14.93		42.85			
			Grains/Earhead					
DBW296	41.52	6	44.14	7	40.82	7	42.16	7
HI1628 (C)	47.18	4	50.45	3	45.43	3	47.69	4
HUW838	48.96	3	52.29	2	47.11	2	49.45	3
NIAW3170 (C)	39.78	7	48.83	5	45.02	4	44.55	6
WH1142 (C)	58.54	2	49.08	4	43.54	5	50.39	2
HD3043 (C)	62.66	1	59.53	1	51.97	1	58.05	1
PBW644 (C)	46.04	5	47.63	6	43.26	6	45.64	5
Mean	49.24		50.28		45.31		48.28	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		2.92		11.46		27.70	
Genotype (B)	**		1.64		4.70		10.19	
B within A	N.S.		2.84		8.15			
A within B			3.93		11.27			
			1000 grains weight, g					
DBW296	31.78	1	34.33	2	35.54	1	33.89	1
HI1628 (C)	28.44	6	32.00	6	33.37	6	31.27	6
HUW838	30.76	3	33.92	3	34.96	3	33.21	3
NIAW3170 (C)	31.40	2	34.41	1	35.49	2	33.77	2
WH1142 (C)	29.22	5	32.91	5	34.09	5	32.07	5
HD3043 (C)	26.96	7	31.15	7	33.14	7	30.42	7
PBW644 (C)	29.85	4	33.20	4	34.41	4	32.49	4
Mean	29.77		33.13		34.43		32.44	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.29		1.14		4.10	
Genotype (B)	**		0.23		0.65		2.08	
B within A	N.S.		0.39		1.12			
A within B			0.46		1.33			
Date of Sowing:			19.11.2020					
Date of Harvesting:			25.04.2021					

Table 2.4.3. North Western Plains Zone **RIR-TS-TAS** **Durgapura** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	10.54	6	12.41	6	18.22	4	13.72	5
HI1628 (C)	13.57	1	17.68	1	21.25	1	17.50	1
HUW838	12.21	2	15.33	2	19.21	2	15.58	2
NIAW3170 (C)	11.66	3	14.62	3	18.87	3	15.05	3
WH1142 (C)	10.71	5	13.09	5	16.25	6	13.35	6
HD3043 (C)	9.35	7	11.73	7	15.91	7	12.33	7
PBW644 (C)	11.05	4	13.74	4	17.34	5	14.04	4
Mean	11.30		14.09		18.15		14.51	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.99		3.90		31.40	
Genotype (B)	**		0.71		2.00		14.76	
B within A	N.S.		1.24		3.55			
A within B			1.52		4.35			
			Earhead/sqm					
DBW296	180	5	197	6	238	5	205	6
HI1628 (C)	213	1	247	1	275	1	245	1
HUW838	206	2	230	2	267	2	235	2
NIAW3170 (C)	190	3	227	3	250	3	222	3
WH1142 (C)	175	6	207	5	235	6	206	5
HD3043 (C)	164	7	194	7	232	7	197	7
PBW644 (C)	189	4	219	4	250	4	219	4
Mean	188		217		250		218	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		9.74		38.25		20.45	
Genotype (B)	**		5.89		16.89		8.09	
B within A	N.S.		10.20		29.25			
A within B			13.57		38.93			
			Grains/Earhead					
DBW296	15.42	3	16.13	4	19.15	2	16.90	3
HI1628 (C)	16.12	2	17.62	1	19.66	1	17.80	1
HUW838	14.95	5	16.24	3	17.63	4	16.27	4
NIAW3170 (C)	16.13	1	16.68	2	18.68	3	17.16	2
WH1142 (C)	14.79	6	15.40	7	17.41	5	15.86	6
HD3043 (C)	15.05	4	15.53	6	16.62	7	15.73	7
PBW644 (C)	14.76	7	15.72	5	17.32	6	15.94	5
Mean	15.32		16.19		18.07		16.53	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.73		2.88		20.37	
Genotype (B)	N.S.		0.73		2.09		13.25	
B within A	N.S.		1.26		3.63			
A within B			1.38		3.96			
			1000 grains weight, g					
DBW296	38.24	6	39.34	5	40.76	3	39.45	5
HI1628 (C)	39.65	2	41.30	1	39.39	7	40.12	3
HUW838	39.51	4	40.75	3	40.92	2	40.39	2
NIAW3170 (C)	38.36	5	38.78	7	40.40	4	39.18	7
WH1142 (C)	40.71	1	41.09	2	39.68	6	40.50	1
HD3043 (C)	38.02	7	38.95	6	41.14	1	39.37	6
PBW644 (C)	39.58	3	39.95	4	40.39	5	39.97	4
Mean	39.15		40.02		40.38		39.85	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.24		4.87		14.26	
Genotype (B)	N.S.		1.23		3.54		9.28	
B within A	N.S.		2.14		6.13			
A within B			2.33		6.70			
Date of Sowing:			27.11.2020					
Date of Harvesting:								

Table 2.4.4. North Western Plains Zone **RIR-TS-TAS** **Gurdaspur** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	57.28	3	57.65	4	65.41	1	60.12	3
HI1628 (C)	55.80	5	55.98	5	58.07	5	56.62	5
HUW838	44.77	7	51.98	7	55.83	6	50.86	7
NIAW3170 (C)	59.23	1	61.98	2	63.04	3	61.42	1
WH1142 (C)	57.53	2	59.09	3	62.02	4	59.55	4
HD3043 (C)	52.74	6	54.48	6	55.44	7	54.22	6
PBW644 (C)	57.11	4	62.44	1	64.00	2	61.19	2
Mean	54.92		57.66		60.54		57.71	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.84		3.29		6.65	
Genotype (B)	**		0.70		2.01		3.64	
B within A	**		1.21		3.48			
A within B			1.40		4.02			
			Earhead/sqm					
DBW296	328	3	358	2	364	2	350	2
HI1628 (C)	332	2	338	4	344	4	338	3
HUW838	230	7	251	7	260	7	247	7
NIAW3170 (C)	328	4	334	5	349	3	337	4
WH1142 (C)	318	6	323	6	336	6	326	6
HD3043 (C)	323	5	339	3	342	5	335	5
PBW644 (C)	341	1	367	1	376	1	361	1
Mean	314		330		339		328	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		6.64		26.05		9.28	
Genotype (B)	**		7.66		21.97		7.01	
B within A	N.S.		13.26		38.05			
A within B			13.95		40.04			
			Grains/Earhead					
DBW296	38.62	6	36.55	6	39.45	5	38.21	6
HI1628 (C)	36.10	7	34.59	7	35.31	7	35.33	7
HUW838	49.34	2	50.48	1	53.90	1	51.24	1
NIAW3170 (C)	40.60	4	40.61	4	37.83	6	39.68	5
WH1142 (C)	50.46	1	50.15	2	52.50	2	51.04	2
HD3043 (C)	43.65	3	43.28	3	42.70	3	43.21	3
PBW644 (C)	39.50	5	40.51	5	39.66	4	39.89	4
Mean	42.61		42.31		43.05		42.66	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.11		4.35		11.90	
Genotype (B)	**		1.50		4.31		10.56	
B within A	N.S.		2.60		7.47			
A within B			2.65		7.61			
			1000 grains weight, g					
DBW296	45.31	2	44.38	3	45.68	3	45.12	3
HI1628 (C)	46.71	1	47.90	1	47.96	1	47.52	1
HUW838	39.67	5	41.12	5	39.87	5	40.22	5
NIAW3170 (C)	44.78	3	45.80	2	47.78	2	46.12	2
WH1142 (C)	35.86	7	36.55	7	37.09	7	36.50	7
HD3043 (C)	37.36	6	37.17	6	38.00	6	37.51	6
PBW644 (C)	42.67	4	42.03	4	43.05	4	42.58	4
Mean	41.77		42.14		42.77		42.23	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		0.31		1.23		3.39	
Genotype (B)	**		0.54		1.56		3.86	
B within A	N.S.		0.94		2.70			
A within B			0.93		2.66			
Date of Sowing:			09.11.2020					
Date of Harvesting:			30.04.2021					

Table 2.4.5. North Western Plains Zone **RIR-TS-TAS** **Hisar** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	45.23	3	60.60	2	62.15	2	55.99	1
HI1628 (C)	47.78	1	49.62	6	59.67	3	52.36	5
HUW838	33.04	7	45.18	7	52.54	7	43.59	7
NIAW3170 (C)	38.39	6	61.61	1	64.73	1	54.91	2
WH1142 (C)	45.20	4	57.34	4	58.03	4	53.52	3
HD3043 (C)	47.40	2	57.67	3	55.03	5	53.37	4
PBW644 (C)	43.92	5	52.54	5	52.66	6	49.71	6
Mean	43.00		54.94		57.83		51.92	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.61		2.41		5.42	
Genotype (B)	**		1.09		3.11		6.27	
B within A	**		1.88		5.39			
A within B			1.85		5.30			
			Earhead/sqm					
DBW296	380	1	425	2	440	2	415	2
HI1628 (C)	356	4	363	6	373	7	364	7
HUW838	347	7	372	5	388	5	369	6
NIAW3170 (C)	365	2	426	1	477	1	423	1
WH1142 (C)	359	3	373	4	391	4	374	4
HD3043 (C)	352	5	382	3	385	6	373	5
PBW644 (C)	348	6	363	7	430	3	380	3
Mean	358		386		412		386	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		8.43		33.10		10.02	
Genotype (B)	**		11.04		31.69		8.59	
B within A	N.S.		19.13		54.88			
A within B			19.61		56.28			
			Grains/Earhead					
DBW296	32.89	5	37.83	4	34.51	5	35.08	5
HI1628 (C)	38.88	3	37.80	5	37.52	4	38.07	3
HUW838	29.07	6	36.67	6	39.39	3	35.04	6
NIAW3170 (C)	26.28	7	34.71	7	30.44	7	30.48	7
WH1142 (C)	44.08	2	52.39	1	45.55	1	47.34	1
HD3043 (C)	45.96	1	50.19	2	42.01	2	46.05	2
PBW644 (C)	37.81	4	41.83	3	32.78	6	37.48	4
Mean	36.42		41.63		37.46		38.51	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.73		6.79		20.57	
Genotype (B)	**		1.38		3.95		10.72	
B within A	N.S.		2.38		6.84			
A within B			2.80		8.04			
			1000 grains weight, g					
DBW296	37.28	2	38.18	2	40.98	3	38.82	2
HI1628 (C)	34.65	3	36.45	3	42.92	2	38.01	3
HUW838	32.75	5	33.78	5	34.98	5	33.84	5
NIAW3170 (C)	40.53	1	42.80	1	45.03	1	42.79	1
WH1142 (C)	28.53	7	29.83	7	33.03	7	30.47	7
HD3043 (C)	29.32	6	30.48	6	34.12	6	31.31	6
PBW644 (C)	33.23	4	34.92	4	37.70	4	35.28	4
Mean	33.76		35.21		38.40		35.79	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.85		3.35		10.93	
Genotype (B)	**		0.68		1.96		5.74	
B within A	N.S.		1.19		3.40			
A within B			1.39		3.99			
Date of Sowing:			05.11.2020					
Date of Harvesting:			03.04.2021					

Table 2.4.6. North Western Plains Zone **RIR-TS-TAS** **Jammu** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	44.94	4	46.10	4	43.09	4	44.71	4
HI1628 (C)	42.86	5	43.09	6	41.24	5	42.40	5
HUW838	52.36	1	53.05	1	51.43	1	52.28	1
NIAW3170 (C)	45.64	2	46.80	2	44.25	2	45.56	2
WH1142 (C)	42.16	6	43.79	5	40.77	6	42.24	6
HD3043 (C)	40.54	7	41.01	7	39.62	7	40.39	7
PBW644 (C)	45.64	2	46.57	3	43.55	3	45.25	3
Mean	44.88		45.77		43.42		44.69	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.06		4.18		10.91	
Genotype (B)	**		1.53		4.38		10.25	
B within A	N.S.		2.64		7.59			
A within B			2.67		7.66			
			Earhead/sqm					
DBW296	402	4	390	7	404	5	399	7
HI1628 (C)	376	7	414	3	410	3	400	5
HUW838	390	6	401	5	420	1	404	3
NIAW3170 (C)	404	3	428	1	367	7	400	6
WH1142 (C)	417	1	414	2	416	2	416	1
HD3043 (C)	398	5	412	4	402	6	404	3
PBW644 (C)	412	2	398	6	409	4	406	2
Mean	400		408		404		404	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		7.37		28.92		8.35	
Genotype (B)	N.S.		8.29		23.80		6.16	
B within A	N.S.		14.37		41.22			
A within B			15.20		43.63			
			Grains/Earhead					
DBW296	28.60	4	29.92	2	27.10	5	28.54	4
HI1628 (C)	30.44	2	28.53	6	27.29	4	28.75	3
HUW838	33.46	1	35.40	1	29.07	2	32.64	1
NIAW3170 (C)	30.26	3	28.64	5	31.80	1	30.23	2
WH1142 (C)	27.17	6	28.71	4	26.36	7	27.42	6
HD3043 (C)	28.04	5	27.21	7	26.60	6	27.28	7
PBW644 (C)	26.89	7	29.20	3	27.36	3	27.81	5
Mean	29.27		29.66		27.94		28.95	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		0.98		3.85		15.52	
Genotype (B)	*		1.17		3.36		12.12	
B within A	N.S.		2.03		5.81			
A within B			2.12		6.07			
			1000 grains weight, g					
DBW296	39.08	3	39.48	2	40.02	2	39.53	3
HI1628 (C)	37.52	5	36.52	7	36.95	7	36.99	6
HUW838	40.32	2	37.52	4	42.08	1	39.97	2
NIAW3170 (C)	37.55	4	38.22	3	37.92	4	37.89	4
WH1142 (C)	37.48	6	36.97	5	37.25	6	37.23	5
HD3043 (C)	36.72	7	36.58	6	37.30	5	36.87	7
PBW644 (C)	41.27	1	40.42	1	38.78	3	40.16	1
Mean	38.56		37.96		38.61		38.38	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		0.54		2.14		6.51	
Genotype (B)	**		0.50		1.43		3.90	
B within A	N.S.		0.86		2.48			
A within B			0.97		2.78			
Date of Sowing:			12.11.2020					
Date of Harvesting:			30.04.2021					

Table 2.4.7. North Western Plains Zone			**RIR-TS-TAS**				**Karnal**	**2020-21**
Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	37.09	3	48.47	1	55.61	2	47.06	1
HI1628 (C)	38.24	1	47.33	2	51.10	4	45.56	3
HUW838	34.30	7	44.39	7	47.59	6	42.09	7
NIAW3170 (C)	36.50	4	44.87	5	55.76	1	45.71	2
WH1142 (C)	37.45	2	44.77	6	51.47	3	44.56	4
HD3043 (C)	34.81	6	46.43	3	49.79	5	43.68	5
PBW644 (C)	35.07	5	45.63	4	46.54	7	42.41	6
Mean	36.21		45.98		51.12		44.44	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.41		5.52		14.49	
Genotype (B)	**		0.99		2.85		6.72	
B within A	N.S.		1.72		4.94			
A within B			2.13		6.10			
			Earhead/sqm					
DBW296	333	7	407	2	403	5	381	6
HI1628 (C)	353	4	355	7	427	3	378	7
HUW838	402	1	395	5	417	4	404	1
NIAW3170 (C)	345	5	420	1	403	5	389	5
WH1142 (C)	358	3	400	4	430	2	396	3
HD3043 (C)	388	2	385	6	398	7	391	4
PBW644 (C)	340	6	402	3	450	1	397	2
Mean	360		395		418		391	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		8.83		34.67		10.35	
Genotype (B)	N.S.		11.02		31.62		8.45	
B within A	N.S.		19.09		54.77			
A within B			19.75		56.69			
			Grains/Earhead					
DBW296	34.51	3	32.08	5	42.86	1	36.48	1
HI1628 (C)	31.45	5	33.74	3	38.38	3	34.52	3
HUW838	28.54	6	34.44	2	31.10	6	31.36	6
NIAW3170 (C)	37.54	1	30.93	6	39.38	2	35.95	2
WH1142 (C)	35.19	2	33.22	4	31.56	5	33.32	4
HD3043 (C)	27.25	7	35.29	1	33.78	4	32.11	5
PBW644 (C)	33.35	4	28.52	7	28.85	7	30.24	7
Mean	32.55		32.60		35.13		33.43	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.46		5.72		19.98	
Genotype (B)	N.S.		1.79		5.13		16.06	
B within A	N.S.		3.10		8.89			
A within B			3.22		9.23			
			1000 grains weight, g					
DBW296	32.65	3	37.68	3	32.77	6	34.37	4
HI1628 (C)	34.43	1	39.74	2	31.59	7	35.25	2
HUW838	30.25	6	33.40	7	37.45	3	33.70	6
NIAW3170 (C)	30.65	5	34.59	4	35.35	5	33.53	7
WH1142 (C)	30.06	7	33.97	6	38.25	1	34.09	5
HD3043 (C)	33.57	2	34.26	5	37.61	2	35.15	3
PBW644 (C)	31.13	4	39.87	1	36.09	4	35.70	1
Mean	31.82		36.22		35.59		34.54	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.84		3.31		11.17	
Genotype (B)	N.S.		1.33		3.83		11.59	
B within A	N.S.		2.31		6.63			
A within B			2.30		6.60			
Date of Sowing:			03.12.2020					
Date of Harvesting:			17.04.2021					

Table 2.4.8. North Western Plains Zone **RIR-TS-TAS** **Ludhiana** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	46.86	2	51.42	1	54.33	1	50.87	1
HI1628 (C)	43.63	3	42.13	6	46.93	6	44.23	5
HUW838	39.64	5	49.72	3	50.26	4	46.54	3
NIAW3170 (C)	39.27	7	47.51	4	52.47	2	46.42	4
WH1142 (C)	49.34	1	49.90	2	51.13	3	50.12	2
HD3043 (C)	40.14	4	42.76	5	42.37	7	41.75	7
PBW644 (C)	39.45	6	40.87	7	48.49	5	42.94	6
Mean	42.62		46.33		49.43		46.12	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.96		3.76		9.51	
Genotype (B)	**		0.96		2.76		6.25	
B within A	**		1.66		4.78			
A within B			1.81		5.21			
			Earhead/sqm					
DBW296	300	2	326	1	326	2	317	2
HI1628 (C)	259	6	318	4	315	5	297	6
HUW838	238	7	251	7	251	7	246	7
NIAW3170 (C)	309	1	316	5	346	1	324	1
WH1142 (C)	269	4	320	3	321	4	304	3
HD3043 (C)	270	3	314	6	314	6	299	5
PBW644 (C)	262	5	322	2	323	3	303	4
Mean	272		310		314		299	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		5.62		22.07		8.63	
Genotype (B)	**		7.96		22.84		8.00	
B within A	N.S.		13.79		39.56			
A within B			13.95		40.02			
			Grains/Earhead					
DBW296	39.71	6	36.62	4	37.13	4	37.82	4
HI1628 (C)	44.78	3	32.33	6	32.77	7	36.63	6
HUW838	54.67	1	55.44	1	54.06	1	54.72	1
NIAW3170 (C)	29.66	7	33.23	5	34.38	6	32.42	7
WH1142 (C)	54.14	2	47.39	2	47.20	2	49.57	2
HD3043 (C)	44.71	4	38.98	3	37.80	3	40.50	3
PBW644 (C)	41.70	5	31.66	7	36.79	5	36.72	5
Mean	44.20		39.38		40.02		41.20	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.54		6.04		17.12	
Genotype (B)	**		1.92		5.50		13.95	
B within A	N.S.		3.32		9.52			
A within B			3.44		9.86			
			1000 grains weight, g					
DBW296	39.30	2	43.54	2	45.72	1	42.86	2
HI1628 (C)	38.69	3	41.40	3	45.52	2	41.87	3
HUW838	30.60	7	36.31	5	37.24	5	34.71	6
NIAW3170 (C)	42.95	1	45.46	1	44.52	3	44.31	1
WH1142 (C)	33.97	5	32.99	7	34.54	7	33.83	7
HD3043 (C)	33.61	6	35.27	6	35.78	6	34.89	5
PBW644 (C)	36.30	4	40.18	4	40.79	4	39.09	4
Mean	36.49		39.31		40.59		38.79	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.58		2.27		6.82	
Genotype (B)	**		0.83		2.38		6.41	
B within A	N.S.		1.44		4.12			
A within B			1.45		4.16			
Date of Sowing:			24.10.2020					
Date of Harvesting:			15.04.2021					

Table 2.4.9. North Western Plains Zone **RIR-TS-TAS** **Pantnagar** **2020-21**

Genotype	Irrigation level						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield,q/ha					
DBW296	38.67	3	46.79	1	46.30	3	43.92	1
HI1628 (C)	39.80	1	42.36	5	44.59	5	42.25	4
HUW838	31.72	7	44.52	3	53.93	1	43.39	2
NIAW3170 (C)	36.63	5	43.03	4	48.31	2	42.66	3
WH1142 (C)	37.19	4	41.25	7	44.74	4	41.06	6
HD3043 (C)	33.12	6	41.62	6	43.77	6	39.50	7
PBW644 (C)	39.24	2	44.74	2	42.25	7	42.07	5
Mean	36.62		43.47		46.27		42.12	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.80		3.13		8.68	
Genotype (B)	N.S.		1.28		3.68		9.13	
B within A	*		2.22		6.37			
A within B			2.20		6.32			
			Earhead/sqm					
DBW296	256	5	335	3	388	1	326	4
HI1628 (C)	259	3	314	4	358	3	311	5
HUW838	231	7	292	7	304	7	275	7
NIAW3170 (C)	298	2	348	2	383	2	343	1
WH1142 (C)	253	6	373	1	353	5	326	3
HD3043 (C)	257	4	309	6	335	6	300	6
PBW644 (C)	315	1	309	5	357	4	327	2
Mean	267		326		354		316	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		7.96		31.25		11.56	
Genotype (B)	**		9.04		25.93		8.59	
B within A	N.S.		15.65		44.91			
A within B			16.53		47.44			
			Grains/Earhead					
DBW296	38.80	3	34.24	4	29.51	5	34.19	5
HI1628 (C)	37.96	4	32.31	5	28.61	6	32.96	6
HUW838	36.99	5	39.30	2	43.98	1	40.09	1
NIAW3170 (C)	31.30	7	29.80	7	27.93	7	29.68	7
WH1142 (C)	46.53	1	31.63	6	36.15	3	38.11	2
HD3043 (C)	38.92	2	38.59	3	36.54	2	38.02	3
PBW644 (C)	35.67	6	40.80	1	34.28	4	36.92	4
Mean	38.03		35.24		33.86		35.71	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.09		4.29		14.02	
Genotype (B)	**		1.69		4.85		14.21	
B within A	N.S.		2.93		8.41			
A within B			2.92		8.39			
			1000 grains weight, g					
DBW296	39.50	2	41.01	3	40.56	4	40.36	3
HI1628 (C)	40.74	1	41.92	2	43.65	2	42.10	2
HUW838	36.74	4	38.95	4	41.13	3	38.94	4
NIAW3170 (C)	39.18	3	42.49	1	45.28	1	42.31	1
WH1142 (C)	32.14	7	35.12	6	35.16	6	34.14	7
HD3043 (C)	33.72	6	34.97	7	36.15	5	34.95	6
PBW644 (C)	34.88	5	35.59	5	34.74	7	35.07	5
Mean	36.70		38.58		39.52		38.27	
	F Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.73		2.88		8.77	
Genotype (B)	**		0.90		2.57		7.02	
B within A	N.S.		1.55		4.45			
A within B			1.61		4.63			
Date of Sowing:			21.11.2020					
Date of Harvesting:			12.04.2021					

Table 2.6.1. North Western Plains Zone **SPL-IR-ES-HYPT** **Gurdaspur** **2020-21**

Genotype	Nutrient management				Mean	
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		Rk
			Yield, q/ha			
PBW873	61.67	10	66.66	10	64.17	10
DBW187(I) (C)	63.24	8	75.04	2	69.14	5
PBW872	66.71	6	67.74	7	67.22	7
PBW874	62.75	9	64.72	15	63.73	11
HD3410	65.64	7	65.75	13	65.70	8
DBW370	67.77	2	70.76	5	69.27	3
DBW327*	73.34	1	76.77	1	75.05	1
WH1270(I) (C)	60.77	12	67.59	8	64.18	9
HD3086 (C)	61.54	11	65.19	14	63.36	13
WH1252*	59.57	14	66.42	11	63.00	14
DBW328*	67.62	3	73.07	3	70.35	2
DBW372	55.58	15	64.40	16	59.99	16
DBW333*	55.29	16	66.02	12	60.65	15
DBW303(I) (C)	59.86	13	67.52	9	63.69	12
DBW371	67.56	4	68.31	6	67.93	6
DBW332*	67.01	5	71.43	4	69.22	4
Mean	63.50		68.59		66.04	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.96		5.83	10.05
Genotype (B)	**		1.66		4.70	6.17
B within A	N.S.		2.35		6.65	
A within B			2.47		6.99	
			Earhead/sqm			
PBW873	355	12	364	16	359	14
DBW187(I) (C)	404	2	414	5	409	3
PBW872	368	7	395	7	382	8
PBW874	437	1	439	1	438	1
HD3410	339	16	370	13	355	16
DBW370	351	14	370	13	360	13
DBW327*	400	3	425	3	413	2
WH1270(I) (C)	352	13	369	15	360	12
HD3086 (C)	366	9	393	9	379	9
WH1252*	357	11	420	4	388	6
DBW328*	382	4	431	2	407	4
DBW372	374	6	409	6	392	5
DBW333*	367	8	376	12	371	11
DBW303(I) (C)	377	5	394	8	385	7
DBW371	340	15	378	11	359	15
DBW332*	363	10	389	10	376	10
Mean	371		396		383	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		1.60		9.75	2.90
Genotype (B)	**		12.07		34.15	7.72
B within A	N.S.		17.08		48.30	
A within B			16.61		46.98	
			Grains/Earhead			
PBW873	41.73	6	47.13	3	44.43	4
DBW187(I) (C)	35.77	12	45.07	5	40.42	9
PBW872	36.14	11	34.08	16	35.11	16
PBW874	35.60	13	37.42	14	36.51	12
HD3410	50.12	1	42.55	7	46.34	3
DBW370	49.75	2	56.33	1	53.04	1
DBW327*	34.98	14	35.95	15	35.47	14
WH1270(I) (C)	39.82	7	47.09	4	43.45	5
HD3086 (C)	37.99	8	40.04	9	39.02	10
WH1252*	42.05	5	39.37	12	40.71	8
DBW328*	37.49	10	39.67	11	38.58	11
DBW372	33.15	15	37.59	13	35.37	15
DBW333*	31.67	16	39.93	10	35.80	13
DBW303(I) (C)	37.94	9	43.54	6	40.74	7
DBW371	45.10	4	40.68	8	42.89	6
DBW332*	45.73	3	51.81	2	48.77	2
Mean	40		42		41	
	F Test		SEm		CD (0.05)	CV (%)
Nutrients (A)	N.S.		0.60		3.65	10.12
Genotype (B)	**		1.56		4.42	9.33
B within A	*		2.21		6.25	
A within B			2.22		6.29	

			1000 grains weight, g			
PBW873	41.73	11	39.43	12	40.58	11
DBW187(I) (C)	43.84	8	40.37	9	42.11	8
PBW872	50.95	2	50.25	2	50.60	2
PBW874	40.55	12	39.53	11	40.04	13
HD3410	38.67	16	41.90	7	40.28	12
DBW370	39.07	15	33.98	16	36.53	16
DBW327*	52.54	1	50.35	1	51.44	1
WH1270(I) (C)	43.41	9	39.16	14	41.28	9
HD3086 (C)	44.57	6	41.58	8	43.07	7
WH1252*	39.83	14	40.20	10	40.02	14
DBW328*	47.48	4	42.76	5	45.12	4
DBW372	45.32	5	42.07	6	43.69	6
DBW333*	47.58	3	44.26	4	45.92	3
DBW303(I) (C)	42.38	10	39.39	13	40.88	10
DBW371	44.05	7	44.38	3	44.22	5
DBW332*	40.52	13	35.67	15	38.10	15
Mean	43.91		41.58		42.74	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.09		0.58	1.53
Genotype (B)	**		0.68		1.93	3.92
B within A	*		0.97		2.74	
A within B			0.94		2.66	
			Biomass, q/ha			
PBW873	145.51	9	155.36	11	150.43	10
DBW187(I) (C)	154.20	6	171.46	2	162.83	4
PBW872	151.38	8	159.75	9	155.57	8
PBW874	141.83	13	162.32	7	152.07	9
HD3410	152.74	7	164.32	5	158.53	5
DBW370	154.47	4	162.44	6	158.46	6
DBW327*	164.27	1	174.37	1	169.32	1
WH1270(I) (C)	138.79	14	156.72	10	147.75	14
HD3086 (C)	143.26	12	154.54	13	148.90	13
WH1252*	144.84	11	155.19	12	150.01	11
DBW328*	154.25	5	162.05	8	158.15	7
DBW372	137.70	15	148.20	16	142.95	15
DBW333*	131.65	16	152.86	15	142.26	16
DBW303(I) (C)	145.14	10	153.75	14	149.44	12
DBW371	160.20	2	166.02	4	163.11	3
DBW332*	160.07	3	169.23	3	164.65	2
Mean	148.77		160.54		154.65	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		2.86		17.40	12.81
Genotype (B)	**		2.56		7.25	4.06
B within A	N.S.		3.62		10.25	
A within B			4.53		12.80	
			Plant Height, cm			
PBW873	91.1	4	86.3	2	88.7	2
DBW187(I) (C)	87.5	12	77.9	15	82.7	12
PBW872	85.7	14	79.1	13	82.4	13
PBW874	82.5	16	78.3	14	80.4	16
HD3410	91.5	3	82.3	7	86.9	7
DBW370	89.0	9	87.1	1	88.0	4
DBW327*	85.1	15	79.3	12	82.2	14
WH1270(I) (C)	90.9	6	81.5	8	86.2	8
HD3086 (C)	87.6	11	76.2	16	81.9	15
WH1252*	91.1	5	82.9	6	87.0	5
DBW328*	90.4	7	83.5	4	86.9	6
DBW372	89.4	8	81.4	9	85.4	9
DBW333*	87.9	10	80.9	10	84.4	10
DBW303(I) (C)	94.3	2	82.9	5	88.6	3
DBW371	95.8	1	83.6	3	89.7	1
DBW332*	86.8	13	80.5	11	83.7	11
Mean	89.2		81.5		85.3	
	F Test		SEm		CD (0.05)	CV (%)
Nutrients (A)	*		0.70		4.28	5.72
Genotype (B)	**		1.16		3.29	3.34
B within A	N.S.		1.64		4.65	
A within B			1.74		4.92	
Date of Sowing:		27.10.2020			Date of Harvesting:	04.04.2021

Table 2.6.2. North Western Plains Zone **SPL-IR-ES-HYPT** **Hisar** **2020-21**

Genotype	Nutrient management				Mean	Rk
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		
			Yield, q/ha			
PBW873	50.46	11	57.18	8	53.82	12
DBW187(I) (C)	56.94	2	60.65	2	58.80	1
PBW872	51.62	9	59.95	3	55.79	6
PBW874	50.00	14	54.63	15	52.31	14
HD3410	59.26	1	57.18	8	58.22	2
DBW370	55.32	4	56.48	11	55.90	5
DBW327*	56.94	3	57.41	7	57.18	3
WH1270(I) (C)	50.46	11	58.10	6	54.28	10
HD3086 (C)	52.31	9	56.48	11	54.40	9
WH1252*	50.23	13	49.54	16	49.88	15
DBW328*	55.09	5	56.48	11	55.79	6
DBW372	38.43	16	56.71	10	47.57	16
DBW333*	51.39	10	58.33	5	54.86	8
DBW303(I) (C)	49.07	15	58.56	4	53.82	12
DBW371	52.08	7	55.79	14	53.94	11
DBW332*	51.85	8	62.27	1	57.06	4
Mean	51.97		57.23		54.60	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.74		4.53	9.45
Genotype (B)	N.S.		2.11		5.96	9.46
B within A	N.S.		2.98		8.44	
A within B			2.98		8.43	
			Earhead/sqm			
PBW873	476	5	296	16	386	9
DBW187(I) (C)	288	15	368	11	328	16
PBW872	408	9	452	5	430	6
PBW874	552	1	384	9	468	4
HD3410	484	3	500	2	492	2
DBW370	380	12	400	8	390	8
DBW327*	484	3	408	7	446	5
WH1270(I) (C)	456	6	484	4	470	3
HD3086 (C)	508	2	576	1	542	1
WH1252*	416	8	336	14	376	10
DBW328*	336	14	384	9	360	14
DBW372	204	16	496	3	350	15
DBW333*	444	7	300	15	372	13
DBW303(I) (C)	348	13	440	6	394	7
DBW371	408	9	340	13	374	12
DBW332*	400	11	352	12	376	10
Mean	412		407		410	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		37.87		230.42	64.04
Genotype (B)	*		37.11		104.95	22.19
B within A	*		52.48		148.42	
A within B			63.37		179.23	
			Grains/Earhead			
PBW873	25.48	12	50.06	1	37.77	6
DBW187(I) (C)	42.45	2	43.72	3	43.08	1
PBW872	24.97	14	27.91	16	26.44	16
PBW874	22.62	16	40.78	4	31.70	11
HD3410	32.50	6	30.27	14	31.38	12
DBW370	35.21	5	37.61	9	36.41	7
DBW327*	30.30	9	30.80	13	30.55	13
WH1270(I) (C)	25.88	11	31.38	12	28.63	14
HD3086 (C)	25.39	13	28.19	15	26.79	15
WH1252*	31.39	7	39.66	8	35.53	8
DBW328*	39.76	3	35.94	10	37.85	5
DBW372	50.40	1	32.52	11	41.46	2
DBW333*	24.29	15	40.63	5	32.46	10
DBW303(I) (C)	35.77	4	40.11	6	37.94	4
DBW371	30.24	10	39.75	7	34.99	9
DBW332*	30.74	8	46.73	2	38.73	3
Mean	32		37		34	
	F Test		SEm		CD (0.05)	CV (%)
Nutrients (A)	N.S.		2.84		17.27	57.01
Genotype (B)	N.S.		4.30		12.15	30.52
B within A	N.S.		6.08		17.19	
A within B			6.53		18.48	

Not included in pooled due to low mean yield

			1000 grains weight, g			
PBW873	42.07	10	39.73	8	40.90	9
DBW187(I) (C)	47.68	4	42.47	6	45.08	5
PBW872	50.78	1	47.80	2	49.29	1
PBW874	43.48	7	35.95	16	39.72	12
HD3410	39.63	16	39.15	10	39.39	13
DBW370	42.05	11	37.53	14	39.79	11
DBW327*	45.37	6	46.15	3	45.76	4
WH1270(I) (C)	42.78	8	39.18	9	40.98	8
HD3086 (C)	40.47	13	37.70	13	39.08	15
WH1252*	39.65	15	37.30	15	38.48	16
DBW328*	48.87	2	42.78	5	45.83	3
DBW372	41.73	12	41.92	7	41.83	7
DBW333*	48.18	3	48.67	1	48.43	2
DBW303(I) (C)	40.02	14	38.67	11	39.34	14
DBW371	46.67	5	43.15	4	44.91	6
DBW332*	42.23	9	38.30	12	40.27	10
Mean	43.85		41.03		42.44	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.50		3.05	8.19
Genotype (B)	**		1.02		2.88	5.89
B within A	N.S.		1.44		4.08	
A within B			1.48		4.20	
			Biomass, q/ha			
PBW873	163.47	12	168.29	14	165.88	13
DBW187(I) (C)	180.79	2	186.34	2	183.56	2
PBW872	165.05	10	172.45	10	168.75	10
PBW874	169.91	6	166.67	15	168.29	11
HD3410	189.35	1	191.97	1	190.66	1
DBW370	175.00	5	178.96	5	176.98	5
DBW327*	179.40	3	183.56	3	181.48	3
WH1270(I) (C)	163.43	13	171.30	11	167.36	12
HD3086 (C)	167.59	8	176.16	8	171.88	7
WH1252*	162.04	14	168.33	13	165.19	14
DBW328*	177.31	4	181.25	4	179.28	4
DBW372	122.92	16	135.19	16	129.05	16
DBW333*	165.51	9	176.62	6	171.06	8
DBW303(I) (C)	156.99	15	170.37	12	163.68	15
DBW371	168.29	7	176.62	6	172.45	6
DBW332*	164.35	11	175.23	9	169.79	9
Mean	166.96		173.71		170.33	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.48		2.91	1.95
Genotype (B)	**		3.08		8.70	4.42
B within A	N.S.		4.35		12.31	
A within B			4.24		11.99	
			Plant Height, cm			
PBW873	106.5	11	103.3	6	104.9	10
DBW187(I) (C)	107.2	10	109.2	2	108.2	5
PBW872	101.7	14	96.7	16	99.2	15
PBW874	96.8	16	99.7	13	98.3	16
HD3410	110.8	3	111.3	1	111.1	1
DBW370	110.8	3	102.0	8	106.4	6
DBW327*	101.7	14	100.0	12	100.8	14
WH1270(I) (C)	107.7	9	104.8	5	106.3	7
HD3086 (C)	105.5	12	98.5	14	102.0	12
WH1252*	113.8	2	105.7	4	109.8	2
DBW328*	116.2	1	100.8	10	108.5	4
DBW372	104.3	13	98.3	15	101.3	13
DBW333*	110.8	3	107.8	3	109.3	3
DBW303(I) (C)	109.2	7	100.2	11	104.7	11
DBW371	110.0	6	102.5	7	106.3	7
DBW332*	108.3	8	101.7	9	105.0	9
Mean	107.6		102.7		105.1	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.45		2.72	2.94
Genotype (B)	**		1.58		4.46	3.67
B within A	*		2.23		6.31	
A within B			2.20		6.23	
Date of Sowing:		26.10.2020			Date of Harvesting:	05.04.2021

Table 2.6.3. North Western Plains Zone			**SPL-IR-ES-HYPT**		**Karnal**	**2020-21**
Genotype	Nutrient management				Mean	Rk
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		
			Yield, q/ha			
PBW873	58.88	14	65.33	14	62.11	14
DBW187(I) (C)	61.67	10	64.47	15	63.07	12
PBW872	64.51	6	69.09	7	66.80	6
PBW874	62.61	8	68.68	8	65.65	8
HD3410	67.25	4	70.19	4	68.72	4
DBW370	68.87	1	69.23	6	69.05	3
DBW327*	62.91	7	70.02	5	66.47	7
WH1270(I) (C)	58.90	13	65.74	12	62.32	13
HD3086 (C)	55.42	16	66.81	11	61.11	15
WH1252*	57.56	15	59.35	16	58.46	16
DBW328*	61.04	11	65.71	13	63.37	11
DBW372	68.57	2	73.97	1	71.27	1
DBW333*	62.25	9	68.68	9	65.46	9
DBW303(I) (C)	60.67	12	67.85	10	64.26	10
DBW371	64.84	5	72.43	2	68.63	5
DBW332*	67.77	3	71.30	3	69.53	2
Mean	62.73		68.05		65.39	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.27		1.63	2.84
Genotype (B)	**		1.12		3.17	4.20
B within A	N.S.		1.59		4.49	
A within B			1.56		4.41	
			Earhead/sqm			
PBW873	453	6	463	12	458	8
DBW187(I) (C)	428	9	508	4	468	7
PBW872	420	11	469	11	445	12
PBW874	463	4	525	2	494	3
HD3410	445	8	499	5	472	5
DBW370	415	13	497	6	456	9
DBW327*	473	3	471	10	472	6
WH1270(I) (C)	419	12	453	13	436	14
HD3086 (C)	535	1	518	3	527	2
WH1252*	424	10	453	13	439	13
DBW328*	460	5	489	7	475	4
DBW372	518	2	558	1	538	1
DBW333*	452	7	453	13	453	10
DBW303(I) (C)	378	16	486	9	432	15
DBW371	405	14	488	8	447	11
DBW332*	385	15	437	16	411	16
Mean	442		486		464	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		17.49		106.43	26.12
Genotype (B)	**		13.95		39.47	7.37
B within A	N.S.		19.73		55.82	
A within B			25.90		73.27	
			Grains/Earhead			
PBW873	29.28	11	35.70	3	32.49	10
DBW187(I) (C)	31.09	10	31.69	12	31.39	11
PBW872	28.49	14	29.00	16	28.74	14
PBW874	32.23	7	33.99	8	33.11	7
HD3410	38.36	3	40.86	2	39.61	2
DBW370	40.75	2	35.20	5	37.98	3
DBW327*	26.41	15	30.96	13	28.69	15
WH1270(I) (C)	31.25	8	34.32	7	32.78	8
HD3086 (C)	23.97	16	30.74	15	27.36	16
WH1252*	35.15	5	35.44	4	35.30	5
DBW328*	28.90	13	30.90	14	29.90	13
DBW372	29.02	12	33.03	11	31.03	12
DBW333*	31.14	9	34.41	6	32.77	9
DBW303(I) (C)	36.92	4	33.80	9	35.36	4
DBW371	33.90	6	33.55	10	33.73	6
DBW332*	43.10	1	41.68	1	42.39	1
Mean	32		34		33	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.82		4.97	17.00
Genotype (B)	**		1.10		3.10	8.06
B within A	*		1.55		4.38	
A within B			1.71		4.83	

			1000 grains weight, g			
PBW873	44.50	9	39.63	12	42.07	11
DBW187(I) (C)	46.59	5	40.33	9	43.46	7
PBW872	54.53	1	51.08	1	52.80	1
PBW874	42.23	12	38.59	14	40.41	13
HD3410	39.56	15	34.51	16	37.04	16
DBW370	41.17	13	39.65	11	40.41	12
DBW327*	50.29	2	48.19	2	49.24	2
WH1270(I) (C)	45.79	7	42.50	6	44.14	6
HD3086 (C)	43.25	11	42.02	7	42.63	9
WH1252*	38.63	16	37.01	15	37.82	15
DBW328*	46.73	4	43.57	5	45.15	4
DBW372	45.95	6	40.21	10	43.08	8
DBW333*	44.81	8	44.43	3	44.62	5
DBW303(I) (C)	43.45	10	41.53	8	42.49	10
DBW371	47.22	3	44.37	4	45.80	3
DBW332*	41.11	14	39.21	13	40.16	14
Mean	44.74		41.68		43.21	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.32		1.97	5.18
Genotype (B)	**		0.75		2.12	4.26
B within A	N.S.		1.06		3.00	
A within B			1.08		3.05	
			Biomass, q/ha			
PBW873	151.98	13	156.75	15	154.37	14
DBW187(I) (C)	154.76	11	166.27	10	160.52	10
PBW872	170.63	3	175.79	3	173.21	3
PBW874	173.81	1	189.88	1	181.85	1
HD3410	171.43	2	176.51	2	173.97	2
DBW370	164.29	4	167.46	8	165.87	6
DBW327*	160.00	7	173.81	4	166.91	5
WH1270(I) (C)	157.14	9	162.70	13	159.92	11
HD3086 (C)	150.79	14	167.06	9	158.93	13
WH1252*	144.21	16	159.67	14	151.94	15
DBW328*	155.95	10	168.02	7	161.98	9
DBW372	162.25	5	173.41	5	167.83	4
DBW333*	147.22	15	152.06	16	149.64	16
DBW303(I) (C)	159.52	8	171.43	6	165.48	7
DBW371	153.97	12	165.48	11	159.72	12
DBW332*	160.71	6	165.21	12	162.96	8
Mean	158.67		168.22		163.44	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		1.40		8.52	5.94
Genotype (B)	**		2.45		6.93	3.67
B within A	N.S.		3.46		9.79	
A within B			3.63		10.28	
			Plant Height, cm			
PBW873	103.5	11	95.4	6	99.5	9
DBW187(I) (C)	104.8	9	89.9	13	97.4	12
PBW872	102.1	16	89.9	12	96.0	14
PBW874	103.9	10	95.6	5	99.8	8
HD3410	109.8	1	100.6	1	105.2	1
DBW370	108.1	4	97.9	3	103.0	2
DBW327*	102.3	15	91.4	11	96.8	13
WH1270(I) (C)	106.7	7	88.3	15	97.5	11
HD3086 (C)	103.0	13	88.5	14	95.8	15
WH1252*	105.8	8	94.7	7	100.2	7
DBW328*	107.5	5	94.0	9	100.8	6
DBW372	109.5	2	94.6	8	102.1	5
DBW333*	102.7	14	85.4	16	94.0	16
DBW303(I) (C)	108.6	3	96.6	4	102.6	4
DBW371	106.8	6	98.4	2	102.6	3
DBW332*	103.4	12	93.5	10	98.4	10
Mean	105.5		93.4		99.5	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.54		3.29	3.76
Genotype (B)	**		0.80		2.26	1.97
B within A	**		1.13		3.20	
A within B			1.22		3.46	
Date of Sowing:		24.10.2020			Date of Harvesting:	12.04.2021

Table 2.6.4. North Western Plains Zone			**SPL-IR-ES-HYPT**		**Ludhiana**	**2020-21**
Genotype	Nutrient management				Mean	Rk
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		
			Yield, q/ha			
PBW873	52.83	16	61.23	13	57.03	15
DBW187(I) (C)	61.15	8	66.38	7	63.77	6
PBW872	65.34	3	72.15	1	68.74	1
PBW874	66.33	2	69.33	4	67.83	3
HD3410	61.26	7	63.05	10	62.16	9
DBW370	55.78	12	61.97	12	58.87	11
DBW327*	67.05	1	70.08	3	68.56	2
WH1270(I) (C)	56.86	11	59.65	16	58.25	14
HD3086 (C)	55.33	13	61.98	11	58.65	13
WH1252*	57.07	10	60.47	14	58.77	12
DBW328*	63.83	5	65.79	8	64.81	5
DBW372	64.91	4	70.60	2	67.75	4
DBW333*	58.25	9	69.01	5	63.63	7
DBW303(I) (C)	61.39	6	65.17	9	63.28	8
DBW371	54.28	14	66.89	6	60.58	10
DBW332*	53.50	15	60.41	15	56.96	16
Mean	59.70		65.26		62.48	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.80		4.89	8.91
Genotype (B)	**		1.51		4.28	5.93
B within A	N.S.		2.14		6.05	
A within B			2.22		6.28	
			Earhead/sqm			
PBW873	330	9	343	12	336	10
DBW187(I) (C)	350	5	375	3	362	4
PBW872	348	6	344	11	346	7
PBW874	379	2	375	3	377	2
HD3410	390	1	387	1	389	1
DBW370	351	4	358	7	354	6
DBW327*	342	7	348	10	345	8
WH1270(I) (C)	290	16	340	13	315	15
HD3086 (C)	329	11	385	2	357	5
WH1252*	327	12	360	6	344	9
DBW328*	307	13	354	9	330	14
DBW372	367	3	361	5	364	3
DBW333*	330	9	338	14	334	11
DBW303(I) (C)	331	8	332	15	332	12
DBW371	304	14	357	8	331	13
DBW332*	304	14	321	16	313	16
Mean	336		355		345	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		1.57		9.53	3.14
Genotype (B)	*		12.17		34.42	8.63
B within A	N.S.		17.21		48.67	
A within B			16.73		47.33	
			Grains/Earhead			
PBW873	41.94	10	49.83	8	45.89	7
DBW187(I) (C)	43.93	6	45.74	12	44.83	9
PBW872	34.00	16	48.32	10	41.16	15
PBW874	43.93	7	54.72	1	49.33	2
HD3410	35.12	15	48.00	11	41.56	14
DBW370	46.46	1	53.45	2	49.96	1
DBW327*	41.01	11	43.30	15	42.16	13
WH1270(I) (C)	45.51	3	43.77	14	44.64	10
HD3086 (C)	40.80	12	40.69	16	40.74	16
WH1252*	44.31	5	50.41	7	47.36	5
DBW328*	45.95	2	51.08	5	48.51	3
DBW372	37.02	14	49.15	9	43.09	12
DBW333*	43.23	8	44.92	13	44.08	11
DBW303(I) (C)	44.44	4	50.98	6	47.71	4
DBW371	39.37	13	51.87	3	45.62	8
DBW332*	42.50	9	51.74	4	47.12	6
Mean	42		49		45	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.84		5.12	12.89
Genotype (B)	N.S.		2.92		8.27	15.84
B within A	N.S.		4.14		11.70	
A within B			4.09		11.57	

			1000 grains weight, g			
PBW873	38.80	15	36.00	12	37.40	14
DBW187(I) (C)	40.20	13	38.84	8	39.52	11
PBW872	55.60	1	43.84	3	49.72	1
PBW874	42.04	9	34.62	14	38.33	13
HD3410	44.75	6	34.65	13	39.70	10
DBW370	34.37	16	32.60	16	33.48	16
DBW327*	48.11	2	47.01	1	47.56	2
WH1270(I) (C)	43.70	7	40.98	4	42.34	5
HD3086 (C)	41.44	11	39.78	6	40.61	8
WH1252*	40.01	14	34.08	15	37.04	15
DBW328*	47.53	4	36.81	10	42.17	6
DBW372	48.06	3	40.56	5	44.31	3
DBW333*	41.16	12	45.72	2	43.44	4
DBW303(I) (C)	41.89	10	39.13	7	40.51	9
DBW371	45.44	5	37.20	9	41.32	7
DBW332*	42.12	8	36.74	11	39.43	12
Mean	43.45		38.66		41.06	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.21		1.29	3.58
Genotype (B)	**		2.04		5.78	12.18
B within A	N.S.		2.89		8.17	
A within B			2.80		7.93	
			Biomass, q/ha			
PBW873	115.38	14	132.56	13	123.97	14
DBW187(I) (C)	132.56	5	151.61	3	142.08	3
PBW872	133.36	4	147.58	5	140.47	5
PBW874	145.71	1	169.59	1	157.65	1
HD3410	139.53	2	154.56	2	147.05	2
DBW370	126.92	8	124.85	16	125.88	12
DBW327*	129.61	7	143.29	7	136.45	7
WH1270(I) (C)	114.31	15	126.12	15	120.21	16
HD3086 (C)	116.99	11	140.07	8	128.53	10
WH1252*	125.04	9	137.12	11	131.08	9
DBW328*	132.56	5	148.12	4	140.34	6
DBW372	136.05	3	147.32	6	141.68	4
DBW333*	116.46	12	136.31	12	126.39	11
DBW303(I) (C)	124.78	10	137.66	10	131.22	8
DBW371	110.55	16	139.53	9	125.04	13
DBW332*	115.65	13	129.34	14	122.49	15
Mean	125.97		141.60		133.78	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		1.13		6.90	5.87
Genotype (B)	**		3.77		10.67	6.91
B within A	N.S.		5.34		15.09	
A within B			5.29		14.96	
			Plant Height, cm			
PBW873	83.3	6	79.7	5	81.5	5
DBW187(I) (C)	86.0	2	74.3	14	80.2	7
PBW872	73.8	16	70.9	16	72.4	16
PBW874	77.5	15	74.6	13	76.0	15
HD3410	89.9	1	83.1	2	86.5	1
DBW370	84.5	4	81.4	4	82.9	4
DBW327*	82.0	10	76.5	9	79.2	10
WH1270(I) (C)	82.8	7	78.2	6	80.5	6
HD3086 (C)	79.7	13	75.1	12	77.4	12
WH1252*	84.9	3	82.3	3	83.6	3
DBW328*	84.1	5	83.5	1	83.8	2
DBW372	82.1	9	76.7	8	79.4	9
DBW333*	81.1	11	76.2	10	78.6	11
DBW303(I) (C)	79.3	14	75.3	11	77.3	13
DBW371	82.2	8	76.7	7	79.5	8
DBW332*	79.9	12	73.6	15	76.8	14
Mean	82.1		77.4		79.7	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.72		4.36	6.23
Genotype (B)	**		1.59		4.50	4.89
B within A	N.S.		2.25		6.37	
A within B			2.30		6.49	
Date of Sowing:		27.10.2020			Date of Harvesting:	07.05.2021

Table 2.6.5. North Western Plains Zone **SPL-IR-ES-HYPT** **Pantnagar** **2020-21**

Genotype	Nutrient management				Mean	Rk
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		
			Yield, q/ha			
PBW873	52.33	10	55.29	14	53.81	13
DBW187(I) (C)	57.93	4	58.67	10	58.30	6
PBW872	57.08	5	63.36	4	60.22	5
PBW874	49.77	15	62.73	5	56.25	9
HD3410	52.20	11	54.22	15	53.21	15
DBW370	52.80	9	59.81	8	56.31	8
DBW327*	59.90	2	68.39	1	64.15	1
WH1270(I) (C)	56.61	6	67.94	2	62.27	4
HD3086 (C)	51.09	14	56.80	11	53.95	12
WH1252*	54.55	8	56.02	12	55.29	11
DBW328*	55.92	7	59.87	7	57.89	7
DBW372	48.41	16	52.89	16	50.65	16
DBW333*	51.39	12	55.84	13	53.62	14
DBW303(I) (C)	51.35	13	59.31	9	55.33	10
DBW371	59.64	3	64.97	3	62.30	3
DBW332*	64.03	1	62.13	6	63.08	2
Mean	54.69		59.89		57.29	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.61		3.74	7.44
Genotype (B)	**		1.39		3.94	5.96
B within A	N.S.		1.97		5.58	
A within B			2.01		5.67	
			Earhead/sqm			
PBW873	368	4	432	4	400	4
DBW187(I) (C)	350	9	368	10	359	9
PBW872	392	1	440	2	416	1
PBW874	360	7	433	3	396	5
HD3410	379	2	423	5	401	3
DBW370	312	16	364	13	338	16
DBW327*	327	13	386	8	357	11
WH1270(I) (C)	342	11	392	7	367	7
HD3086 (C)	363	5	353	16	358	10
WH1252*	374	3	393	6	384	6
DBW328*	335	12	360	14	348	13
DBW372	362	6	463	1	412	2
DBW333*	321	15	365	12	343	15
DBW303(I) (C)	343	10	379	9	361	8
DBW371	325	14	368	10	347	14
DBW332*	351	8	355	15	353	12
Mean	350		392		371	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		5.78		35.16	10.78
Genotype (B)	**		13.40		37.90	8.84
B within A	N.S.		18.95		53.59	
A within B			19.24		54.41	
			Grains/Earhead			
PBW873	31.25	12	33.38	11	32.31	12
DBW187(I) (C)	33.47	9	31.93	12	32.70	11
PBW872	28.70	15	29.10	15	28.90	15
PBW874	28.40	16	30.92	14	29.66	14
HD3410	31.17	13	31.03	13	31.10	13
DBW370	40.70	2	38.42	3	39.56	1
DBW327*	36.66	6	35.48	7	36.07	7
WH1270(I) (C)	38.65	4	36.77	6	37.71	4
HD3086 (C)	32.54	10	38.84	2	35.69	8
WH1252*	32.54	11	34.27	10	33.40	10
DBW328*	34.19	8	34.70	9	34.45	9
DBW372	29.64	14	24.72	16	27.18	16
DBW333*	37.15	5	37.45	5	37.30	6
DBW303(I) (C)	36.16	7	39.13	1	37.65	5
DBW371	40.81	1	35.46	8	38.14	3
DBW332*	39.07	3	37.96	4	38.51	2
Mean	34		34		34	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.30		1.83	6.07
Genotype (B)	**		1.50		4.25	10.71
B within A	N.S.		2.13		6.02	
A within B			2.08		5.89	

Not included in pooled due to low mean yield

			1000 grains weight, g			
PBW873	45.66	7	38.65	16	42.15	15
DBW187(I) (C)	49.93	3	50.37	1	50.15	3
PBW872	50.76	1	49.54	4	50.15	2
PBW874	48.90	5	47.06	7	47.98	5
HD3410	44.29	11	41.89	12	43.09	11
DBW370	41.98	15	42.98	10	42.48	14
DBW327*	50.44	2	50.03	2	50.24	1
WH1270(I) (C)	43.07	14	47.34	6	45.21	9
HD3086 (C)	43.61	13	41.71	13	42.66	12
WH1252*	45.19	9	42.11	11	43.65	10
DBW328*	48.97	4	48.41	5	48.69	4
DBW372	45.15	10	46.52	8	45.84	8
DBW333*	44.05	12	41.11	14	42.58	13
DBW303(I) (C)	41.40	16	40.12	15	40.76	16
DBW371	45.26	8	49.89	3	47.57	6
DBW332*	47.02	6	46.20	9	46.61	7
Mean	45.98		45.25		45.61	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.14		0.83	2.06
Genotype (B)	**		1.11		3.15	5.99
B within A	N.S.		1.58		4.46	
A within B			1.53		4.34	
			Biomass, q/ha			
PBW873	143.60	11	159.72	8	151.66	10
DBW187(I) (C)	156.06	1	160.45	6	158.26	3
PBW872	150.20	4	153.86	11	152.03	9
PBW874	150.20	4	165.58	3	157.89	4
HD3410	154.59	2	162.65	4	158.62	2
DBW370	141.40	14	151.64	13	146.52	15
DBW327*	149.46	6	175.84	1	162.65	1
WH1270(I) (C)	142.87	13	169.98	2	156.42	5
HD3086 (C)	143.60	11	150.93	14	147.27	13
WH1252*	148.00	7	153.86	11	150.93	11
DBW328*	147.27	8	162.65	4	154.96	7
DBW372	145.80	9	148.73	15	147.27	13
DBW333*	131.15	16	141.40	16	136.28	16
DBW303(I) (C)	140.58	15	155.33	10	147.95	12
DBW371	145.07	10	160.45	6	152.76	8
DBW332*	152.39	3	158.99	9	155.69	6
Mean	146.39		158.25		152.32	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		1.43		8.70	6.50
Genotype (B)	**		3.59		10.14	5.77
B within A	N.S.		5.07		14.35	
A within B			5.11		14.47	
			Plant Height, cm			
PBW873	93.7	7	80.8	12	87.3	10
DBW187(I) (C)	94.4	6	83.2	7	88.8	6
PBW872	86.9	15	78.6	16	82.8	16
PBW874	89.4	14	82.1	10	85.8	13
HD3410	101.4	1	91.2	1	96.3	1
DBW370	95.3	5	79.2	15	87.3	10
DBW327*	91.9	9	85.3	4	88.6	7
WH1270(I) (C)	90.2	13	80.1	14	85.1	14
HD3086 (C)	93.0	8	82.5	8	87.8	8
WH1252*	90.3	12	84.9	5	87.6	9
DBW328*	95.7	4	84.8	6	90.3	3
DBW372	96.9	2	82.5	8	89.7	4
DBW333*	91.6	10	80.7	13	86.2	12
DBW303(I) (C)	86.5	16	81.3	11	83.9	15
DBW371	96.5	3	88.3	2	92.4	2
DBW332*	90.8	11	87.2	3	89.0	5
Mean	92.8		83.3		88.0	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		1.62		9.85	12.74
Genotype (B)	*		1.92		5.44	5.35
B within A	N.S.		2.72		7.69	
A within B			3.09		8.74	
Date of Sowing:		23.10.2020			Date of Harvesting:	06.04.2021

Table 2.6.6. North Western Plains Zone			**SPL-IR-ES-HYPT**		**BISA Ludhiana**	**2020-21**
Genotype	Nutrient management				Mean	Rk
	Rec.NPK	Rk	150%NPK + FYM+GR	Rk		
			Yield, q/ha			
PBW873	58.17	11	65.53	11	61.85	11
DBW187(I) (C)	59.22	9	70.25	7	64.74	7
PBW872	64.06	3	73.06	4	68.56	4
PBW874	60.55	7	68.81	9	64.68	8
HD3410	60.44	8	66.61	10	63.53	9
DBW370	67.03	1	75.42	2	71.22	1
DBW327*	62.56	5	74.78	3	68.67	3
WH1270(I) (C)	58.25	10	62.61	14	60.43	12
HD3086 (C)	53.39	16	63.03	13	58.21	15
WH1252*	57.72	12	61.17	15	59.44	14
DBW328*	62.42	6	72.86	5	67.64	5
DBW372	55.50	14	70.50	6	63.00	10
DBW333*	54.58	15	61.08	16	57.83	16
DBW303(I) (C)	55.64	13	64.78	12	60.21	13
DBW371	63.89	4	70.19	8	67.04	6
DBW332*	65.92	2	75.50	1	70.71	2
Mean	59.96		68.51		64.23	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.82		4.98	8.83
Genotype (B)	**		1.35		3.82	5.15
B within A	N.S.		1.91		5.40	
A within B			2.02		5.72	
			Earhead/sqm			
PBW873	287	15	379	14	333	15
DBW187(I) (C)	368	4	396	10	382	7
PBW872	334	9	409	7	372	8
PBW874	408	1	463	3	436	1
HD3410	370	3	417	6	393	5
DBW370	329	11	463	3	396	4
DBW327*	305	13	399	9	352	14
WH1270(I) (C)	334	9	382	13	358	10
HD3086 (C)	387	2	468	2	427	2
WH1252*	350	5	367	15	358	11
DBW328*	348	6	430	5	389	6
DBW372	348	6	486	1	417	3
DBW333*	339	8	385	12	362	9
DBW303(I) (C)	304	14	401	8	353	13
DBW371	323	12	388	11	356	12
DBW332*	278	16	361	16	320	16
Mean	338		412		375	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		4.79		29.17	8.85
Genotype (B)	*		19.64		55.54	12.82
B within A	N.S.		27.77		78.55	
A within B			27.31		77.25	
			Grains/Earhead			
PBW873	47.18	3	49.66	1	48.42	2
DBW187(I) (C)	40.22	8	35.53	12	37.88	9
PBW872	35.73	13	32.79	14	34.26	14
PBW874	34.33	15	38.08	7	36.21	12
HD3410	45.68	4	44.96	3	45.32	4
DBW370	49.03	2	43.75	4	46.39	3
DBW327*	38.76	10	37.36	9	38.06	8
WH1270(I) (C)	41.33	6	39.88	6	40.61	7
HD3086 (C)	29.76	16	28.64	16	29.20	16
WH1252*	41.20	7	41.79	5	41.50	5
DBW328*	36.05	12	37.06	10	36.56	11
DBW372	36.40	11	33.98	13	35.19	13
DBW333*	35.21	14	31.36	15	33.29	15
DBW303(I) (C)	43.86	5	37.99	8	40.93	6
DBW371	39.22	9	35.65	11	37.43	10
DBW332*	54.85	1	47.66	2	51.25	1
Mean	41		39		40	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		0.43		2.64	7.60
Genotype (B)	**		2.14		6.05	13.26
B within A	N.S.		3.03		8.56	
A within B			2.96		8.38	

			1000 grains weight, g			
PBW873	43.47	8	35.00	16	39.23	15
DBW187(I) (C)	40.00	15	50.27	5	45.13	7
PBW872	53.70	1	54.57	1	54.13	1
PBW874	43.27	9	39.07	13	41.17	12
HD3410	38.07	16	35.57	15	36.82	16
DBW370	41.87	13	38.07	14	39.97	14
DBW327*	53.23	2	51.17	3	52.20	2
WH1270(I) (C)	42.13	12	41.27	11	41.70	11
HD3086 (C)	46.80	5	47.27	6	47.03	6
WH1252*	41.07	14	40.13	12	40.60	13
DBW328*	51.20	3	46.27	7	48.73	4
DBW372	44.07	7	43.07	10	43.57	9
DBW333*	46.13	6	50.83	4	48.48	5
DBW303(I) (C)	42.43	11	43.20	9	42.82	10
DBW371	51.00	4	51.20	2	51.10	3
DBW332*	43.27	9	44.17	8	43.72	8
Mean	45.11		44.44		44.78	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	*		0.08		0.47	1.19
Genotype (B)	**		0.33		0.93	1.80
B within A	**		0.46		1.31	
A within B			0.46		1.29	
			Biomass, q/ha			
PBW873	181.51	3	184.26	8	182.89	6
DBW187(I) (C)	164.58	8	178.13	12	171.35	10
PBW872	188.61	2	211.62	1	200.12	1
PBW874	194.03	1	188.66	5	191.34	2
HD3410	180.84	4	190.69	4	185.77	4
DBW370	171.67	7	199.21	2	185.44	5
DBW327*	177.06	5	197.87	3	187.46	3
WH1270(I) (C)	174.44	6	184.70	7	179.57	7
HD3086 (C)	163.08	11	184.02	9	173.55	8
WH1252*	145.73	14	162.55	15	154.14	15
DBW328*	154.05	13	186.39	6	170.22	11
DBW372	141.39	16	181.41	11	161.40	14
DBW333*	141.59	15	154.40	16	147.99	16
DBW303(I) (C)	163.64	10	163.67	14	163.65	13
DBW371	158.32	12	171.25	13	164.78	12
DBW332*	163.82	9	181.85	10	172.84	9
Mean	166.52		182.54		174.53	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	N.S.		4.69		28.51	18.60
Genotype (B)	**		6.57		18.60	9.23
B within A	N.S.		9.30		26.30	
A within B			10.15		28.71	
			Plant Height, cm			
PBW873	112.3	6	101.4	7	106.9	7
DBW187(I) (C)	112.6	4	96.6	12	104.6	10
PBW872	101.7	16	93.9	15	97.8	16
PBW874	104.0	15	95.8	13	99.9	15
HD3410	118.2	1	101.2	8	109.7	2
DBW370	110.3	9	102.7	4	106.5	8
DBW327*	108.8	12	93.6	16	101.2	14
WH1270(I) (C)	117.4	2	103.8	3	110.6	1
HD3086 (C)	106.8	14	97.9	10	102.4	11
WH1252*	111.8	7	104.7	1	108.3	3
DBW328*	113.9	3	101.7	6	107.8	4
DBW372	109.2	10	100.6	9	104.9	9
DBW333*	107.1	13	96.8	11	101.9	12
DBW303(I) (C)	112.4	5	102.4	5	107.4	6
DBW371	110.7	8	104.2	2	107.5	5
DBW332*	108.9	11	94.3	14	101.6	13
Mean	110.4		99.5		104.9	
	F Test		SEm		CD (0.05)	CV (%)
NM (A)	**		0.74		4.49	4.87
Genotype (B)	**		1.24		3.52	2.91
B within A	N.S.		1.76		4.98	
A within B			1.86		5.25	
Date of Sowing:	23.10.2020		Date of Harvesting:		14.04.2021	18.04.2021

Table 4.2.1. Central Zone IR-DOS-TAD Bilaspur 2020-21

Genotypes	Sowing Time: Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	47.33	1	41.90	1	44.62	1
HI1544 (C)	44.56	3	39.25	3	41.91	3
HI8713(d) (C)	42.59	4	34.52	5	38.56	5
GW513	46.65	2	40.71	2	43.68	2
HI1636	41.98	5	35.21	4	38.60	4
Mean	44.62		38.32		41.47	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.65	3.95	6.07		
Genotypes (B)	**	0.78	2.34	4.61		
B within A	N.S.	1.10	3.31			
A within B		1.18	3.54			
			Earhead/sqm			
GW322 (C)	373	1	332	1	353	1
HI1544 (C)	333	3	326	3	330	3
HI8713(d) (C)	326	4	293	4	310	4
GW513	369	2	326	2	348	2
HI1636	310	5	289	5	300	5
Mean	342		313		328	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.48	2.91	0.57		
Genotypes (B)	**	3.40	10.20	2.54		
B within A	**	4.81	14.42			
A within B		4.33	12.98			
			Grains/earhead			
GW322 (C)	28.15	5	29.16	4	28.66	5
HI1544 (C)	30.47	3	28.77	5	29.62	3
HI8713(d) (C)	31.01	2	29.96	2	30.48	2
GW513	28.30	4	29.21	3	28.76	4
HI1636	32.45	1	31.25	1	31.85	1
Mean	30.07		29.67		29.87	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.48	2.92	6.23		
Genotypes (B)	N.S.	1.04	3.12	8.53		
B within A	N.S.	1.47	4.41			
A within B		1.40	4.20			
			1000 grains weight, g			
GW322 (C)	45.13	1	43.32	1	44.23	1
HI1544 (C)	44.07	3	41.92	3	43.00	3
HI8713(d) (C)	42.30	4	39.53	4	40.92	4
GW513	44.62	2	42.73	2	43.67	2
HI1636	41.76	5	39.08	5	40.42	5
Mean	43.58		41.32		42.45	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.17	1.04	1.57		
Genotypes (B)	N.S.	1.00	3.00	5.78		
B within A	N.S.	1.42	4.24			
A within B		1.28	3.83			
Date of Sowing:		15.11.2020		3.12.2020		
Date of Harvesting:		19.03.2021		10.04.2021		

Table 4.2.2. Central Zone IR-DOS-TAD Gwalior 2020-21

Genotypes	Sowing Time: Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	59.42	4	51.07	4	55.24	4
HI1544 (C)	59.69	2	49.81	5	54.75	5
HI8713(d) (C)	60.38	1	53.23	1	56.80	1
GW513	58.68	5	52.39	3	55.54	3
HI1636	59.42	3	52.77	2	56.10	2
Mean	59.52		51.85		55.69	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.36	2.19	2.50		
Genotypes (B)	**	0.30	0.89	1.31		
B within A	**	0.42	1.26			
A within B		0.52	1.56			
			Earhead/sqm			
GW322 (C)	344	4	327	4	336	4
HI1544 (C)	377	2	319	5	348	3
HI8713(d) (C)	394	1	354	1	374	1
GW513	332	5	334	3	333	5
HI1636	354	3	344	2	349	2
Mean	360		336		348	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	1.64	9.95	1.82		
Genotypes (B)	**	5.01	15.01	3.52		
B within A	**	7.08	21.23			
A within B		6.54	19.61			
			Grains/earhead			
GW322 (C)	42.93	3	42.16	1	42.55	1
HI1544 (C)	40.42	4	41.95	2	41.18	3
HI8713(d) (C)	33.93	5	33.96	5	33.94	5
GW513	45.39	1	38.44	3	41.92	2
HI1636	43.72	2	35.06	4	39.39	4
Mean	41.28		38.32		39.80	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.76	4.62	7.39		
Genotypes (B)	**	0.84	2.52	5.18		
B within A	**	1.19	3.57			
A within B		1.31	3.92			
			1000 grains weight, g			
GW322 (C)	40.29	2	37.14	5	38.71	4
HI1544 (C)	39.37	3	37.35	4	38.36	5
HI8713(d) (C)	45.20	1	44.29	1	44.74	1
GW513	39.04	4	40.88	3	39.96	3
HI1636	38.42	5	43.77	2	41.09	2
Mean	40.46		40.68		40.57	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.55	3.37	5.29		
Genotypes (B)	**	0.67	2.00	4.03		
B within A	**	0.94	2.83			
A within B		1.01	3.03			
Date of Sowing:		18.11.2020		09.12.2020		
Date of Harvesting:		05.04.2020		10.04.2021		

Table 4.2.3. Central Zone IR-DOS-TAD Indore 2020-21

Genotypes	Sowing Time: Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	46.33	4	45.23	5	45.78	4
HI1544 (C)	48.53	3	49.37	3	48.95	3
HI8713(d) (C)	50.60	1	51.27	2	50.93	2
GW513	43.77	5	47.47	4	45.62	5
HI1636	50.43	2	52.37	1	51.40	1
Mean	47.93		49.14		48.54	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.23	1.39	1.83		
Genotypes (B)	**	0.71	2.13	3.59		
B within A	N.S.	1.01	3.01			
A within B		0.93	2.78			
			Earhead/sqm			
GW322 (C)	290	3	323	3	306	3
HI1544 (C)	334	2	341	2	338	2
HI8713(d) (C)	257	5	315	5	286	5
GW513	287	4	322	4	305	4
HI1636	336	1	349	1	343	1
Mean	301		330		315	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	2.52	15.31	3.09		
Genotypes (B)	**	3.98	11.92	3.09		
B within A	**	5.62	16.86			
A within B		5.62	16.86			
			Grains/earhead			
GW322 (C)	37.44	2	40.14	2	38.79	2
HI1544 (C)	31.93	4	39.62	3	35.78	3
HI8713(d) (C)	40.32	1	40.87	1	40.59	1
GW513	32.98	3	32.98	4	32.98	4
HI1636	28.60	5	32.82	5	30.71	5
Mean	34.25		37.29		35.77	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.19	1.17	2.09		
Genotypes (B)	**	0.69	2.06	4.71		
B within A	**	0.97	2.92			
A within B		0.89	2.67			
			1000 grains weight, g			
GW322 (C)	42.77	5	34.90	5	38.83	5
HI1544 (C)	45.57	4	36.50	4	41.03	4
HI8713(d) (C)	48.97	2	39.93	3	44.45	3
GW513	46.30	3	44.67	2	45.48	2
HI1636	52.50	1	45.73	1	49.12	1
Mean	47.22		40.35		43.78	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.15	0.92	1.34		
Genotypes (B)	**	0.27	0.82	1.53		
B within A	**	0.39	1.16			
A within B		0.38	1.13			
Date of Sowing		12.11.2020		03.12.2021		
Date of Harvesting		19.03.2021		19.04.2021		

Table 4.2.4. Central Zone IR-DOS-TAD Jabalpur 2020-21

Genotypes	Sowing time: Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	44.41	2	42.45	2	43.43	2
HI1544 (C)	38.26	5	36.71	5	37.48	5
HI8713(d) (C)	47.49	1	43.07	1	45.28	1
GW513	42.60	3	38.28	4	40.44	4
HI1636	41.31	4	40.22	3	40.76	3
Mean	42.81		40.15		41.48	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.23	1.42	2.18		
Genotypes (B)	**	0.52	1.55	3.06		
B within A	N.S.	0.73	2.20			
A within B		0.70	2.09			
			Earhead/sqm			
GW322 (C)	430	2	322	3	376	2
HI1544 (C)	393	5	308	5	351	5
HI8713(d) (C)	471	1	367	1	419	1
GW513	414	3	319	4	367	4
HI1636	409	4	328	2	369	3
Mean	423		329		376	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.76	4.62	0.78		
Genotypes (B)	**	2.52	7.54	1.64		
B within A	**	3.56	10.67			
A within B		3.27	9.81			
			Grains/earhead			
GW322 (C)	24.46	2	31.42	1	27.94	1
HI1544 (C)	24.14	3	31.13	2	27.63	3
HI8713(d) (C)	22.12	5	26.26	5	24.19	5
GW513	25.10	1	30.52	3	27.81	2
HI1636	22.63	4	28.28	4	25.46	4
Mean	23.69		29.52		26.61	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.23	1.38	3.29		
Genotypes (B)	**	0.50	1.51	4.65		
B within A	N.S.	0.71	2.14			
A within B		0.68	2.03			
			1000 grains weight, g			
GW322 (C)	42.33	3	42.00	3	42.17	3
HI1544 (C)	40.33	5	38.33	5	39.33	5
HI8713(d) (C)	45.67	1	44.67	1	45.17	1
GW513	41.00	4	39.33	4	40.17	4
HI1636	44.67	2	43.33	2	44.00	2
Mean	42.80		41.53		42.17	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.39	2.35	3.54		
Genotypes (B)	**	0.75	2.26	4.37		
B within A	N.S.	1.06	3.19			
A within B		1.03	3.08			
Date of Sowing:		15.11.2020		06.12.2020		
Date of Harvesting:		04.04.2021		12.04.2021		

Table 4.2.5. Central Zone	**IR-DOS-TAD**		**Junagadh**		**2020-21**	
	Sowing Time					
Genotypes	Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	65.10	1	55.32	1	60.21	1
HI1544 (C)	63.23	3	50.60	3	56.92	3
HI8713(d) (C)	55.11	5	49.80	4	52.46	5
GW513	62.66	4	47.13	5	54.90	4
HI1636	64.12	2	53.03	2	58.58	2
Mean	62.04		51.18		56.61	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.62	3.78	4.25		
Genotypes (B)	N.S.	1.86	5.57	8.04		
B within A	N.S.	2.63	7.88			
A within B		2.43	7.29			
			Earhead/sqm			
GW322 (C)	404	1	383	1	394	1
HI1544 (C)	381	3	364	3	373	3
HI8713(d) (C)	367	5	358	4	363	5
GW513	374	4	357	5	366	4
HI1636	396	2	380	2	388	2
Mean	384		368		376	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	2.03	12.35	2.09		
Genotypes (B)	**	2.96	8.88	1.93		
B within A	N.S.	4.19	12.55			
A within B		4.26	12.77			
			Grains/earhead			
GW322 (C)	33.07	3	31.91	1	32.49	2
HI1544 (C)	34.81	2	30.93	3	32.87	1
HI8713(d) (C)	31.64	4	31.73	2	31.68	4
GW513	34.83	1	29.77	4	32.30	3
HI1636	29.24	5	27.08	5	28.16	5
Mean	32.72		30.28		31.50	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.34	2.09	4.21		
Genotypes (B)	*	1.04	3.13	8.12		
B within A	N.S.	1.48	4.43			
A within B		1.36	4.09			
			1000 grains weight, g			
GW322 (C)	48.73	2	45.40	2	47.07	2
HI1544 (C)	47.63	4	44.93	3	46.28	3
HI8713(d) (C)	47.40	5	43.80	5	45.60	5
GW513	48.13	3	44.33	4	46.23	4
HI1636	55.47	1	51.60	1	53.53	1
Mean	49.47		46.01		47.74	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.16	1.00	1.33		
Genotypes (B)	**	0.40	1.19	2.04		
B within A	N.S.	0.56	1.68			
A within B		0.53	1.58			
Date of Sowing:		13.11.2020		03.12.2020		
Date of Harvesting		10.03.2021		18.03.2021		

Table 4.2.6. Central Zone	**IR-DOS-TAD**		**Powarkheda**		**2020-21**	
	Sowing Time					
Genotypes	Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	40.56	4	36.29	5	38.42	5
HI1544 (C)	39.68	5	37.91	4	38.80	4
HI8713(d) (C)	48.34	1	42.02	1	45.18	1
GW513	41.41	2	38.29	3	39.85	3
HI1636	41.19	3	40.83	2	41.01	2
Mean	42.23		39.07		40.65	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.62	3.74	5.86		
Genotypes (B)	**	0.72	2.14	4.31		
B within A	N.S.	1.01	3.03			
A within B		1.09	3.28			
			Earhead/sqm			
GW322 (C)	448	4	387	5	418	4
HI1544 (C)	433	5	394	4	414	5
HI8713(d) (C)	463	2	428	2	445	2
GW513	450	3	440	1	445	3
HI1636	492	1	404	3	448	1
Mean	457		411		434	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	6.54	39.82	5.84		
Genotypes (B)	**	7.16	21.47	4.04		
B within A	*	10.13	30.37			
A within B		11.18	33.51			
			Grains/earhead			
GW322 (C)	20.06	2	19.98	3	20.02	3
HI1544 (C)	19.24	3	23.01	2	21.13	2
HI8713(d) (C)	20.17	1	23.17	1	21.67	1
GW513	17.10	4	17.67	5	17.38	4
HI1636	13.95	5	19.77	4	16.86	5
Mean	18.10		20.72		19.41	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	0.44	2.70	8.84		
Genotypes (B)	**	0.70	2.09	8.78		
B within A	N.S.	0.98	2.95			
A within B		0.99	2.95			
			1000 grains weight, g			
GW322 (C)	45.33	5	47.00	3	46.17	4
HI1544 (C)	47.67	4	42.00	5	44.83	5
HI8713(d) (C)	52.00	3	42.67	4	47.33	3
GW513	54.00	2	49.33	2	51.67	2
HI1636	60.33	1	51.67	1	56.00	1
Mean	51.87		46.53		49.20	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.84	5.10	6.60		
Genotypes (B)	**	1.36	4.08	6.77		
B within A	N.S.	1.92	5.77			
A within B		1.91	5.74			
Date of Sowing:		20.11.2020		09.12.2020		
Date of Harvesting:		18.03.2021		01.04.2021		

Table 4.2.7. Central Zone	**IR-DOS-TAD**		**Udaipur**		**2020-21**	
	Sowing Time					
Genotypes	Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	34.78	5	37.77	4	36.28	5
HI1544 (C)	40.87	3	32.64	5	36.75	4
HI8713(d) (C)	47.57	1	41.48	3	44.52	2
GW513	39.27	4	47.06	2	43.16	3
HI1636	41.00	2	57.36	1	49.18	1
Mean	40.70		43.26		41.98	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	1.19	7.23	10.96		
Genotypes (B)	**	1.75	5.25	10.21		
B within A	**	2.48	7.42			
A within B		2.51	7.53			
			Earhead/sqm			
GW322 (C)	376	3	359	2	368	3
HI1544 (C)	406	1	353	3	379	1
HI8713(d) (C)	333	5	364	1	349	4
GW513	399	2	346	4	373	2
HI1636	346	4	343	5	345	5
Mean	372		353		363	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	6.54	39.81	6.99		
Genotypes (B)	N.S.	8.93	26.79	6.04		
B within A	*	12.63	37.88			
A within B		13.06	39.15			
			Grains/earhead			
GW322 (C)	21.30	4	29.08	3	25.19	4
HI1544 (C)	22.72	3	25.84	5	24.28	5
HI8713(d) (C)	29.77	1	26.93	4	28.35	2
GW513	21.07	5	31.77	2	26.42	3
HI1636	25.07	2	37.93	1	31.50	1
Mean	23.99		30.31		27.15	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	0.49	2.97	6.97		
Genotypes (B)	**	1.08	3.23	9.73		
B within A	**	1.53	4.57			
A within B		1.45	4.34			
			1000 grains weight, g			
GW322 (C)	43.28	5	36.22	5	39.75	5
HI1544 (C)	44.32	4	36.34	4	40.33	4
HI8713(d) (C)	48.32	1	42.45	3	45.39	2
GW513	46.81	3	43.05	2	44.93	3
HI1636	47.43	2	44.39	1	45.91	1
Mean	46.03		40.49		43.26	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.26	1.58	2.32		
Genotypes (B)	**	0.25	0.75	1.41		
B within A	**	0.35	1.05			
A within B		0.41	1.22			
Date of Sowing:		12.11.2020		05.12.2020		
Date of Harvesting:		25.03.2021		04.04.2021		

Table 4.2.8. Central Zone	**IR-DOS-TAD**		**Vijapur**		**2020-21**	
	Sowing Time					
Genotypes	Normal	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
GW322 (C)	53.85	1	33.72	5	43.79	5
HI1544 (C)	50.88	5	38.81	3	44.84	4
HI8713(d) (C)	52.19	4	38.53	4	45.36	3
GW513	52.69	2	48.17	1	50.43	1
HI1636	52.35	3	44.63	2	48.49	2
Mean	52.39		40.77		46.58	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	*	1.76	10.71	14.63		
Genotypes (B)	*	1.34	4.03	7.06		
B within A	**	1.90	5.69			
A within B		2.45	7.33			
			Earhead/sqm			
GW322 (C)	303	2	295	2	299	2
HI1544 (C)	300	4	280	3	290	3
HI8713(d) (C)	294	5	275	4	285	4
GW513	314	1	297	1	306	1
HI1636	303	2	235	5	269	5
Mean	303		276		290	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	6.14	37.36	8.21		
Genotypes (B)	N.S.	10.50	31.49	8.88		
B within A	N.S.	14.85	44.53			
A within B		14.63	43.87			
			Grains/earhead			
GW322 (C)	41.38	1	36.52	5	38.95	2
HI1544 (C)	36.29	2	40.01	3	38.15	3
HI8713(d) (C)	32.96	4	37.82	4	35.39	5
GW513	34.00	3	44.99	2	39.49	1
HI1636	30.00	5	45.16	1	37.58	4
Mean	34.93		40.90		37.91	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	N.S.	1.38	8.38	14.07		
Genotypes (B)	N.S.	2.52	7.56	16.30		
B within A	N.S.	3.57	10.70			
A within B		3.48	10.42			
			1000 grains weight, g			
GW322 (C)	43.27	5	31.38	5	37.33	5
HI1544 (C)	46.96	4	35.30	4	41.13	4
HI8713(d) (C)	54.87	2	37.99	2	46.43	2
GW513	49.56	3	36.18	3	42.87	3
HI1636	57.56	1	42.52	1	50.04	1
Mean	50.44		36.67		43.56	
	F. Test	SEm	CD (0.05)	CV (%)		
Sowing (A)	**	0.54	3.30	4.83		
Genotypes (B)	**	1.41	4.24	7.95		
B within A	N.S.	2.00	6.00			
A within B		1.87	5.60			
Date of Sowing:		13.11.2020		03.12.2020		
Date of Harvesting:		12.03.2021		23.04.2021		

Table 4.4.1. Central Zone RIR-TS-TAD Bilaspur 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	22.88	3	30.23	3	32.40	4	28.50	3
DBW110 (C)	22.05	4	28.84	4	34.46	3	28.45	4
MP3288 (C)	20.49	5	27.23	5	29.04	5	25.58	5
HI8823(d)	23.05	2	31.93	2	36.41	2	30.46	2
DDW47(d) (C)	26.99	1	33.72	1	39.27	1	33.33	1
Mean	23.09		30.39		34.32		29.27	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.36		1.42		4.79	
Genotypes (B)	**		0.63		1.83		6.42	
B within A	N.S.		1.08		3.16			
A within B			1.03		3.02			
			Earhead/sqm					
HI8627(d) (C)	234	3	277	3	301	3	271	3
DBW110 (C)	230	4	261	4	289	4	260	4
MP3288 (C)	219	5	250	5	266	5	245	5
HI8823(d)	255	2	288	2	316	2	286	2
DDW47(d) (C)	270	1	307	1	338	1	305	1
Mean	241		276		302		273	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.24		0.96		0.34	
Genotypes (B)	**		2.59		7.56		2.84	
B within A	N.S.		4.48		13.09			
A within B			4.02		11.73			
			Grains/earhead					
HI8627(d) (C)	25.93	4	27.68	3	26.19	5	26.60	4
DBW110 (C)	25.97	3	28.55	2	29.68	1	28.07	2
MP3288 (C)	26.48	1	29.21	1	28.75	2	28.15	1
HI8823(d)	23.85	5	27.59	4	27.68	3	26.37	5
DDW47(d) (C)	26.25	2	26.64	5	27.20	4	26.70	3
Mean	25.70		27.94		27.90		27.18	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.46		1.80		6.54	
Genotypes (B)	N.S.		0.93		2.71		10.26	
B within A	N.S.		1.61		4.70			
A within B			1.51		4.41			
			1000 grains weight, g					
HI8627(d) (C)	37.89	3	39.47	3	41.02	3	39.46	3
DBW110 (C)	37.13	4	38.76	4	40.30	4	38.73	4
MP3288 (C)	35.39	5	37.28	5	38.08	5	36.91	5
HI8823(d)	38.01	2	40.41	2	41.77	2	40.06	2
DDW47(d) (C)	38.36	1	41.29	1	42.90	1	40.85	1
Mean	37.36		39.44		40.81		39.20	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.40		1.57		3.94	
Genotypes (B)	**		0.69		2.00		5.24	
B within A	N.S.		1.19		3.46			
A within B			1.13		3.31			
Date of Sowing:			05.11.2020					
Date of Harvesting:			19.03.2021					

Table 4.4.2. Central Zone RIR-TS-TAD Gwalior 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	29.11	1	35.77	1	43.63	3	36.17	1
DBW110 (C)	22.43	5	33.02	2	46.73	2	34.06	3
MP3288 (C)	28.60	2	31.43	4	39.44	5	33.15	5
HI8823(d)	28.26	3	31.66	3	47.56	1	35.82	2
DDW47(d) (C)	27.52	4	29.82	5	43.33	4	33.56	4
Mean	27.18		32.34		44.14		34.55	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.45		1.78		5.09	
Genotypes (B)	**		0.53		1.55		4.60	
B within A	**		0.92		2.68			
A within B			0.94		2.74			
			Earhead/sqm					
HI8627(d) (C)	262	1	308	1	338	3	303	1
DBW110 (C)	221	5	292	2	347	2	287	3
MP3288 (C)	241	2	278	4	301	5	273	5
HI8823(d)	231	3	281	3	348	1	287	2
DDW47(d) (C)	226	4	276	5	334	4	279	4
Mean	236		287		334		285	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		3.34		13.09		4.52	
Genotypes (B)	**		3.60		10.51		3.78	
B within A	**		6.23		18.20			
A within B			6.50		18.97			
			Grains/earhead					
HI8627(d) (C)	30.01	4	47.22	1	38.63	3	38.62	2
DBW110 (C)	29.51	5	35.99	4	47.74	1	37.75	3
MP3288 (C)	40.45	1	39.01	2	46.58	2	42.01	1
HI8823(d)	31.01	3	34.64	5	38.15	4	34.60	5
DDW47(d) (C)	34.39	2	36.09	3	37.45	5	35.97	4
Mean	33.07		38.59		41.71		37.79	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.34		1.33		3.46	
Genotypes (B)	**		0.51		1.50		4.07	
B within A	**		0.89		2.59			
A within B			0.86		2.52			
			1000 grains weight, g					
HI8627(d) (C)	37.06	2	24.62	5	33.43	3	31.70	3
DBW110 (C)	34.42	4	31.42	2	28.22	4	31.35	4
MP3288 (C)	29.45	5	28.97	4	28.18	5	28.86	5
HI8823(d)	39.52	1	32.47	1	35.82	1	35.94	1
DDW47(d) (C)	35.39	3	29.92	3	34.68	2	33.33	2
Mean	35.17		29.48		32.06		32.24	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.20		0.79		2.43	
Genotypes (B)	**		0.34		1.01		3.21	
B within A	**		0.60		1.74			
A within B			0.57		1.67			
Date of Sowing:		24.11.2020						
Date of Harvesting:		06.04.2021						

Table 4.4.3. Central Zone RIR-TS-TAD Indore 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	26.87	5	38.53	1	42.80	2	36.07	3
DBW110 (C)	31.97	2	37.03	3	41.77	4	36.92	2
MP3288 (C)	31.93	3	36.80	4	39.03	5	35.92	4
HI8823(d)	32.57	1	38.00	2	43.40	1	37.99	1
DDW47(d) (C)	28.77	4	33.73	5	42.07	3	34.86	5
Mean	30.42		36.82		41.81		36.35	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.59		2.31		6.28	
Genotypes (B)	*		0.59		1.74		4.91	
B within A	**		1.03		3.01			
A within B			1.09		3.19			
			Earhead/sqm					
HI8627(d) (C)	197	5	212	5	221	5	210	5
DBW110 (C)	218	4	232	3	225	4	225	4
MP3288 (C)	219	3	307	1	311	2	279	2
HI8823(d)	225	1	304	2	313	1	281	1
DDW47(d) (C)	224	2	229	4	250	3	234	3
Mean	216		256		264		245	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		4.94		19.40		7.79	
Genotypes (B)	**		4.93		14.38		6.02	
B within A	**		8.54		24.91			
A within B			9.09		26.54			
			Grains/earhead					
HI8627(d) (C)	28.51	5	38.90	1	34.63	3	34.01	3
DBW110 (C)	32.39	2	36.70	3	36.76	2	35.28	2
MP3288 (C)	36.33	1	31.38	4	28.53	4	32.08	4
HI8823(d)	30.74	4	29.26	5	26.14	5	28.71	5
DDW47(d) (C)	31.96	3	37.69	2	37.85	1	35.83	1
Mean	31.98		34.78		32.78		33.18	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.38		1.50		4.45	
Genotypes (B)	**		0.80		2.34		7.26	
B within A	**		1.39		4.06			
A within B			1.30		3.80			
			1000 grains weight, g					
HI8627(d) (C)	47.87	1	46.87	1	56.23	1	50.32	1
DBW110 (C)	45.40	3	43.50	2	50.47	3	46.46	3
MP3288 (C)	40.23	5	38.23	5	44.03	5	40.83	5
HI8823(d)	47.30	2	42.87	3	53.13	2	47.77	2
DDW47(d) (C)	40.50	4	39.17	4	44.50	4	41.39	4
Mean	44.26		42.13		49.67		45.35	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.19		0.76		1.64	
Genotypes (B)	**		0.26		0.77		1.75	
B within A	**		0.46		1.34			
A within B			0.45		1.32			
Date of Sowing:		05.11.2020						
Date of Harvesting:		**						

Table 4.4.4. Central Zone RIR-TS-TAD Jabalpur 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	22.76	3	31.17	3	33.63	3	29.19	3
DBW110 (C)	22.03	4	28.37	4	32.17	4	27.52	4
MP3288 (C)	19.99	5	26.80	5	28.53	5	25.11	5
HI8823(d)	23.53	2	31.99	2	36.30	2	30.61	2
DDW47(d) (C)	24.17	1	33.90	1	38.83	1	32.30	1
Mean	22.50		30.44		33.89		28.94	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.32		1.27		4.34	
Genotypes (B)	**		0.50		1.45		5.14	
B within A	N.S.		0.86		2.51			
A within B			0.83		2.43			
			Earhead/sqm					
HI8627(d) (C)	251	3	279	2	321	3	284	3
DBW110 (C)	247	4	271	3	288	4	268	4
MP3288 (C)	193	5	250	5	270	5	238	5
HI8823(d)	280	2	269	4	344	2	298	2
DDW47(d) (C)	295	1	338	1	366	1	333	1
Mean	253		281		318		284	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.21		4.74		1.65	
Genotypes (B)	**		2.31		6.74		2.44	
B within A	**		4.00		11.67			
A within B			3.77		11.02			
			Grains/earhead					
HI8627(d) (C)	23.83	3	27.01	3	25.21	4	25.35	4
DBW110 (C)	23.97	2	25.66	4	27.37	1	25.67	2
MP3288 (C)	31.07	1	28.15	2	27.07	2	28.76	1
HI8823(d)	21.14	5	29.44	1	25.75	3	25.45	3
DDW47(d) (C)	21.18	4	23.95	5	24.78	5	23.30	5
Mean	24.24		26.84		26.04		25.71	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		0.58		2.26		8.69	
Genotypes (B)	**		0.58		1.69		6.78	
B within A	**		1.01		2.94			
A within B			1.07		3.12			
			1000 grains weight, g					
HI8627(d) (C)	38.03	3	41.43	2	41.63	2	40.37	3
DBW110 (C)	37.40	4	40.93	3	40.93	4	39.76	4
MP3288 (C)	33.43	5	38.07	5	39.10	5	36.87	5
HI8823(d)	39.73	1	40.47	4	41.20	3	40.47	2
DDW47(d) (C)	38.70	2	41.97	1	42.87	1	41.18	1
Mean	37.46		40.57		41.15		39.73	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.35		1.39		3.46	
Genotypes (B)	**		0.55		1.60		4.14	
B within A	N.S.		0.95		2.77			
A within B			0.92		2.69			
Date of Sowing:			08.11.2020					
Date of Harvesting:			22.03.2021					

Table 4.4.5. Central Zone RIR-TS-TAD Powarkheda 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	18.25	5	31.55	1	34.52	2	28.11	4
DBW110 (C)	22.00	3	26.39	5	33.73	3	27.37	5
MP3288 (C)	24.27	1	27.76	4	32.61	5	28.21	3
HI8823(d)	18.45	4	30.28	2	40.28	1	29.67	1
DDW47(d) (C)	22.74	2	29.92	3	32.99	4	28.55	2
Mean	21.14		29.18		34.83		28.38	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.82		3.21		11.17	
Genotypes (B)	N.S.		1.14		3.34		12.08	
B within A	*		1.98		5.78			
A within B			1.95		5.70			
			Earhead/sqm					
HI8627(d) (C)	277	4	307	4	297	5	293	4
DBW110 (C)	343	1	338	3	317	3	333	3
MP3288 (C)	300	3	382	1	400	1	361	1
HI8823(d)	325	2	360	2	343	2	343	2
DDW47(d) (C)	237	5	253	5	303	4	264	5
Mean	296		328		332		318	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		17.31		67.95		21.03	
Genotypes (B)	**		15.33		44.74		14.42	
B within A	N.S.		26.55		77.49			
A within B			29.38		85.77			
			Grains/earhead					
HI8627(d) (C)	19.06	3	24.54	2	26.73	1	23.44	2
DBW110 (C)	18.30	4	18.52	5	25.59	4	20.80	4
MP3288 (C)	26.68	2	19.16	3	19.64	5	21.83	3
HI8823(d)	14.42	5	18.94	4	25.97	2	19.77	5
DDW47(d) (C)	30.23	1	32.43	1	25.87	3	29.51	1
Mean	21.74		22.72		24.76		23.07	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.04		4.08		17.43	
Genotypes (B)	**		1.02		2.99		13.30	
B within A	**		1.77		5.17			
A within B			1.89		5.53			
			1000 grains weight, g					
HI8627(d) (C)	34.67	3	43.33	2	43.67	2	40.56	2
DBW110 (C)	35.67	2	42.83	3	41.67	4	40.06	3
MP3288 (C)	31.83	4	38.83	4	41.50	5	37.39	4
HI8823(d)	40.00	1	44.33	1	45.83	1	43.39	1
DDW47(d) (C)	31.50	5	36.67	5	42.33	3	36.83	5
Mean	34.73		41.20		43.00		39.64	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.54		2.11		5.25	
Genotypes (B)	**		1.10		3.21		8.32	
B within A	N.S.		1.90		5.56			
A within B			1.79		5.21			
Date of Sowing:			07.11.2020					
Date of Harvesting:			18.03.2021					

Table 4.4.6. Central Zone RIR-TS-TAD Udaipur 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
Yield, q/ha								
HI8627(d) (C)	16.12	4	20.37	4	25.64	5	20.71	5
DBW110 (C)	21.11	2	21.45	3	30.63	2	24.40	2
MP3288 (C)	26.76	1	22.67	2	30.11	3	24.66	1
HI8823(d)	15.67	5	23.26	1	28.49	4	22.47	4
DDW47(d) (C)	18.36	3	19.19	5	31.52	1	23.02	3
Mean	18.60		21.27		29.28		23.05	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.35		1.38		5.91	
Genotypes (B)	**		0.66		1.92		8.57	
B within A	*		1.14		3.33			
A within B			1.08		3.15			
Earhead/sqm								
HI8627(d) (C)	251	2	229	3	222	5	234	3
DBW110 (C)	213	3	209	5	265	3	229	5
MP3288 (C)	254	1	265	1	267	2	262	1
HI8823(d)	199	4	247	2	253	4	233	4
DDW47(d) (C)	190	5	224	4	299	1	238	2
Mean	221		234		261		239	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		3.03		11.88		4.90	
Genotypes (B)	**		5.97		17.43		7.49	
B within A	**		10.34		30.18			
A within B			9.73		28.41			
Grains/earhead								
HI8627(d) (C)	18.63	5	22.24	5	33.47	1	24.78	5
DBW110 (C)	30.04	1	30.54	1	27.25	5	29.28	1
MP3288 (C)	29.86	2	23.88	3	30.80	2	28.18	2
HI8823(d)	22.43	4	28.34	2	30.13	3	26.97	3
DDW47(d) (C)	26.70	3	23.09	4	27.33	4	25.71	4
Mean	25.53		25.62		29.80		26.98	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.59		2.34		8.54	
Genotypes (B)	*		0.94		2.75		10.46	
B within A	**		1.63		4.76			
A within B			1.57		4.59			
1000 grains weight, g								
HI8627(d) (C)	34.42	3	39.93	1	35.55	5	36.63	2
DBW110 (C)	33.08	4	33.69	4	42.33	1	36.37	3
MP3288 (C)	28.60	5	34.80	3	36.55	4	33.32	5
HI8823(d)	35.12	2	33.37	5	37.64	3	35.38	4
DDW47(d) (C)	36.16	1	37.27	2	38.52	2	37.31	1
Mean	33.48		35.81		38.12		35.80	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.11		0.44		1.22	
Genotypes (B)	**		0.07		0.22		0.63	
B within A	**		0.13		0.38			
A within B			0.16		0.47			
Date of Sowing:		17.11.2020						
Date of Harvesting:		**						

Not included in pooled due to low mean yield

Table 4.4.7. Central Zone RIR-TS-TAD Vijapur 2020-21

Genotypes	Irrigation Levels: No Irrigation	Rk	One Irrigation	Rk	Two Irrigations	Rk	Mean	Rk
			Yield, q/ha					
HI8627(d) (C)	16.37	3	24.15	3	34.10	3	24.87	4
DBW110 (C)	19.80	2	23.28	5	34.07	4	25.72	3
MP3288 (C)	21.30	1	28.78	1	36.58	1	28.88	1
HI8823(d)	15.18	5	26.75	2	35.53	2	25.82	2
DDW47(d) (C)	15.93	4	23.32	4	27.88	5	22.38	5
Mean	17.72		25.25		33.63		25.53	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.04		4.08		15.76	
Genotypes (B)	*		1.34		3.92		15.78	
B within A	N.S.		2.33		6.79			
A within B			2.33		6.79			
			Earhead/sqm					
HI8627(d) (C)	149	5	187	5	214	3	183	5
DBW110 (C)	170	3	193	4	194	5	186	4
MP3288 (C)	198	1	270	1	283	2	250	1
HI8823(d)	169	4	204	2	288	1	220	2
DDW47(d) (C)	188	2	200	3	205	4	198	3
Mean	175		211		237		207	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		6.90		27.10		12.89	
Genotypes (B)	**		7.61		22.21		11.00	
B within A	*		13.18		38.46			
A within B			13.66		39.87			
			Grains/earhead					
HI8627(d) (C)	21.79	3	27.07	2	34.60	2	27.82	2
DBW110 (C)	29.49	1	27.70	1	52.13	1	36.44	1
MP3288 (C)	24.63	2	23.28	4	33.52	4	27.14	3
HI8823(d)	16.67	5	23.65	3	25.19	5	21.84	5
DDW47(d) (C)	20.44	4	21.92	5	34.13	3	25.50	4
Mean	22.61		24.72		35.91		27.75	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.35		5.29		18.80	
Genotypes (B)	**		2.29		6.70		24.81	
B within A	N.S.		3.97		11.60			
A within B			3.80		11.10			
			1000 grains weight, g					
HI8627(d) (C)	51.60	2	48.84	3	45.73	2	48.72	2
DBW110 (C)	42.08	5	43.57	5	34.96	5	40.20	5
MP3288 (C)	43.80	3	46.46	4	39.99	3	43.42	4
HI8823(d)	53.46	1	55.64	1	50.63	1	53.24	1
DDW47(d) (C)	43.47	4	53.49	2	39.81	4	45.59	3
Mean	46.88		49.60		42.22		46.23	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.88		7.39		15.76	
Genotypes (B)	**		1.90		5.56		12.35	
B within A	N.S.		3.30		9.63			
A within B			3.50		10.21			
Date of Sowing:			25.11.2020					
Date of Harvesting:			06.04.2021					

Table 4.6.1.	**Central Zone**		**SPL-IR-ES-HYPT**		**Gwalior**	**2020-21**
	Nutrient Management					
Genotypes	NPK	Rk	150% NPK + FYM+GR	Rk	Mean	Rk
			Yield,q/ha			
PBW873	56.31	9	57.23	12	56.77	9
DBW187(I) (C)	54.49	13	58.35	10	56.42	11
PBW872	55.63	11	56.29	16	55.96	13
PBW874	53.84	14	56.70	14	55.27	15
HD3410	58.13	4	60.54	5	59.33	4
DBW370	56.31	8	59.35	7	57.83	8
DBW327*	60.74	1	63.50	1	62.12	1
WH1270(I) (C)	58.58	2	61.62	2	60.10	2
HD3086 (C)	56.66	7	61.23	3	58.94	5
WH1252*	54.80	12	58.29	11	56.54	10
DBW328*	57.62	6	59.42	6	58.52	7
DBW372	58.49	3	58.73	8	58.61	6
DBW333*	57.96	5	60.72	4	59.34	3
DBW303(I) (C)	55.92	10	56.87	13	56.40	12
DBW371	53.26	15	58.63	9	55.94	14
DBW332*	51.70	16	56.46	15	54.08	16
Mean	56.28		58.99		57.64	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	**	0.10	0.59	1.16		
Genotypes (B)	**	0.66	1.88	2.82		
B within A	N.S.	0.94	2.65			
A within B		0.91	2.59			
			Earhead/sqm			
PBW873	374	4	380	6	377	4
DBW187(I) (C)	338	11	370	11	354	10
PBW872	276	16	321	16	298	16
PBW874	364	6	384	5	374	5
HD3410	382	3	405	2	393	3
DBW370	347	8	366	12	357	9
DBW327*	409	1	414	1	412	1
WH1270(I) (C)	390	2	400	3	395	2
HD3086 (C)	319	14	387	4	353	11
WH1252*	311	15	378	7	344	14
DBW328*	363	7	371	10	367	7
DBW372	345	9	375	8	360	8
DBW333*	366	5	372	9	369	6
DBW303(I) (C)	336	12	356	14	346	12
DBW371	322	13	366	13	344	15
DBW332*	340	10	351	15	345	13
Mean	349		375		362	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	3.97	24.17	7.61		
Genotypes (B)	**	7.49	21.19	5.07		
B within A	N.S.	10.60	29.97			
A within B		11.00	31.11			

Grains/earhead						
PBW873	38.33	8	37.35	11	37.84	10
DBW187(I) (C)	35.40	12	40.44	5	37.92	9
PBW872	40.92	3	39.01	8	39.96	6
PBW874	40.06	4	41.78	4	40.92	5
HD3410	38.22	9	40.03	6	39.12	7
DBW370	39.44	7	43.26	2	41.35	4
DBW327*	29.49	16	32.86	16	31.17	16
WH1270(I) (C)	33.70	15	34.81	15	34.26	15
HD3086 (C)	44.92	2	38.88	9	41.90	3
WH1252*	45.40	1	42.82	3	44.11	1
DBW328*	35.02	13	36.17	13	35.60	13
DBW372	39.62	6	38.49	10	39.06	8
DBW333*	34.08	14	37.10	12	35.59	14
DBW303(I) (C)	39.75	5	44.85	1	42.30	2
DBW371	36.36	10	35.88	14	36.12	12
DBW332*	35.95	11	39.44	7	37.69	11
Mean	37.92		38.95		38.43	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.68	4.14	12.27		
Genotypes (B)	**	1.06	3.00	6.75		
B within A	N.S.	1.50	4.24			
A within B		1.60	4.53			
1000 grains weight, g						
PBW873	39.26	14	41.19	7	40.23	10
DBW187(I) (C)	45.64	4	39.40	11	42.52	7
PBW872	49.51	2	45.14	2	47.33	2
PBW874	36.91	16	35.46	16	36.18	16
HD3410	39.89	12	37.50	12	38.69	14
DBW370	41.10	11	37.47	13	39.29	12
DBW327*	50.41	1	46.69	1	48.55	1
WH1270(I) (C)	44.56	7	44.30	6	44.43	6
HD3086 (C)	39.55	13	40.83	9	40.19	11
WH1252*	38.91	15	36.17	14	37.54	15
DBW328*	45.34	6	44.34	4	44.84	5
DBW372	42.99	8	40.72	10	41.86	8
DBW333*	46.48	3	44.31	5	45.40	3
DBW303(I) (C)	42.05	10	35.70	15	38.88	13
DBW371	45.63	5	44.84	3	45.24	4
DBW332*	42.51	9	41.00	8	41.76	9
Mean	43.17		40.94		42.06	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.39	2.40	6.49		
Genotypes (B)	**	0.60	1.70	3.50		
B within A	**	0.85	2.40			
A within B		0.91	2.58			

			Biomass, q/ha			
PBW873	79.59	9	80.70	12	80.15	9
DBW187(I) (C)	77.38	12	82.86	10	80.12	10
PBW872	78.25	11	79.26	16	78.76	14
PBW874	76.27	14	79.57	15	77.92	15
HD3410	83.71	4	85.96	5	84.84	3
DBW370	79.97	8	84.88	6	82.42	8
DBW327*	87.07	1	91.22	1	89.14	1
WH1270(I) (C)	83.78	3	87.90	2	85.84	2
HD3086 (C)	80.26	7	86.93	3	83.60	5
WH1252*	77.26	13	82.19	11	79.73	11
DBW328*	81.43	6	84.21	7	82.82	7
DBW372	83.84	2	83.20	9	83.52	6
DBW333*	81.91	5	86.22	4	84.07	4
DBW303(I) (C)	78.65	10	80.56	13	79.61	12
DBW371	74.92	15	83.65	8	79.28	13
DBW332*	72.72	16	79.63	14	76.18	16
Mean	79.81		83.68		81.75	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	**	0.08	0.50	0.70		
Genotypes (B)	**	1.06	3.00	3.18		
B within A	N.S.	1.50	4.24			
A within B		1.45	4.11			
			Plant height, cm			
PBW873	96.40	6	88.67	1	92.53	2
DBW187(I) (C)	97.70	2	83.40	10	90.55	5
PBW872	95.80	9	77.67	16	86.73	14
PBW874	90.40	16	82.07	11	86.23	16
HD3410	95.47	10	85.60	5	90.53	6
DBW370	94.60	12	84.20	7	89.40	8
DBW327*	94.33	13	78.40	14	86.37	15
WH1270(I) (C)	95.07	11	86.93	2	91.00	4
HD3086 (C)	94.00	15	83.60	9	88.80	11
WH1252*	96.93	5	85.67	4	91.30	3
DBW328*	98.90	1	86.40	3	92.65	1
DBW372	97.13	4	79.80	13	88.47	12
DBW333*	96.07	8	85.00	6	90.53	6
DBW303(I) (C)	96.33	7	77.93	15	87.13	13
DBW371	97.60	3	81.07	12	89.33	9
DBW332*	94.07	14	83.73	8	88.90	10
Mean	95.68		83.13		89.40	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	1.34	8.16	10.39		
Genotypes (B)	N.S.	1.50	4.23	4.10		
B within A	N.S.	2.12	5.99			
A within B		2.45	6.93			
Date of Sowing			06.11.2020			
Date of Harvesting			06.04.2021			

Table 4.6.2. Central Zone			**SPL-IR-ES-HYPT**	**Jabalpur**	**2020-21**	
	Nutrient Management					
Genotypes	NPK	Rk	150% NPK + FYM+GR	Rk	Mean	Rk
			Yield, q/ha			
PBW873	63.10	7	58.61	16	60.86	14
DBW187(I) (C)	65.18	6	60.76	14	62.97	12
PBW872	65.18	5	72.35	4	68.76	4
PBW874	51.80	16	59.61	15	55.71	16
HD3410	62.33	8	61.68	12	62.01	13
DBW370	70.03	2	74.07	2	72.05	1
DBW327*	71.65	1	63.39	11	67.52	6
WH1270(I) (C)	55.69	15	61.61	13	58.65	15
HD3086 (C)	56.40	14	73.37	3	64.89	11
WH1252*	58.99	13	71.66	7	65.33	10
DBW328*	61.78	9	70.99	8	66.38	7
DBW372	59.49	12	77.17	1	68.33	5
DBW333*	67.43	3	72.22	5	69.83	2
DBW303(I) (C)	60.69	11	70.54	10	65.62	9
DBW371	66.04	4	71.93	6	68.99	3
DBW332*	60.84	10	70.79	9	65.82	8
Mean	62.29		68.17		65.23	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	1.36	1.36	14.48		
Genotypes (B)	N.S.	3.23	3.23	12.14		
B within A	N.S.	4.57	4.57			
A within B		4.63	4.63			
			Earhead/sqm			
PBW873	230	7	278	6	254	5
DBW187(I) (C)	253	3	239	14	246	9
PBW872	230	8	231	15	230	14
PBW874	236	5	289	3	263	2
HD3410	255	2	299	1	277	1
DBW370	234	6	282	5	258	4
DBW327*	225	9	253	9	239	10
WH1270(I) (C)	202	16	292	2	247	8
HD3086 (C)	257	1	259	7	258	3
WH1252*	212	15	289	4	250	7
DBW328*	220	10	250	12	235	12
DBW372	249	4	253	10	251	6
DBW333*	215	11	257	8	236	11
DBW303(I) (C)	214	12	241	13	228	15
DBW371	212	14	226	16	219	16
DBW332*	213	13	250	11	232	13
Mean	229		262		245	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	7.17	43.65	20.27		
Genotypes (B)	N.S.	11.42	32.30	11.41		
B within A	N.S.	16.15	45.67			
A within B		17.20	48.66			

Grains/earhead						
PBW873	54.28	6	42.86	13	48.57	11
DBW187(I) (C)	45.66	13	47.12	10	46.39	13
PBW872	48.95	11	57.31	1	53.13	5
PBW874	43.60	15	40.73	15	42.17	16
HD3410	47.28	12	42.81	14	45.04	15
DBW370	57.02	2	52.87	6	54.94	3
DBW327*	55.04	4	46.88	11	50.96	8
WH1270(I) (C)	51.02	9	40.15	16	45.59	14
HD3086 (C)	42.54	16	52.64	7	47.59	12
WH1252*	52.02	8	46.21	12	49.11	10
DBW328*	49.03	10	50.79	8	49.91	9
DBW372	45.13	14	57.17	2	51.15	7
DBW333*	55.37	3	48.70	9	52.03	6
DBW303(I) (C)	57.57	1	54.57	5	56.07	1
DBW371	54.75	5	56.15	3	55.45	2
DBW332*	54.15	7	55.14	4	54.65	4
Mean	50.84		49.51		50.17	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	1.75	10.64	24.15		
Genotypes (B)	*	2.67	7.54	13.02		
B within A	N.S.	3.77	10.67			
A within B		4.05	11.45			
1000 grains weight, g						
PBW873	50.47	16	49.20	15	49.83	16
DBW187(I) (C)	57.13	4	55.13	5	56.13	5
PBW872	58.07	2	55.27	4	56.67	4
PBW874	50.67	15	50.73	13	50.70	14
HD3410	51.47	14	48.40	16	49.93	15
DBW370	52.60	11	50.53	14	51.57	13
DBW327*	58.13	1	53.47	10	55.80	6
WH1270(I) (C)	54.20	7	52.73	11	53.47	9
HD3086 (C)	51.93	12	54.73	6	53.33	10
WH1252*	53.67	8	54.00	8	53.83	8
DBW328*	57.47	3	56.33	3	56.90	2
DBW372	53.20	9	54.53	7	53.87	7
DBW333*	56.60	6	57.47	1	57.03	1
DBW303(I) (C)	51.87	13	53.80	9	52.83	11
DBW371	56.80	5	56.80	2	56.80	3
DBW332*	52.80	10	52.40	12	52.60	12
Mean	54.19		53.47		53.83	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.48	2.89	6.12		
Genotypes (B)	**	1.15	3.26	5.24		
B within A	N.S.	1.63	4.61			
A within B		1.65	4.66			

			Biomass, q/ha			
PBW873	171.00	5	164.00	10	167.50	8
DBW187(I) (C)	184.67	2	163.67	11	174.17	3
PBW872	148.33	11	186.00	3	167.17	9
PBW874	131.00	14	191.00	2	161.00	11
HD3410	160.00	7	165.33	8	162.67	10
DBW370	201.00	1	184.33	4	192.67	1
DBW327*	179.33	3	157.00	16	168.17	5
WH1270(I) (C)	129.33	15	164.67	9	147.00	16
HD3086 (C)	145.67	13	197.00	1	171.33	4
WH1252*	167.33	6	183.67	6	175.50	2
DBW328*	175.33	4	160.67	13	168.00	7
DBW372	125.00	16	182.00	7	153.50	14
DBW333*	148.33	11	158.00	15	153.17	15
DBW303(I) (C)	152.00	10	184.33	4	168.17	5
DBW371	156.33	8	161.33	12	158.83	12
DBW332*	154.67	9	160.67	13	157.67	13
Mean	158.08		172.73		165.41	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	6.88	41.85	28.80		
Genotypes (B)	N.S.	9.65	27.28	14.28		
B within A	N.S.	13.64	38.58			
A within B		14.89	42.12			
			Plant height, cm			
PBW873	95.30	2	92.53	5	93.92	2
DBW187(I) (C)	95.90	1	93.57	2	94.73	1
PBW872	88.67	16	85.90	15	87.28	16
PBW874	89.77	15	89.77	11	89.77	15
HD3410	94.67	4	85.00	16	89.83	14
DBW370	93.53	8	91.73	8	92.63	7
DBW327*	93.07	12	91.83	7	92.45	9
WH1270(I) (C)	93.20	10	91.70	9	92.45	8
HD3086 (C)	93.10	11	92.77	4	92.93	6
WH1252*	94.13	5	93.23	3	93.68	4
DBW328*	95.17	3	91.90	6	93.53	5
DBW372	93.57	7	86.80	14	90.18	13
DBW333*	94.00	6	93.63	1	93.82	3
DBW303(I) (C)	93.37	9	88.23	13	90.80	11
DBW371	92.17	13	88.33	12	90.25	12
DBW332*	91.57	14	90.40	10	90.98	10
Mean	93.20		90.46		91.83	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.66	3.99	4.95		
Genotypes (B)	*	1.29	3.64	3.44		
B within A	N.S.	1.82	5.15			
A within B		1.88	5.32			
Date of Sowing			06.11.2020			
Date of Harvesting			05.04.2021			

Table 4.6.3.	**Central Zone**		**SPL-IR-ES-HYPT**	**Udaipur**	**2020-21**	
	Nutrient Management					
Genotypes	NPK	Rk	150% NPK + FYM+GR	Rk	Mean	Rk
			Yield, q/ha			
PBW873	41.04	15	53.41	12	47.23	13
DBW187(I) (C)	47.63	11	57.22	4	52.43	8
PBW872	52.84	1	54.94	6	53.89	3
PBW874	44.91	12	42.81	16	43.86	16
HD3410	51.88	3	56.17	5	54.03	2
DBW370	52.39	2	53.69	11	53.04	6
DBW327*	50.80	4	51.51	14	51.15	11
WH1270(I) (C)	41.51	14	50.39	15	45.95	15
HD3086 (C)	48.86	7	54.33	9	51.60	9
WH1252*	50.42	6	54.50	7	52.46	7
DBW328*	44.37	13	53.38	13	48.88	12
DBW372	50.46	5	57.29	3	53.87	4
DBW333*	48.31	9	54.09	10	51.20	10
DBW303(I) (C)	48.45	8	57.77	2	53.11	5
DBW371	48.28	10	63.78	1	56.03	1
DBW332*	39.95	16	54.47	8	47.21	14
Mean	47.63		54.36		51.00	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	0.78	4.76	10.62		
Genotypes (B)	*	2.14	6.05	10.28		
B within A	N.S.	3.03	8.56			
A within B		3.03	8.58			
			Earhead/sqm			
PBW873	419.17	1	372.50	11	395.83	2
DBW187(I) (C)	400.83	3	356.67	13	378.75	7
PBW872	415.00	2	393.33	2	404.17	1
PBW874	370.83	12	386.67	4	378.75	7
HD3410	389.17	6	380.00	8	384.58	4
DBW370	363.33	13	340.83	16	352.08	15
DBW327*	390.00	5	345.83	14	367.92	14
WH1270(I) (C)	398.33	4	376.67	9	387.50	3
HD3086 (C)	389.17	6	365.00	12	377.08	11
WH1252*	380.00	8	373.33	10	376.67	12
DBW328*	361.67	14	382.50	6	372.08	13
DBW372	377.50	9	385.83	5	381.67	6
DBW333*	347.50	16	344.17	15	345.83	16
DBW303(I) (C)	373.33	10	382.50	6	377.92	10
DBW371	361.67	14	394.17	1	377.92	9
DBW332*	371.67	11	392.50	3	382.08	5
Mean	381.82		373.28		377.55	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	4.74	28.85	8.70		
Genotypes (B)	*	9.46	26.75	6.14		
B within A	N.S.	13.37	37.83			
A within B		13.79	39.00			

Grains/earhead						
PBW873	22.01	16	35.25	7	28.63	11
DBW187(I) (C)	26.36	11	36.42	6	31.39	6
PBW872	24.98	12	27.36	15	26.17	15
PBW874	28.51	6	25.57	16	27.04	13
HD3410	29.02	5	37.34	3	33.18	4
DBW370	32.65	1	38.11	2	35.38	1
DBW327*	26.87	9	30.93	12	28.90	10
WH1270(I) (C)	22.98	15	29.27	13	26.13	16
HD3086 (C)	26.44	10	34.52	8	30.48	9
WH1252*	27.37	7	40.29	1	33.83	3
DBW328*	24.60	13	28.58	14	26.59	14
DBW372	29.28	3	32.85	10	31.06	7
DBW333*	29.13	4	36.98	5	33.05	5
DBW303(I) (C)	31.06	2	37.15	4	34.10	2
DBW371	27.31	8	33.90	9	30.60	8
DBW332*	24.44	14	31.74	11	28.09	12
Mean	27.06		33.52		30.29	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	0.77	4.69	17.64		
Genotypes (B)	**	1.57	4.44	12.69		
B within A	N.S.	2.22	6.28			
A within B		2.28	6.46			
1000 grains weight, g						
PBW873	44.74	12	40.81	14	42.77	14
DBW187(I) (C)	45.74	11	44.01	7	44.87	9
PBW872	50.98	1	51.04	1	51.01	1
PBW874	42.57	15	43.52	9	43.05	11
HD3410	45.98	9	39.59	15	42.79	13
DBW370	44.59	13	41.41	12	43.00	12
DBW327*	48.71	5	48.14	3	48.43	4
WH1270(I) (C)	46.03	8	45.59	5	45.81	5
HD3086 (C)	47.87	7	43.25	10	45.56	7
WH1252*	49.00	4	36.42	16	42.71	15
DBW328*	50.18	2	48.89	2	49.53	2
DBW372	45.91	10	45.26	6	45.59	6
DBW333*	48.03	6	42.58	11	45.31	8
DBW303(I) (C)	41.83	16	41.21	13	41.52	16
DBW371	49.14	3	47.82	4	48.48	3
DBW332*	44.37	14	43.79	8	44.08	10
Mean	46.61		43.96		45.28	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	0.20	1.20	3.01		
Genotypes (B)	**	0.45	1.28	2.46		
B within A	**	0.64	1.82			
A within B		0.65	1.85			

			Biomass, q/ha			
PBW873	98.60	14	127.50	4	113.05	9
DBW187(I) (C)	108.80	8	105.40	16	107.10	15
PBW872	113.90	5	117.30	11	115.60	6
PBW874	115.60	4	142.80	1	129.20	2
HD3410	119.34	2	139.40	2	129.37	1
DBW370	122.40	1	120.70	8	121.55	3
DBW327*	108.80	8	113.90	14	111.35	10
WH1270(I) (C)	98.60	14	120.70	8	109.65	13
HD3086 (C)	115.60	3	115.60	12	115.60	6
WH1252*	110.50	6	130.90	3	120.70	4
DBW328*	100.30	12	120.70	8	110.50	11
DBW372	110.50	6	122.40	6	116.45	5
DBW333*	103.70	10	115.60	12	109.65	12
DBW303(I) (C)	100.30	12	113.90	14	107.10	15
DBW371	102.00	11	127.50	4	114.75	8
DBW332*	93.50	16	122.40	6	107.95	14
Mean	107.65		122.29		114.97	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	2.17	13.21	13.08		
Genotypes (B)	*	4.72	13.36	10.06		
B within A	N.S.	6.68	18.89			
A within B		6.82	19.30			
			Plant height, cm			
PBW873	87.00	10	82.67	8	84.83	8
DBW187(I) (C)	89.80	7	77.47	12	83.63	11
PBW872	83.20	15	77.67	11	80.43	14
PBW874	87.60	9	85.00	4	86.30	6
HD3410	97.73	3	85.73	3	91.73	3
DBW370	98.47	2	86.07	2	92.27	2
DBW327*	84.73	14	76.73	13	80.73	13
WH1270(I) (C)	86.47	11	84.87	5	85.67	7
HD3086 (C)	85.33	13	72.00	16	78.67	16
WH1252*	93.87	5	91.60	1	92.73	1
DBW328*	99.20	1	84.07	6	91.63	4
DBW372	91.73	6	82.13	9	86.93	5
DBW333*	94.73	4	73.80	14	84.27	9
DBW303(I) (C)	85.80	12	72.60	15	79.20	15
DBW371	88.53	8	79.80	10	84.17	10
DBW332*	83.07	16	83.60	7	83.33	12
Mean	89.83		80.99		85.41	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	1.06	6.46	8.61		
Genotypes (B)	**	2.29	6.48	6.57		
B within A	N.S.	3.24	9.17			
A within B		3.31	9.37			
Date of Sowing			03.11.2020			
Date of Harvesting			21.03.2021			

Table 4.6.4.	Central Zone		SPL-IR-ES-HYPT	Vijapur	2020-21	
	Nutrient Management					
Genotypes	NPK	Rk	150% NPK + FYM+GR	Rk	Mean	Rk
			Yield, q/ha			
PBW873	46.50	10	47.08	14	46.79	15
DBW187(I) (C)	47.65	9	57.00	4	52.32	4
PBW872	59.20	1	64.36	1	61.78	1
PBW874	50.19	4	53.37	7	51.78	7
HD3410	49.48	6	49.88	13	49.68	9
DBW370	46.17	12	55.09	5	50.63	8
DBW327*	47.67	8	61.64	2	54.65	2
WH1270(I) (C)	46.20	11	51.16	10	48.68	10
HD3086 (C)	44.58	14	44.42	16	44.50	16
WH1252*	45.06	13	51.27	9	48.17	11
DBW328*	50.90	2	53.13	8	52.01	6
DBW372	44.57	15	50.33	12	47.45	12
DBW333*	49.56	5	54.71	6	52.14	5
DBW303(I) (C)	50.50	3	57.06	3	53.78	3
DBW371	44.06	16	50.75	11	47.41	13
DBW332*	48.21	7	45.52	15	46.86	14
Mean	48.15		52.92		50.54	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.91	5.56	12.52		
Genotypes (B)	**	2.03	5.75	9.85		
B within A	N.S.	2.88	8.13			
A within B		2.93	8.29			
			Earhead/sqm			
PBW873	309.67	8	302.00	13	305.83	9
DBW187(I) (C)	254.67	16	297.67	14	276.17	16
PBW872	364.33	1	326.33	3	345.33	1
PBW874	319.33	6	332.67	2	326.00	6
HD3410	356.67	2	319.33	6	338.00	2
DBW370	267.67	15	302.33	12	285.00	14
DBW327*	304.67	9	314.00	7	309.33	8
WH1270(I) (C)	304.00	10	287.67	16	295.83	12
HD3086 (C)	343.33	3	321.33	4	332.33	4
WH1252*	289.33	11	304.67	9	297.00	11
DBW328*	286.00	12	308.33	8	297.17	10
DBW372	317.67	7	354.00	1	335.83	3
DBW333*	331.67	4	320.67	5	326.17	5
DBW303(I) (C)	325.67	5	303.33	11	314.50	7
DBW371	275.00	13	291.67	15	283.33	15
DBW332*	272.00	14	304.67	9	288.33	13
Mean	307.60		311.92		309.76	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	2.77	16.88	6.20		
Genotypes (B)	*	14.78	41.79	11.68		
B within A	N.S.	20.90	59.10			
A within B		20.42	57.76			

Grains/earhead						
PBW873	31.83	10	32.93	14	32.38	14
DBW187(I) (C)	28.89	16	38.99	6	33.94	12
PBW872	30.68	13	38.42	8	34.55	10
PBW874	36.44	3	36.37	10	36.40	4
HD3410	32.43	7	41.75	2	37.09	3
DBW370	39.06	1	44.65	1	41.86	1
DBW327*	32.15	9	40.59	3	36.37	5
WH1270(I) (C)	31.23	12	39.56	5	35.40	8
HD3086 (C)	30.25	14	32.58	15	31.42	15
WH1252*	31.41	11	38.48	7	34.94	9
DBW328*	34.52	6	33.36	12	33.94	11
DBW372	29.87	15	30.47	16	30.17	16
DBW333*	32.35	8	33.14	13	32.75	13
DBW303(I) (C)	36.40	4	40.19	4	38.30	2
DBW371	35.46	5	36.81	9	36.14	7
DBW332*	38.78	2	33.75	11	36.27	6
Mean	33.23		37.00		35.12	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.69	4.21	13.65		
Genotypes (B)	N.S.	2.22	6.29	15.51		
B within A	N.S.	3.14	8.89			
A within B		3.12	8.83			
1000 grains weight, g						
PBW873	47.61	7	47.58	7	47.59	7
DBW187(I) (C)	68.98	1	49.58	4	59.28	1
PBW872	53.79	2	52.04	1	52.92	2
PBW874	43.08	16	44.35	11	43.71	13
HD3410	43.33	15	38.63	16	40.98	16
DBW370	44.29	12	40.97	15	42.63	15
DBW327*	50.00	5	49.57	5	49.79	4
WH1270(I) (C)	48.81	6	45.11	10	46.96	9
HD3086 (C)	43.99	13	43.13	14	43.56	14
WH1252*	52.03	3	43.85	13	47.94	6
DBW328*	51.63	4	51.67	3	51.65	3
DBW372	47.31	9	47.05	9	47.18	8
DBW333*	47.31	8	51.68	2	49.50	5
DBW303(I) (C)	43.37	14	48.84	6	46.10	11
DBW371	45.29	11	47.55	8	46.42	10
DBW332*	46.11	10	44.02	12	45.06	12
Mean	48.56		46.60		47.58	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	0.88	5.36	12.82		
Genotypes (B)	**	2.46	6.96	12.68		
B within A	N.S.	3.48	9.85			
A within B		3.48	9.86			

			Biomass, q/ha			
PBW873	103.54	13	103.04	14	103.29	14
DBW187(I) (C)	110.25	5	124.42	6	117.33	4
PBW872	124.79	2	135.58	2	130.19	2
PBW874	118.83	3	127.79	4	123.31	3
HD3410	124.88	1	138.00	1	131.44	1
DBW370	106.17	7	125.83	5	116.00	7
DBW327*	104.50	11	129.38	3	116.94	5
WH1270(I) (C)	104.83	10	110.96	12	107.90	12
HD3086 (C)	101.38	14	102.08	16	101.73	16
WH1252*	100.54	15	123.63	7	112.08	8
DBW328*	113.42	4	119.08	8	116.25	6
DBW372	106.08	8	113.96	11	110.02	11
DBW333*	103.79	12	116.25	9	110.02	10
DBW303(I) (C)	105.21	9	116.13	10	110.67	9
DBW371	98.21	16	107.92	13	103.06	15
DBW332*	109.33	6	102.67	15	106.00	13
Mean	108.48		118.54		113.51	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	N.S.	2.36	14.38	14.42		
Genotypes (B)	**	4.07	11.52	8.79		
B within A	N.S.	5.76	16.29			
A within B		6.06	17.13			
			Plant height, cm			
PBW873	93.80	6	84.33	11	89.07	9
DBW187(I) (C)	95.87	3	90.20	2	93.03	2
PBW872	93.60	7	86.07	8	89.83	7
PBW874	91.00	15	87.07	7	89.03	10
HD3410	96.40	2	89.33	3	92.87	3
DBW370	93.87	5	89.07	4	91.47	4
DBW327*	89.80	16	85.07	9	87.43	14
WH1270(I) (C)	95.67	4	84.40	10	90.03	6
HD3086 (C)	91.60	12	77.67	16	84.63	16
WH1252*	91.20	14	87.27	6	89.23	8
DBW328*	97.00	1	91.60	1	94.30	1
DBW372	93.60	7	82.87	14	88.23	12
DBW333*	93.07	9	83.67	12	88.37	11
DBW303(I) (C)	91.87	11	83.27	13	87.57	13
DBW371	91.40	13	88.87	5	90.13	5
DBW332*	92.73	10	81.93	15	87.33	15
Mean	93.28		85.79		89.54	
	F. Test	SEm	CD (0.05)	CV (%)		
NM (A)	*	1.19	7.23	9.20		
Genotypes (B)	**	1.02	2.90	2.80		
B within A	*	1.45	4.10			
A within B		1.84	5.20			
Date of Sowing			04.11.2020			
Date of Harvesting			05.03.2021			

Table 5.2.1. Peninsular Zone **RIR-TS-TAD** **Dharwad** **2020-21**

Genotype	Irrigation levels						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield, q/ha					
MP1358	19.51	5	34.10	1	32.15	3	28.59	2
AKDW2997-16(d) (C)	20.76	2	30.69	3	33.26	2	28.24	3
HI1605 (C)	19.93	4	31.24	2	29.37	4	26.85	4
NIAW3170 (C)	20.49	3	28.75	4	28.54	5	25.93	5
NIDW1149(d) (C)	23.79	1	28.60	5	33.89	1	28.76	1
UAS446(d) (C)	17.99	6	22.64	6	21.25	6	20.62	6
Mean	20.41		29.34		29.75		26.50	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.69		6.62		27.02	
Genotype (B)	**		1.11		3.21		12.59	
B within A	N.S.		1.93		5.56			
A within B			2.44		7.04			
			Earheads/sqm					
MP1358	175	1	207	4	220	2	201	1
AKDW2997-16(d) (C)	164	5	211	2	214	6	196	6
HI1605 (C)	166	4	210	3	222	1	199	2
NIAW3170 (C)	169	3	204	5	216	4	197	5
NIDW1149(d) (C)	172	2	204	5	217	3	198	4
UAS446(d) (C)	162	6	216	1	216	5	198	3
Mean	168		209		218		198	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.74		2.92		1.59	
Genotype (B)	N.S.		1.73		5.01		2.63	
B within A	*		3.00		8.67			
A within B			2.84		8.20			
			Grains/Earhead					
MP1358	28.39	6	38.89	1	33.73	3	33.67	2
AKDW2997-16(d) (C)	32.01	3	34.98	3	37.20	1	34.73	1
HI1605 (C)	29.37	5	35.71	2	31.54	4	32.21	4
NIAW3170 (C)	33.71	1	32.33	4	30.05	5	32.03	5
NIDW1149(d) (C)	33.42	2	30.24	5	34.99	2	32.88	3
UAS446(d) (C)	29.69	4	25.28	6	23.41	6	26.13	6
Mean	31.10		32.90		31.82		31.94	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	N.S.		1.82		7.14		24.17	
Genotype (B)	**		1.27		3.66		11.90	
B within A	*		2.19		6.34			
A within B			2.71		7.81			
			1000 grains weight, g					
MP1358	39.07	4	42.38	3	43.39	3	41.61	2
AKDW2997-16(d) (C)	39.48	3	41.54	5	41.83	6	40.95	5
HI1605 (C)	40.84	2	41.67	4	41.87	5	41.46	3
NIAW3170 (C)	36.03	6	43.59	2	43.77	2	41.13	4
NIDW1149(d) (C)	41.43	1	46.28	1	44.61	1	44.11	1
UAS446(d) (C)	37.59	5	41.45	6	42.18	4	40.41	6
Mean	39.07		42.82		42.94		41.61	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.18		0.71		1.84	
Genotype (B)	**		0.40		1.16		2.90	
B within A	**		0.70		2.01			
A within B			0.66		1.91			

			Biomass, q/ha					
MP1358	47.37	4	48.50	5	69.33	1	55.07	4
AKDW2997-16(d) (C)	45.42	5	56.83	4	57.33	6	53.19	5
HI1605 (C)	48.25	3	66.08	1	64.67	5	59.67	3
NIAW3170 (C)	55.17	1	63.67	2	66.02	4	61.62	1
NIDW1149(d) (C)	53.67	2	61.50	3	69.00	2	61.39	2
UAS446(d) (C)	35.08	6	44.83	6	67.67	3	49.19	6
Mean	47.49		56.90		65.67		56.69	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		1.07		4.19		7.98	
Genotype (B)	**		0.60		1.72		3.16	
B within A	**		1.03		2.98			
A within B			1.42		4.11			
Date of Sowing:					10.11.2020			
Date of Harvesting:			05.03.2021		10.03.2021		15.03.2021	

Table 5.2.2. Peninsular Zone **RIR-TS-TAD** **Niphad** **2020-21**

Genotype	Irrigation levels						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield, q/ha					
MP1358	23.66	1	27.02	1	29.56	2	26.75	1
AKDW2997-16(d) (C)	20.26	3	22.40	4	24.81	4	22.49	4
HI1605 (C)	22.87	2	23.07	2	31.69	1	25.88	2
NIAW3170 (C)	19.50	4	22.61	3	29.38	3	23.83	3
NIDW1149(d) (C)	18.47	5	20.18	5	21.23	6	19.96	6
UAS446(d) (C)	17.83	6	18.93	6	23.57	5	20.11	5
Mean	20.43		22.37		26.11		23.17	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.13		4.42		20.63	
Genotype (B)	**		1.08		3.11		13.94	
B within A	N.S.		1.86		5.38			
A within B			2.04		5.89			
			Earheads/sqm					
MP1358	291	3	390	1	480	1	387	1
AKDW2997-16(d) (C)	268	6	369	4	436	3	357	3
HI1605 (C)	295	2	379	2	432	4	369	2
NIAW3170 (C)	314	1	326	5	431	5	357	4
NIDW1149(d) (C)	279	5	373	3	380	6	344	6
UAS446(d) (C)	286	4	306	6	469	2	354	5
Mean	289		357		438		361	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		3.29		12.92		3.87	
Genotype (B)	**		6.15		17.75		5.10	
B within A	**		10.65		30.74			
A within B			10.26		29.63			
			Grains/Earhead					
MP1358	21.13	1	17.51	2	15.18	3	17.94	1
AKDW2997-16(d) (C)	20.81	2	15.33	5	14.40	4	16.85	4
HI1605 (C)	20.02	3	15.82	4	17.90	1	17.92	2
NIAW3170 (C)	17.22	5	17.54	1	17.55	2	17.44	3
NIDW1149(d) (C)	18.90	4	14.06	6	14.24	5	15.73	5
UAS446(d) (C)	16.97	6	16.71	3	12.76	6	15.48	6
Mean	19.18		16.16		15.34		16.89	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.72		2.83		18.10	
Genotype (B)	N.S.		1.00		2.90		17.85	
B within A	N.S.		1.74		5.03			
A within B			1.74		5.04			

Not included in pooled due to low mean yield

			1000 grains weight, g					
MP1358	38.70	2	39.53	2	40.67	2	39.63	1
AKDW2997-16(d) (C)	36.54	5	39.60	1	39.60	3	38.58	3
HI1605 (C)	38.78	1	38.68	4	40.93	1	39.46	2
NIAW3170 (C)	37.21	3	39.51	3	38.97	6	38.56	4
NIDW1149(d) (C)	35.27	6	38.56	5	39.35	5	37.73	6
UAS446(d) (C)	36.60	4	37.28	6	39.50	4	37.80	5
Mean	37.18		38.86		39.84		38.63	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.33		1.30		3.64	
Genotype (B)	N.S.		0.67		1.94		5.22	
B within A	N.S.		1.16		3.36			
A within B			1.11		3.21			
			Biomass, q/ha					
MP1358	30.29	1	34.58	1	37.84	2	34.24	1
AKDW2997-16(d) (C)	24.72	3	27.33	4	30.27	4	27.44	4
HI1605 (C)	28.81	2	29.07	2	39.93	1	32.60	2
NIAW3170 (C)	24.18	4	28.03	3	36.44	3	29.55	3
NIDW1149(d) (C)	22.17	5	24.21	5	25.47	6	23.95	6
UAS446(d) (C)	21.57	6	22.91	6	28.52	5	24.33	5
Mean	25.29		27.69		33.08		28.69	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.40		5.50		20.74	
Genotype (B)	**		1.33		3.84		13.91	
B within A	N.S.		2.30		6.65			
A within B			2.53		7.30			
Date of Sowing:					08.11.2020			
Date of Harvesting:			21.02.2021		28.02.2021		09.03.2021	

Table 5.2.3. Peninsular Zone **RIR-TS-TAD** **Pune** **2020-21**

Genotype	Irrigation levels						Mean	Rk
	Zero	Rk	One	Rk	Two	Rk		
			Yield, q/ha					
MP1358	37.70	1	37.11	1	34.83	1	36.55	1
AKDW2997-16(d) (C)	25.16	6	23.79	6	24.31	5	24.42	6
HI1605 (C)	34.70	2	34.04	2	21.67	6	30.14	3
NIAW3170 (C)	32.56	3	28.78	4	32.25	2	31.20	2
NIDW1149(d) (C)	30.82	4	26.76	5	29.81	4	29.13	5
UAS446(d) (C)	28.37	5	29.14	3	30.25	3	29.25	4
Mean	31.55		29.94		28.85		30.11	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		0.77		3.03		10.88	
Genotype (B)	**		1.16		3.36		11.60	
B within A	*		2.02		5.82			
A within B			2.00		5.76			
			Earheads/sqm					
MP1358	233	6	338	5	320	5	297	5
AKDW2997-16(d) (C)	237	5	342	4	362	1	313	4
HI1605 (C)	273	3	348	3	342	4	321	3
NIAW3170 (C)	260	4	362	1	350	2	324	2
NIDW1149(d) (C)	278	2	260	6	228	6	256	6
UAS446(d) (C)	292	1	360	2	347	3	333	1
Mean	262		335		325		307	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		6.95		27.30		9.60	
Genotype (B)	**		11.68		33.72		11.40	
B within A	*		20.23		58.41			
A within B			19.73		56.98			

			Grains/Earhead					
MP1358	45.64	1	32.46	2	30.98	2	36.36	1
AKDW2997-16(d) (C)	33.17	3	21.86	5	23.13	5	26.05	5
HI1605 (C)	40.12	2	33.73	1	18.92	6	30.92	2
NIAW3170 (C)	32.13	4	21.35	6	23.68	4	25.72	6
NIDW1149(d) (C)	27.49	6	27.48	3	34.13	1	29.70	3
UAS446(d) (C)	28.09	5	23.50	4	29.70	3	27.10	4
Mean	34.44		26.73		26.76		29.31	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	*		1.33		5.23		19.30	
Genotype (B)	**		2.08		6.00		21.25	
B within A	*		3.60		10.39			
A within B			3.54		10.23			
			1000 grains weight, g					
MP1358	36.73	3	34.73	3	35.83	3	35.77	3
AKDW2997-16(d) (C)	31.97	6	31.93	5	28.93	6	30.94	6
HI1605 (C)	32.00	5	29.70	6	33.47	4	31.72	5
NIAW3170 (C)	39.23	2	37.27	2	39.53	1	38.68	2
NIDW1149(d) (C)	40.27	1	37.70	1	38.50	2	38.82	1
UAS446(d) (C)	34.53	4	34.20	4	29.37	5	32.70	4
Mean	35.79		34.26		34.27		34.77	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.20		0.77		2.39	
Genotype (B)	**		0.46		1.34		4.00	
B within A	**		0.80		2.32			
A within B			0.76		2.19			
			Biomass, q/ha					
MP1358	54.65	5	103.11	1	132.90	2	96.88	2
AKDW2997-16(d) (C)	60.31	2	84.72	5	107.00	5	84.01	5
HI1605 (C)	57.63	3	99.73	2	147.79	1	101.72	1
NIAW3170 (C)	51.87	6	97.70	3	114.83	4	88.13	4
NIDW1149(d) (C)	56.23	4	81.29	6	99.58	6	79.03	6
UAS446(d) (C)	64.67	1	89.75	4	116.09	3	90.17	3
Mean	57.56		92.72		119.70		89.99	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		2.42		9.50		11.40	
Genotype (B)	**		2.33		6.74		7.78	
B within A	**		4.04		11.67			
A within B			4.41		12.74			
Date of Sowing:					06.11.2020			
Date of Harvesting:			23.02.2021		23.02.2021		23.02.2021	

Table 5.2.4. Peninsular Zone **RIR-TS-TAD** **Washim** **2020-21**

	Irrigation levels							
Genotype	Zero	Rk	One	Rk	Two	Rk	Mean	Rk
			Yield, q/ha					
MP1358	12.75	3	26.49	2	33.15	2	24.13	4
AKDW2997-16(d) (C)	11.51	5	23.90	5	25.33	5	20.24	5
HI1605 (C)	14.35	2	27.38	1	32.71	3	24.81	1
NIAW3170 (C)	12.40	4	24.27	4	36.56	1	24.41	2
NIDW1149(d) (C)	15.23	1	25.25	3	32.70	4	24.39	3
UAS446(d) (C)	10.19	6	17.54	6	21.09	6	16.27	6
Mean	12.74		24.14		30.26		22.38	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.23		0.88		4.27	
Genotype (B)	**		0.52		1.51		7.01	
B within A	**		0.91		2.61			
A within B			0.86		2.47			

Not included in pooled due to incomplete data

			Earheads/sqm					
MP1358	77	1	81	3	83	3	80	2
AKDW2997-16(d) (C)	63	4	83	2	90	2	78	3
HI1605 (C)	70	3	81	4	83	3	78	4
NIAW3170 (C)	62	5	78	5	82	5	74	5
NIDW1149(d) (C)	49	6	52	6	54	6	52	6
UAS446(d) (C)	76	2	89	1	92	1	86	1
Mean	66		77		80		75	
	F. Test		SEm		CD (0.05)		CV (%)	
Irrigation (A)	**		0.23		0.90		1.30	
Genotype (B)	**		0.77		2.23		3.11	
B within A	**		1.34		3.87			
A within B			1.24		3.59			
Date of Sowing:					30.10.2020			
Date of Harvesting:								

Table 6.1.1 Northern Hill Zone **SPL-1** **Bajaura** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	05th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
100% RDF	38.17	3	36.40	3	34.36	3	32.00	3	35.23	3
150% RDF	43.07	2	41.71	2	38.48	2	35.93	2	39.80	2
150% RDF + GR	52.02	1	49.86	1	44.76	1	43.33	1	47.49	1
Mean	44.42		42.66		39.20		37.09		40.84	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	*		1.29		4.45		9.44			
Nutrient Management (B)	**		1.28		3.75		10.89			
B within A	N.S.		2.57		7.49					
A within B			2.46		7.18					
Earheads/sq.m.										
100% RDF	305	3	310	3	315	3	303	3	308	3
150% RDF	373	2	371	1	363	1	321	2	357	2
150% RDF + GR	389	1	368	2	356	2	340	1	363	1
Mean	356		349		344		321		343	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	N.S.		10.62		36.74		9.29			
Nutrient Management (B)	**		11.87		34.63		11.99			
B within A	N.S.		23.73		69.27					
A within B			22.09		64.49					
1000 grains weight, g										
100% RDF	43.37	3	42.53	3	41.33	3	39.27	3	41.63	3
150% RDF	44.50	2	44.40	2	43.63	2	42.57	2	43.78	2
150% RDF + GR	46.50	1	46.60	1	45.73	1	44.60	1	45.86	1
Mean	44.79		44.51		43.57		42.14		43.75	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	N.S.		0.66		2.28		4.52			
Nutrient Management (B)	**		0.67		1.94		5.27			
B within A	N.S.		1.33		3.89					
A within B			1.27		3.71					
Grains/Earhead										
100% RDF	28.90	2	27.85	2	26.32	2	26.78	2	27.46	2
150% RDF	26.13	3	25.50	3	24.41	3	26.35	3	25.60	3
150% RDF + GR	28.93	1	29.19	1	27.50	1	28.66	1	28.57	1
Mean	27.99		27.51		26.08		27.26		27.21	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	N.S.		0.55		1.92		6.12			
Nutrient Management (B)	**		0.55		1.61		7.04			
B within A	N.S.		1.11		3.23					
A within B			1.06		3.09					
Biomass, q/ha										
100% RDF	98.34	3	85.55	3	85.84	3	82.26	3	88.00	3
150% RDF	108.26	2	101.36	2	99.93	1	96.55	1	101.53	2
150% RDF + GR	115.36	1	115.65	1	98.53	2	95.41	2	106.23	1
Mean	107.32		100.85		94.76		91.41		98.59	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	*		2.53		8.77		7.71			
Nutrient Management (B)	**		2.95		8.61		10.36			
B within A	N.S.		5.90		17.22					
A within B			5.44		15.88					
Plant height, cm										
100% RDF	96.83	2	93.83	2	95.17	2	93.17	2	94.75	2
150% RDF	101.17	1	99.83	1	97.17	1	93.27	1	97.86	1
150% RDF + GR	87.83	3	84.50	3	85.17	3	78.50	3	84.00	3
Mean	95.28		92.72		92.50		88.31		92.20	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	*		1.26		4.36		4.10			
Nutrient Management (B)	**		1.03		3.02		3.88			
B within A	N.S.		2.07		6.03					
A within B			2.11		6.14					
Date of Sowing:	25.10.2020		05.11.2020		15.11.2020		25.11.2020			
Date of Harvesting	20.05.2021		25.05.2021		28.05.2021		31.05.2021			

Table 6.1.2 Northern Hill Zone **SPL-1** **Malan** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	05th Nov	Rk	15th Nov	Rk	25th nov	Rk	Mean	Rk
					Yield, q/ha					
100% RDF	51.44	3	51.51	3	50.58	3	46.46	3	50.00	3
150% RDF	55.91	2	54.50	2	52.46	2	48.51	2	52.85	2
150% RDF + GR	57.93	1	56.95	1	54.57	1	51.10	1	55.14	1
Mean	55.10		54.32		52.54		48.69		52.66	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	**		0.91		3.16		5.20			
Nutrient Management (B)	**		0.65		1.90		4.27			
B within A	N.S.		1.30		3.79					
A within B			1.40		4.08					
					Earheads/sq.m.					
100% RDF	508	3	554	3	489	3	414	3	492	3
150% RDF	548	2	579	2	595	2	490	2	553	2
150% RDF + GR	567	1	608	1	608	1	507	1	573	1
Mean	541		580		564		470		539	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	**		4.83		16.70		2.69			
Nutrient Management (B)	**		2.80		8.17		1.80			
B within A	**		5.59		16.33					
A within B			6.64		19.40					
					1000 grains weight, g					
100% RDF	47.33	2	48.00	2	47.00	3	49.00	1	47.83	2
150% RDF	47.00	3	47.67	3	49.00	1	47.33	3	47.75	3
150% RDF + GR	48.00	1	49.00	1	49.00	1	48.33	2	48.58	1
Mean	47.44		48.22		48.33		48.22		48.06	
		F. Test	SEm		CD (0.05)		CV (%)			
Date of Sowing (A)		N.S.	0.46		1.60		2.89			
Nutrient Management (B)		N.S.	0.31		0.91		2.25			
B within A		N.S.	0.62		1.82					
A within B			0.69		2.01					
					Grains/Earhead					
100% RDF	21.39	2	19.38	2	22.01	1	22.93	1	21.43	1
150% RDF	21.73	1	19.76	1	17.97	3	20.93	2	20.10	2
150% RDF + GR	21.28	3	19.17	3	18.31	2	20.92	3	19.92	3
Mean	21.47		19.44		19.43		21.60		20.48	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	N.S.		0.58		2.01		8.51			
Nutrient Management (B)	**		0.27		0.80		4.63			
B within A	**		0.55		1.60					
A within B			0.73		2.14					
					Biomass, q/ha					
100% RDF	122.91	3	123.28	3	121.08	3	111.04	3	119.58	3
150% RDF	134.19	2	131.18	2	125.90	2	116.42	2	126.92	2
150% RDF + GR	139.62	1	136.69	1	131.33	1	122.81	1	132.61	1
Mean	132.24		130.38		126.10		116.76		126.37	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	**		1.88		6.50		4.46			
Nutrient Management (B)	**		1.52		4.44		4.17			
B within A	N.S.		3.04		8.88					
A within B			3.11		9.09					
					Plant height, cm					
100% RDF	99.00	3	97.67	3	93.00	3	84.00	3	93.42	3
150% RDF	101.33	2	98.67	2	93.67	2	90.00	2	95.92	2
150% RDF + GR	103.00	1	99.33	1	97.00	1	91.33	1	97.67	1
Mean	101.11		98.56		94.56		88.44		95.67	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of Sowing (A)	**		0.66		2.28		2.06			
Nutrient Management (B)	**		0.45		1.32		1.63			
B within A	N.S.		0.90		2.63					
A within B			0.99		2.88					
Date of Sowing:	25.10.2020		05.11.2020		15.11.2020		25.11.2020			
Date of Harvesting	02.05.2021		06.05.2021		08.05.2021		11.05.2021			

Table 6.2.1. North Western Plains Zone			**SPL-1**		**Agra**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	40.05	3	43.60	3	47.23	3	48.41	3	44.82	3
150% RDF + FYM 15t/ha	42.59	2	47.50	2	49.73	2	50.11	2	47.48	2
150% RDF + FYM 15t/ha +GR	44.01	1	49.23	1	51.39	1	53.01	1	49.41	1
Mean	42.22		46.78		49.45		50.51		47.24	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.20		0.68		1.24	
Nutrient Management (B)			**		0.59		1.73		4.35	
B within A			N.S.		1.19		3.46			
A within B					0.99		2.88			
					Earhead/sqm					
RDF	237	3	242	3	248	3	248	3	244	3
150% RDF + FYM 15t/ha	238	2	247	2	252	2	254	2	248	2
150% RDF + FYM 15t/ha +GR	243	1	251	1	253	1	254	1	250	1
Mean	239		247		251		252		247	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.61		2.12		0.74	
Nutrient Management (B)			**		0.48		1.39		0.67	
B within A			N.S.		0.95		2.77			
A within B					0.99		2.88			
					Grains/earhead					
RDF	50.37	3	51.79	3	53.17	3	53.67	2	52.25	3
150% RDF + FYM 15t/ha	51.82	1	53.60	1	54.17	1	53.40	3	53.25	1
150% RDF + FYM 15t/ha +GR	51.44	2	53.41	2	53.35	2	53.82	1	53.01	2
Mean	51.21		52.94		53.56		53.63		52.83	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		0.68		2.34		3.84	
Nutrient Management (B)			N.S.		0.69		2.03		4.55	
B within A			N.S.		1.39		4.05			
A within B					1.32		3.85			
					1000 grains weight, g					
RDF	33.59	3	34.85	3	35.83	3	36.34	3	35.15	3
150% RDF + FYM 15t/ha	34.49	2	35.93	2	36.45	2	37.05	2	35.98	2
150% RDF + FYM 15t/ha +GR	35.26	1	36.75	1	38.08	1	38.77	1	37.21	1
Mean	34.45		35.84		36.79		37.39		36.12	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.33		1.13		2.71	
Nutrient Management (B)			*		0.43		1.27		4.16	
B within A			N.S.		0.87		2.53			
A within B					0.78		2.28			
					Biomass, q/ha					
RDF	104.13	3	112.49	3	119.11	3	121.03	3	114.19	3
150% RDF + FYM 15t/ha	110.30	2	119.70	2	122.84	2	124.25	2	119.27	2
150% RDF + FYM 15t/ha +GR	113.10	1	122.31	1	124.37	1	127.74	1	121.88	1
Mean	109.18		118.17		122.11		124.34		118.45	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.62		2.14		1.57	
Nutrient Management (B)			**		1.47		4.30		4.30	
B within A			N.S.		2.94		8.59			
A within B					2.48		7.24			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			15.03.2021		22.03.2021		26.03.2021		04.04.2021	

Table 6.2.2. North Western Plains Zone			**SPL-1**		**Durgapura**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	27.20	3	52.70	3	45.56	3	39.10	3	41.14	3
150% RDF + FYM 15t/ha	49.13	2	58.82	2	52.87	2	47.43	2	52.06	2
150% RDF + FYM 15t/ha +GR	56.78	1	63.41	1	61.20	1	56.44	1	59.46	1
Mean	44.37		58.31		53.21		47.66		50.89	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.90		10.03		17.09	
Nutrient Management (B)			**		2.91		8.51		19.84	
B within A			N.S.		5.83		17.01			
A within B					5.57		16.27			
					Earhead/sqm					
RDF	327	3	418	3	391	3	366	3	376	3
150% RDF + FYM 15t/ha	404	2	424	2	408	2	399	2	409	2
150% RDF + FYM 15t/ha +GR	422	1	451	1	439	1	423	1	434	1
Mean	385		431		413		396		406	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		9.99		34.56		7.38	
Nutrient Management (B)			**		9.89		28.86		8.43	
B within A			N.S.		19.78		57.73			
A within B					18.99		55.42			
					Grains/earhead					
RDF	21.67	3	31.36	3	28.44	3	26.05	3	26.88	3
150% RDF + FYM 15t/ha	30.21	2	33.63	2	33.40	2	31.40	2	32.16	2
150% RDF + FYM 15t/ha +GR	33.16	1	36.49	1	35.36	1	35.17	1	35.05	1
Mean	28.35		33.83		32.40		30.87		31.36	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.79		6.19		17.11	
Nutrient Management (B)			**		1.53		4.46		16.86	
B within A			N.S.		3.05		8.91			
A within B					3.07		8.96			
					1000 grains weight, g					
RDF	38.16	3	40.26	2	40.93	1	41.00	1	40.09	1
150% RDF + FYM 15t/ha	39.21	2	41.37	1	39.44	3	38.04	2	39.51	2
150% RDF + FYM 15t/ha +GR	40.49	1	38.78	3	40.30	2	37.96	3	39.38	3
Mean	39.29		40.14		40.22		39.00		39.66	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.44		4.98		10.89	
Nutrient Management (B)			N.S.		0.87		2.52		7.56	
B within A			N.S.		1.73		5.05			
A within B					2.02		5.89			
					Biomass, q/ha					
RDF	62.41	3	116.35	3	99.25	3	83.78	3	90.45	3
150% RDF + FYM 15t/ha	112.22	2	121.37	2	114.15	2	102.54	2	112.57	2
150% RDF + FYM 15t/ha +GR	128.14	1	139.12	1	134.88	1	120.27	1	130.60	1
Mean	100.92		125.61		116.09		102.20		111.21	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		6.47		22.38		17.44	
Nutrient Management (B)			**		6.46		18.84		20.11	
B within A			N.S.		12.91		37.69			
A within B					12.37		36.10			
					Plant height, cm					
RDF	86.19	2	89.52	2	88.11	2	90.07	2	88.47	2
150% RDF + FYM 15t/ha	91.23	1	95.41	1	91.44	1	93.00	1	92.77	1
150% RDF + FYM 15t/ha +GR	84.33	3	82.85	3	81.27	3	86.26	3	83.68	3
Mean	87.25		89.26		86.94		89.78		88.31	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.17		7.50		7.36	
Nutrient Management (B)			**		1.64		4.79		6.44	
B within A			N.S.		3.28		9.58			
A within B					3.45		10.06			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			11.03.2021		15.03.2021		18.03.2021		23.03.2021	

Table 6.2.3. North Western Plains Zone			**SPL-1**		**Gurdaspur**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	58.02	3	52.10	3	48.71	3	46.61	3	51.36	3
150% RDF + FYM 15t/ha	61.17	2	59.58	2	58.57	2	55.37	2	58.67	2
150% RDF + FYM 15t/ha +GR	62.72	1	62.81	1	59.73	1	55.78	1	60.26	1
Mean	60.64		58.16		55.67		52.59		56.76	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			*		1.33		4.60		7.02	
Nutrient Management (B)			**		0.67		1.97		4.11	
B within A			N.S.		1.35		3.93			
A within B					1.73		5.04			
					Earhead/sqm					
RDF	354	3	339	3	336	3	327	3	339	3
150% RDF + FYM 15t/ha	365	2	353	2	349	2	344	2	353	2
150% RDF + FYM 15t/ha +GR	373	1	366	1	354	1	345	1	360	1
Mean	364		353		346		339		350	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			*		4.46		15.45		3.82	
Nutrient Management (B)			**		3.95		11.52		3.90	
B within A			N.S.		7.89		23.04			
A within B					7.84		22.88			
					Grains/earhead					
RDF	38.02	3	36.69	3	35.75	3	36.03	3	36.62	3
150% RDF + FYM 15t/ha	38.95	2	40.23	2	42.29	2	40.84	2	40.58	2
150% RDF + FYM 15t/ha +GR	39.64	1	41.79	1	43.47	1	41.41	1	41.58	1
Mean	38.87		39.57		40.50		39.43		39.59	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		0.82		2.84		6.21	
Nutrient Management (B)			**		0.74		2.15		6.44	
B within A			N.S.		1.47		4.29			
A within B					1.45		4.24			
					1000 grains weight, g					
RDF	43.23	1	42.08	1	40.62	1	39.69	1	41.40	1
150% RDF + FYM 15t/ha	43.07	2	42.02	2	39.68	2	39.42	2	41.05	2
150% RDF + FYM 15t/ha +GR	42.43	3	41.10	3	38.82	3	39.15	3	40.38	3
Mean	42.91		41.73		39.71		39.42		40.94	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.28		0.97		2.05	
Nutrient Management (B)			N.S.		0.32		0.92		2.68	
B within A			N.S.		0.63		1.85			
A within B					0.59		1.72			
					Biomass, q/ha					
RDF	133.33	3	129.63	3	112.00	3	104.22	3	119.80	3
150% RDF + FYM 15t/ha	144.44	2	141.98	2	124.57	2	119.11	2	132.52	2
150% RDF + FYM 15t/ha +GR	148.15	1	144.44	1	128.89	1	122.44	1	135.98	1
Mean	141.98		138.68		121.82		115.26		129.43	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		2.73		9.46		6.33	
Nutrient Management (B)			**		1.44		4.20		3.85	
B within A			N.S.		2.88		8.41			
A within B					3.61		10.52			
					Plant height, cm					
RDF	87.53	2	85.20	2	80.07	2	78.27	2	82.77	2
150% RDF + FYM 15t/ha	88.73	1	87.27	1	80.67	1	79.87	1	84.13	1
150% RDF + FYM 15t/ha +GR	77.00	3	75.67	3	72.07	3	70.00	3	73.68	3
Mean	84.42		82.71		77.60		76.04		80.19	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.91		3.14		3.40	
Nutrient Management (B)			**		0.69		2.00		2.96	
B within A			N.S.		1.37		4.01			
A within B					1.44		4.21			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			30.04.2021		30.04.2021		05.05.2021		05.05.2021	

Table 6.2.4. North Western Plains Zone			**SPL-1**		**Hisar**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	65.05	3	64.81	3	67.13	1	62.73	1	64.93	1
150% RDF + FYM 15t/ha	72.22	2	70.37	2	58.80	2	55.79	2	64.29	2
150% RDF + FYM 15t/ha +GR	77.31	1	72.45	1	56.94	3	47.92	3	63.66	3
Mean	71.53		69.21		60.96		55.48		64.29	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		2.01		6.97		9.40	
Nutrient Management (B)			N.S.		1.61		4.69		8.65	
B within A			**		3.21		9.37			
A within B					3.31		9.65			
					Earhead/sqm					
RDF	387	3	300	3	289	3	312	3	322	3
150% RDF + FYM 15t/ha	459	2	403	2	397	2	403	1	415	2
150% RDF + FYM 15t/ha +GR	464	1	468	1	427	1	320	2	420	1
Mean	436		390		371		345		386	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		19.64		67.97		15.28	
Nutrient Management (B)			**		12.78		37.31		11.48	
B within A			N.S.		25.56		74.62			
A within B					28.66		83.66			
					Grains/earhead					
RDF	39.31	1	53.50	1	67.80	1	58.60	1	54.80	1
150% RDF + FYM 15t/ha	34.84	3	41.18	2	39.02	2	38.21	3	38.31	2
150% RDF + FYM 15t/ha +GR	36.84	2	35.21	3	32.82	3	42.33	2	36.80	3
Mean	37.00		43.30		46.55		46.38		43.31	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.49		8.63		17.28	
Nutrient Management (B)			**		2.04		5.95		16.31	
B within A			*		4.08		11.90			
A within B					4.16		12.14			
					1000 grains weight, g					
RDF	43.55	3	40.72	3	34.47	3	34.50	3	38.31	3
150% RDF + FYM 15t/ha	45.38	2	42.90	2	37.97	2	36.37	2	40.65	2
150% RDF + FYM 15t/ha +GR	46.05	1	44.30	1	40.77	1	37.88	1	42.25	1
Mean	44.99		42.64		37.73		36.25		40.40	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.58		2.00		4.29	
Nutrient Management (B)			**		0.78		2.29		6.72	
B within A			N.S.		1.57		4.58			
A within B					1.40		4.10			
					Biomass, q/ha					
RDF	214.12	3	210.65	3	166.67	3	167.82	1	189.81	3
150% RDF + FYM 15t/ha	226.85	2	221.06	1	197.92	1	149.31	2	198.78	1
150% RDF + FYM 15t/ha +GR	238.43	1	210.65	2	196.76	2	141.20	3	196.76	2
Mean	226.47		214.12		187.11		152.78		195.12	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		6.84		23.68		10.52	
Nutrient Management (B)			N.S.		6.28		18.32		11.14	
B within A			N.S.		12.55		36.65			
A within B					12.33		35.98			
					Plant height, cm					
RDF	89.78	3	97.58	3	96.99	3	98.16	2	95.63	3
150% RDF + FYM 15t/ha	103.66	1	100.08	2	99.90	2	102.52	1	101.54	1
150% RDF + FYM 15t/ha +GR	99.82	2	102.03	1	101.01	1	96.77	3	99.91	2
Mean	97.75		99.90		99.30		99.15		99.02	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.01		3.50		3.06	
Nutrient Management (B)			*		1.27		3.69		4.43	
B within A			N.S.		2.53		7.39			
A within B					2.30		6.72			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			07.04.2021		10.04.2021		13.04.2021		17.04.2021	

Table 6.2.5. North Western Plains Zone			**SPL-1**		**Jammu**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	51.34	3	49.15	3	49.39	3	44.76	3	48.66	3
150% RDF + FYM 15t/ha	52.75	2	52.01	2	52.78	1	47.87	2	51.35	2
150% RDF + FYM 15t/ha +GR	54.81	1	53.27	1	52.75	2	49.05	1	52.47	1
Mean	52.97		51.48		51.64		47.23		50.83	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			*		1.12		3.86		6.59	
Nutrient Management (B)			*		0.91		2.65		6.20	
B within A			N.S.		1.82		5.31			
A within B					1.86		5.42			
					Earhead/sqm					
RDF	371	3	362	3	357	3	349	3	360	3
150% RDF + FYM 15t/ha	396	2	386	2	379	2	371	2	383	2
150% RDF + FYM 15t/ha +GR	396	1	392	1	388	1	375	1	388	1
Mean	388		380		375		365		377	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		5.39		18.66		4.29	
Nutrient Management (B)			*		7.44		21.72		6.84	
B within A			N.S.		14.88		43.44			
A within B					13.30		38.81			
					Grains/earhead					
RDF	36.25	1	35.28	1	35.91	1	33.24	3	35.17	1
150% RDF + FYM 15t/ha	34.44	3	34.83	2	35.29	2	34.01	1	34.64	2
150% RDF + FYM 15t/ha +GR	35.14	2	33.10	3	34.21	3	33.54	2	33.99	3
Mean	35.28		34.40		35.13		33.60		34.60	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.11		3.84		9.63	
Nutrient Management (B)			N.S.		1.17		3.41		11.71	
B within A			N.S.		2.34		6.83			
A within B					2.21		6.45			
					1000 grains weight, g					
RDF	38.56	3	38.55	3	38.88	3	38.68	2	38.67	3
150% RDF + FYM 15t/ha	38.88	2	38.75	2	39.67	2	38.03	3	38.83	2
150% RDF + FYM 15t/ha +GR	39.80	1	41.06	1	39.83	1	39.08	1	39.94	1
Mean	39.08		39.45		39.46		38.59		39.15	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		0.45		1.57		3.47	
Nutrient Management (B)			*		0.36		1.05		3.17	
B within A			N.S.		0.72		2.09			
A within B					0.74		2.16			
					Plant height, cm					
RDF	89.78	3	97.58	3	96.99	3	98.16	2	95.63	3
150% RDF + FYM 15t/ha	103.66	1	100.08	2	99.90	2	102.52	1	101.54	1
150% RDF + FYM 15t/ha +GR	99.82	2	102.03	1	101.01	1	96.77	3	99.91	2
Mean	97.75		99.90		99.30		99.15		99.02	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.01		3.50		3.06	
Nutrient Management (B)			*		1.27		3.69		4.43	
B within A			N.S.		2.53		7.39			
A within B					2.30		6.72			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			15.04.2021		16.04.2021		27.04.2021		30.04.2021	

Table 6.2.6. North Western Plains Zone			**SPL-1**		**Karnal**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	64.71	2	61.79	2	58.99	2	57.99	2	60.87	2
150% RDF + FYM 15t/ha	62.73	3	57.97	3	55.71	3	57.46	3	58.47	3
150% RDF + FYM 15t/ha +GR	65.45	1	64.28	1	62.51	1	60.51	1	63.19	1
Mean	64.30		61.35		59.07		58.65		60.84	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.21		4.18		5.95	
Nutrient Management (B)			**		0.53		1.54		3.00	
B within A			N.S.		1.06		3.08			
A within B					1.48		4.33			
					Earhead/sqm					
RDF	446	3	443	3	438	3	426	3	439	3
150% RDF + FYM 15t/ha	470	2	485	2	447	2	445	2	462	2
150% RDF + FYM 15t/ha +GR	498	1	504	1	476	1	473	1	488	1
Mean	471		477		454		448		463	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		9.29		32.14		6.02	
Nutrient Management (B)			**		4.99		14.55		3.73	
B within A			N.S.		9.97		29.11			
A within B					12.35		36.05			
					Grains/earhead					
RDF	35.55	1	34.49	1	34.16	1	34.79	1	34.75	1
150% RDF + FYM 15t/ha	33.11	2	29.71	3	32.21	3	32.64	3	31.92	3
150% RDF + FYM 15t/ha +GR	31.90	3	31.18	2	32.79	2	32.77	2	32.16	2
Mean	33.52		31.79		33.05		33.40		32.94	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		0.48		1.66		4.36	
Nutrient Management (B)			**		0.52		1.53		5.51	
B within A			N.S.		1.05		3.06			
A within B					0.98		2.86			
					1000 grains weight, g					
RDF	40.96	2	40.59	2	39.51	2	39.11	3	40.04	2
150% RDF + FYM 15t/ha	40.33	3	40.25	3	38.67	3	39.60	1	39.72	3
150% RDF + FYM 15t/ha +GR	41.17	1	40.89	1	40.03	1	39.13	2	40.31	1
Mean	40.82		40.58		39.40		39.28		40.02	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		0.38		1.30		2.82	
Nutrient Management (B)			N.S.		0.40		1.18		3.49	
B within A			N.S.		0.81		2.35			
A within B					0.76		2.21			
					Biomass, q/ha					
RDF	179.46	1	178.04	1	172.64	1	167.98	2	174.53	1
150% RDF + FYM 15t/ha	179.17	2	174.76	2	171.85	2	170.71	1	174.12	2
150% RDF + FYM 15t/ha +GR	174.40	3	174.05	3	168.58	3	165.36	3	170.60	3
Mean	177.68		175.62		171.02		168.02		173.08	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.20		7.63		3.82	
Nutrient Management (B)			N.S.		1.83		5.34		3.66	
B within A			N.S.		3.66		10.68			
A within B					3.71		10.84			
					Plant height, cm					
RDF	102.90	2	106.59	1	100.87	2	98.03	2	102.10	2
150% RDF + FYM 15t/ha	103.00	1	105.40	2	107.10	1	101.77	1	104.32	1
150% RDF + FYM 15t/ha +GR	100.40	3	99.01	3	93.67	3	87.18	3	95.07	3
Mean	102.10		103.67		100.54		95.66		100.49	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.58		2.02		1.74	
Nutrient Management (B)			**		0.79		2.30		2.72	
B within A			*		1.58		4.60			
A within B					1.41		4.12			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			17.04.2021		17.04.2021		17.04.2021		17.04.2021	

Table 6.2.7. North Western Plains Zone			**SPL-1**		**Ludhiana**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	50.95	3	51.53	3	51.26	3	46.93	3	50.17	3
150% RDF + FYM 15t/ha	53.99	2	55.32	2	54.59	2	47.73	2	52.91	2
150% RDF + FYM 15t/ha +GR	56.66	1	57.84	1	58.23	1	49.02	1	55.44	1
Mean	53.87		54.90		54.69		47.89		52.84	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		1.03		3.58		5.87	
Nutrient Management (B)			**		0.68		1.99		4.48	
B within A			N.S.		1.37		3.99			
A within B					1.52		4.44			
					Earhead/sqm					
RDF	345	3	309	3	298	3	283	3	309	3
150% RDF + FYM 15t/ha	349	2	317	2	333	2	296	2	324	2
150% RDF + FYM 15t/ha +GR	351	1	318	1	334	1	307	1	328	1
Mean	348		315		322		295		320	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		11.79		40.79		11.05	
Nutrient Management (B)			N.S.		5.39		15.73		5.83	
B within A			N.S.		10.78		31.46			
A within B					14.71		42.93			
					Grains/earhead					
RDF	38.35	3	47.10	3	53.08	1	50.77	1	47.32	3
150% RDF + FYM 15t/ha	41.63	2	53.51	1	51.30	2	48.40	2	48.71	2
150% RDF + FYM 15t/ha +GR	47.36	1	51.49	2	49.68	3	47.63	3	49.04	1
Mean	42.45		50.70		51.35		48.93		48.36	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.66		9.22		16.53	
Nutrient Management (B)			N.S.		1.86		5.43		13.33	
B within A			N.S.		3.72		10.86			
A within B					4.04		11.80			
					1000 grains weight, g					
RDF	38.57	1	36.10	1	33.73	2	33.19	3	35.40	1
150% RDF + FYM 15t/ha	37.48	2	33.62	3	32.00	3	33.31	2	34.10	3
150% RDF + FYM 15t/ha +GR	34.43	3	35.57	2	35.74	1	34.09	1	34.96	2
Mean	36.83		35.10		33.82		33.53		34.82	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.14		7.39		18.40	
Nutrient Management (B)			N.S.		0.89		2.59		8.82	
B within A			N.S.		1.77		5.18			
A within B					2.58		7.53			
					Biomass, q/ha					
RDF	131.82	2	129.14	1	121.83	3	111.99	1	123.70	2
150% RDF + FYM 15t/ha	150.10	1	126.22	2	136.45	1	108.92	2	130.42	1
150% RDF + FYM 15t/ha +GR	115.28	3	124.51	3	133.04	2	102.58	3	118.85	3
Mean	132.40		126.62		130.44		107.83		124.32	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		7.46		25.83		18.01	
Nutrient Management (B)			N.S.		5.57		16.26		15.53	
B within A			N.S.		11.14		32.53			
A within B					11.77		34.35			
					Plant height, cm					
RDF	80.53	3	88.13	1	81.60	2	77.80	1	82.02	2
150% RDF + FYM 15t/ha	87.27	1	86.07	2	84.27	1	73.27	3	82.72	1
150% RDF + FYM 15t/ha +GR	82.00	2	82.00	3	78.27	3	77.33	2	79.90	3
Mean	83.27		85.40		81.38		76.13		81.54	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.06		7.14		7.59	
Nutrient Management (B)			N.S.		1.04		3.03		4.41	
B within A			N.S.		2.08		6.06			
A within B					2.67		7.79			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			30.04.2021		30.04.2021		05.05.2021		05.05.2021	

Table 6.2.8. North Western Plains Zone			**SPL-1**		**Pantnagar**				**2020-21**	
	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RDF	43.22	3	46.70	3	46.48	3	45.84	3	45.56	3
150% RDF + FYM 15t/ha	44.45	2	49.09	2	49.25	2	47.43	2	47.55	2
150% RDF + FYM 15t/ha +GR	45.37	1	52.62	1	51.23	1	50.02	1	49.81	1
Mean	44.35		49.47		48.99		47.76		47.64	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			*		0.99		3.41		6.21	
Nutrient Management (B)			**		0.73		2.13		5.31	
B within A			N.S.		1.46		4.27			
A within B					1.55		4.52			
					Earhead/sqm					
RDF	447	3	462	3	486	3	455	3	462	3
150% RDF + FYM 15t/ha	470	2	518	2	503	2	508	2	500	2
150% RDF + FYM 15t/ha +GR	533	1	563	1	523	1	534	1	538	1
Mean	483		515		504		499		500	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		9.14		31.65		5.48	
Nutrient Management (B)			**		11.23		32.78		7.78	
B within A			N.S.		22.46		65.55			
A within B					20.49		59.81			
					Grains/earhead					
RDF	25.09	1	24.10	1	24.47	1	27.94	1	25.40	1
150% RDF + FYM 15t/ha	24.15	2	21.68	2	23.46	2	25.48	3	23.69	2
150% RDF + FYM 15t/ha +GR	21.15	3	21.58	3	22.70	3	25.72	2	22.79	3
Mean	23.46		22.45		23.54		26.38		23.96	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.09		3.77		13.65	
Nutrient Management (B)			N.S.		0.75		2.18		10.82	
B within A			N.S.		1.50		4.37			
A within B					1.64		4.78			
					1000 grains weight, g					
RDF	38.62	3	42.20	3	39.40	3	36.44	3	39.17	3
150% RDF + FYM 15t/ha	39.42	2	43.96	1	42.04	2	36.80	2	40.55	2
150% RDF + FYM 15t/ha +GR	40.43	1	43.34	2	43.21	1	37.11	1	41.02	1
Mean	39.49		43.17		41.55		36.78		40.25	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			**		0.66		2.29		4.94	
Nutrient Management (B)			N.S.		0.90		2.63		7.75	
B within A			N.S.		1.80		5.25			
A within B					1.61		4.71			
					Biomass, q/ha					
RDF	134.77	3	136.13	3	136.81	3	133.92	3	135.41	3
150% RDF + FYM 15t/ha	142.94	2	138.18	2	140.42	2	138.86	2	140.10	2
150% RDF + FYM 15t/ha +GR	148.39	1	148.39	1	144.31	1	147.02	1	147.03	1
Mean	142.03		140.90		140.52		139.93		140.84	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		2.70		9.36		5.76	
Nutrient Management (B)			**		1.49		4.35		3.67	
B within A			N.S.		2.98		8.71			
A within B					3.64		10.62			
					Plant height, cm					
RDF	89.00	1	95.67	1	93.40	2	95.53	1	93.40	2
150% RDF + FYM 15t/ha	88.13	2	94.93	2	95.13	1	95.47	2	93.42	1
150% RDF + FYM 15t/ha +GR	75.87	3	76.07	3	79.73	3	78.20	3	77.47	3
Mean	84.33		88.89		89.42		89.73		88.09	
			F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)			N.S.		1.55		5.38		5.29	
Nutrient Management (B)			**		0.91		2.65		3.57	
B within A			N.S.		1.82		5.31			
A within B					2.15		6.27			
Date of Sowing:			25.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			07.04.2021		08.04.2021		09.04.2021		14.04.2021	

Table 6.3.1. North Eastern Plains Zone **SPL-1** **Burdwan** **2020-21**

Nutrient Management	Date of sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RFD	27.78	3	36.00	3	40.72	3	42.36	3	36.72	3
150% RFD + FYM	30.00	2	38.40	2	43.47	2	45.39	2	39.32	2
150% RFD+FYM+GR	30.77	1	39.42	1	44.84	1	46.85	1	40.47	1
Mean	29.52		37.94		43.01		44.87		38.83	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.00		1.60		NS		NS			
					Earhead/sqm					
RFD	240	3	253	3	273	3	280	3	262	3
150% RFD + FYM	248	2	262	2	285	2	292	2	272	2
150% RFD+FYM+GR	253	1	265	1	290	1	297	1	276	1
Mean	247		260		283		289		270	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	13		11		NS		NS			
					Grains/earhead					
RFD	29.00	3	35.63	3	36.56	3	36.66	3	34.46	3
150% RFD + FYM	30.17	1	36.20	2	37.11	1	37.09	1	35.14	1
150% RFD+FYM+GR	30.02	2	36.37	1	36.98	2	36.71	2	35.02	2
Mean	29.73		36.07		36.88		36.82		34.88	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.4		NS		NS		NS			
					1000 grains weight, g					
RFD	39.96	3	39.91	3	40.81	3	41.29	3	40.49	3
150% RFD + FYM	40.07	2	40.53	2	41.16	2	41.98	2	40.94	2
150% RFD+FYM+GR	40.48	1	40.91	1	41.86	1	43.06	1	41.58	1
Mean	40.17		40.45		41.28		42.11		41.00	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.0		NS		NS		NS			
Date of Sowing:			27.10.2020		05.11.2020		15.11.2020		25.11.2020	
Date of Harvesting:			27.02.2021		04.03.2021		12.03.2021		22.03.2021	

Table 6.3.2. North Eastern Plains Zone **SPL-1** **Kalyani** **2020-21**

Nutrient Management	Date of sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RFD	41.38	2	43.18	3	38.05	3	36.29	3	39.73	3
150% RFD + FYM	40.99	3	45.10	2	43.92	2	37.86	2	41.97	2
150% RFD+FYM+GR	42.67	1	51.96	1	46.04	1	39.92	1	45.15	1
Mean	41.68		46.75		42.67		38.02		42.28	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
					Earhead/sqm					
RFD	264	2	315	2	298	3	251	3	282	3
150% RFD + FYM	248	3	307	3	305	2	291	2	288	2
150% RFD+FYM+GR	308	1	341	1	323	1	325	1	324	1
Mean	273		321		309		289		298	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		24		NS		NS			

					Grains/earhead					
RFD	37.67	2	38.33	3	39.33	3	39.33	3	38.67	3
150% RFD + FYM	35.50	3	40.67	2	41.33	2	40.00	1	39.38	2
150% RFD+FYM+GR	38.00	1	44.33	1	43.67	1	39.67	2	41.42	1
Mean	37.06		41.11		41.44		39.67		39.82	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
					1000 grains weight, g					
RFD	40.18	3	44.00	3	41.44	3	38.37	3	41.00	3
150% RFD + FYM	41.35	2	46.36	2	44.26	1	39.24	2	42.80	2
150% RFD+FYM+GR	42.11	1	47.61	1	44.06	2	40.19	1	43.49	1
Mean	41.21		45.99		43.26		39.27		42.43	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		2.9		NS		NS			
Date of Sowing:			25.10.2019		05.11.2019		15.11.2019		25.11.2019	
Date of Harvesting:			17.03.2021		20.03.2021		22.03.2021		27.03.2021	

Table 6.3.3. North Eastern Plains Zone **SPL-1** **Kanpur** **2020-21**

	Date of sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RFD	50.33	3	40.30	3	39.50	3	38.60	3	42.18	3
150% RFD + FYM	52.20	2	45.40	2	43.40	2	41.40	2	45.60	2
150% RFD+FYM+GR	54.40	1	48.30	1	44.60	1	42.70	1	47.50	1
Mean	52.31		44.67		42.50		40.90		45.09	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.88		1.99		NS		NS			
					Earhead/sqm					
RFD	363	3	361	3	398	3	312	2	359	3
150% RFD + FYM	378	2	371	2	422	2	340	1	378	1
150% RFD+FYM+GR	380	1	378	1	423	1	305	3	371	2
Mean	374		370		415		319		369	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	23		NS		NS		NS			
					Grains/earhead					
RFD	60.33	1	63.00	2	65.33	1	63.00	1	62.92	1
150% RFD + FYM	60.33	1	62.00	3	63.00	2	60.67	3	61.50	3
150% RFD+FYM+GR	60.33	1	65.33	1	61.67	3	62.00	2	62.33	2
Mean	60.33		63.44		63.33		61.89		62.25	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
					1000 grains weight, g					
RFD	42.62	1	41.32	1	40.12	1	39.30	1	40.84	1
150% RFD + FYM	41.32	2	40.62	2	39.80	2	39.10	2	40.21	2
150% RFD+FYM+GR	40.62	3	40.32	3	39.40	3	38.90	3	39.81	3
Mean	41.52		40.75		39.77		39.10		40.29	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
Date of Sowing:			25.10.2019		05.11.2019		15.11.2019		25.11.2019	
Date of Harvesting:			25.03.2021		06.04.2021		08.04.2021		10.04.2021	

Table 6.3.4. North Eastern Plains Zone **SPL-1** **Shillongani**

Nutrient Management	Date of sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
					Yield, q/ha					
RFD	28.08	3	30.24	3	35.54	3	34.40	2	32.07	3
150% RFD + FYM	29.47	2	34.23	2	37.00	2	33.16	3	33.46	2
150% RFD+FYM+GR	30.49	1	35.73	1	37.92	1	38.95	1	35.77	1
Mean	29.35		33.40		36.82		35.50		33.77	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.3		1.5		NS		NS			
					Earhead/sqm					
RFD	281	3	240	3	286	3	272	3	269.71	3
150% RFD + FYM	281	2	297	1	307	2	287	1	292.92	2
150% RFD+FYM+GR	295	1	292	2	314	1	276	2	294.04	1
Mean	286		276		302		278		285.56	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		17.0		NS		NS			
					Grains/earhead					
RFD	23.27	2	29.94	2	31.44	1	30.50	3	28.78	2
150% RFD + FYM	22.92	3	27.13	3	29.30	3	31.29	2	27.66	3
150% RFD+FYM+GR	24.67	1	30.60	1	30.46	2	37.81	1	30.88	1
Mean	23.62		29.22		30.40		33.20		29.11	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	3.5		NS		NS		NS			
					1000 grains weight, g					
RFD	43.10	2	42.52	2	39.86	2	41.53	1	41.75	1
150% RFD + FYM	45.93	1	42.65	1	41.18	1	37.19	3	41.74	2
150% RFD+FYM+GR	42.01	3	40.08	3	39.70	3	38.22	2	40.00	3
Mean	43.68		41.75		40.25		38.98		41.16	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.9		NS		NS		NS			
Date of Sowing:	25.10.2020		5.11.2020		15.11.2020		25.11.2020			
Date of Harvesting:	23.03.2021		26.03.2021		30.03.2021		02.04.2021			

Table 6.3.5. North Eastern Plains Zone **SPL-1** **Ranchi** **2020-21**

Nutrient Management	Date of sowing: 30th Oct	Rk	10th Nov	Rk	20th Nov	Rk	30th Nov	Rk	Mean	Rk
					Yield, q/ha					
RFD	65.33	3	66.47	3	66.00	3	55.20	3	63.25	3
150% RFD + FYM	71.97	1	73.17	1	68.63	1	59.63	1	68.35	1
150% RFD+FYM+GR	67.83	2	68.40	2	66.53	2	56.37	2	64.78	2
Mean	68.38		69.34		67.06		57.07		65.46	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.07		3.29		NS		NS			
					Earhead/sqm					
RFD	363	2	383	3	370	3	343	1	365	3
150% RFD + FYM	377	1	405	1	383	2	343	2	377	1
150% RFD+FYM+GR	363	2	402	2	402	1	337	3	376	2
Mean	368		397		385		341		373	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	28		NS		NS		NS			

					Grains/earhead					
RFD	42.93	1	43.80	2	43.40	1	35.60	3	41.43	2
150% RFD + FYM	42.33	2	45.07	1	43.33	2	39.33	1	42.52	1
150% RFD+FYM+GR	41.57	3	43.60	3	42.93	3	37.20	2	41.33	3
Mean	42.28		44.16		43.22		37.38		41.76	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	1.98		2.13		NS		NS			
					1000 grains weight, g					
RFD	47.57	2	45.73	3	46.33	1	42.07	1	45.43	2
150% RFD + FYM	47.73	1	48.67	1	46.00	2	41.67	2	46.02	1
150% RFD+FYM+GR	46.93	3	48.33	2	44.93	3	40.57	3	45.19	3
Mean	47.41		47.58		45.76		41.43		45.54	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	2.52		NS		NS		NS			
Date of Sowing:			30.10.2020		10.11.2020		20.11.20		30.11.2020	
Date of Harvesting:			20.03.21		30.3.21		10.4.21		20.4.21	

Table 6.3.6. North Eastern Plains Zone **SPL-1** **Sabour** **2020-21**

	Date of sowing									
Nutrient Management	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	5th Dec	Rk	Mean	Rk
					Yield, q/ha					
RFD	43.29	2	40.91	3	40.25	3	40.74	2	41.30	3
150% RFD + FYM	42.75	3	41.26	2	41.58	2	40.42	3	41.51	2
150% RFD+FYM+GR	45.73	1	46.43	1	45.69	1	42.30	1	45.04	1
Mean	43.93		42.87		42.51		41.15		42.61	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
					Earhead/sqm					
RFD	318	3	325	3	340	2	318	2	325.42	3
150% RFD + FYM	348	2	345	2	315	3	302	3	327.50	2
150% RFD+FYM+GR	398	1	372	1	373	1	337	1	370.00	1
Mean	355		347		343		319		340.97	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		32		NS		NS			
					Grains/earhead					
RFD	42.00	3	44.67	1	42.67	3	43.33	2	43.17	2
150% RFD + FYM	44.33	1	42.67	3	43.00	2	42.33	3	43.08	3
150% RFD+FYM+GR	43.67	2	43.00	2	43.67	1	43.67	1	43.50	1
Mean	43.33		43.44		43.11		43.11		43.25	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
					1000 grains weight, g					
RFD	41.46	3	42.30	3	43.23	1	40.83	2	41.96	3
150% RFD + FYM	42.90	1	43.03	2	42.73	3	40.00	3	42.17	2
150% RFD+FYM+GR	42.20	2	43.40	1	42.93	2	41.37	1	42.48	1
Mean	42.19		42.91		42.97		40.73		42.20	
	Sowing (A)		Nutrient (B)		B within A		A within B			
CD (0.05)	NS		NS		NS		NS			
Date of Sowing:	05.11.2020		15.11.2020		25.11.2020		05.12.2020			
Date of Harvesting:	25.03.2021		29.03.2021		05.04.2021		07.04.2021			

Table 6.4.1. Central Zone **SPL-1** **Bilaspur** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
RDF	32.69	3	42.74	3	39.63	3	34.45	3	37.38	3
150% RDF + FYM 15 t/ha	38.79	2	47.16	2	46.15	2	41.76	2	43.46	2
150% RDF+FYM+GR	40.13	1	49.17	1	47.06	1	42.95	1	44.83	1
Mean	37.20		46.36		44.28		39.72		41.89	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.26		0.91		1.88			
Nutrient management (B)	**		0.77		2.26		6.40			
B within A	N.S.		1.55		NS					
A within B			1.29		NS					
Earhead/sqm										
RDF	275	3	335	3	312	3	298	3	305	3
150% RDF + FYM 15 t/ha	314	2	388	2	363	2	338	2	351	2
150% RDF+FYM+GR	317	1	407	1	371	1	354	1	362	1
Mean	302		377		349		330		339	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.67		5.76		1.47			
Nutrient management (B)	**		2.93		8.56		2.99			
B within A	NS		5.87		NS					
A within B			5.07		NS					
Grains/earhead										
RDF	36.44	1	29.85	1	32.04	1	33.60	1	32.98	1
150% RDF + FYM 15 t/ha	31.82	2	25.77	2	27.56	2	29.62	2	28.69	2
150% RDF+FYM+GR	31.57	3	24.60	3	26.96	3	28.25	3	27.85	3
Mean	33.28		26.74		28.85		30.49		29.84	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.15		0.53		1.54			
Nutrient management (B)	**		0.26		0.76		3.04			
B within A	NS		0.52		NS					
A within B			0.45		NS					
1000 grains weight, g										
RDF	39.77	3	43.36	3	42.47	3	40.47	3	41.52	3
150% RDF + FYM 15 t/ha	42.08	2	44.81	2	43.93	2	42.41	2	43.31	2
150% RDF+FYM+GR	43.07	1	46.40	1	44.98	1	43.14	1	44.40	1
Mean	41.64		44.86		43.79		42.01		43.07	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.23		0.81		1.62			
Nutrient management (B)	**		0.47		1.37		3.79			
B within A	NS		0.94		NS					
A within B			0.80		NS					
Biomass q/ha										
RDF	69.63	3	85.98	3	82.88	3	73.39	3	77.97	3
150% RDF + FYM 15 t/ha	81.98	2	97.72	2	96.09	2	85.70	2	90.37	2
150% RDF+FYM+GR	86.78	1	103.95	1	97.36	1	90.54	1	94.66	1
Mean	79.46		95.88		92.11		83.21		87.67	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.79		2.74		2.71			
Nutrient management (B)	**		1.35		3.95		5.35			
B within A	N.S.		2.71		7.91					
A within B			2.35		6.86					
Plant height, cm										
RDF	84.95	1	85.13	1	84.13	1	87.23	1	85.36	1
150% RDF + FYM 15 t/ha	82.90	2	84.50	2	82.40	3	86.07	2	83.97	2
150% RDF+FYM+GR	80.47	3	83.60	3	83.25	2	85.60	3	83.23	3
Mean	82.77		84.41		83.26		86.30		84.19	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	*		0.56		1.93		1.99			
Nutrient management (B)	N.S.		1.35		3.93		5.55			
B within A	N.S.		2.70		7.87					
A within B			2.27		6.63					

Date of Sowing: 25.10.2020, 05.11.2020, 15.11.2020, 25.11.2020
Date of Harvesting: 28.02.2021, 04.03.2021, 13.03.2021, 22.03.2021

Table 6.4.2. Central Zone **SPL-1** **Gwalior** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
RDF	57.45	3	59.93	2	60.87	3	57.90	3	59.04	3
150% RDF + FYM 15 t/ha	58.72	2	59.67	3	61.50	2	58.62	2	59.63	2
150% RDF+FYM+GR	60.84	1	60.40	1	62.07	1	60.60	1	60.98	1
Mean	59.01		60.00		61.48		59.04		59.88	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.17		0.58		0.83			
Nutrient management (B)	**		0.18		0.52		1.04			
B within A	*		0.36		1.05					
A within B			0.34		0.98					
Earhead/sqm										
RDF	343	3	395	2	417	3	358	3	378	3
150% RDF + FYM 15 t/ha	374	2	392	3	424	2	366	2	389	2
150% RDF+FYM+GR	408	1	399	1	431	1	387	1	407	1
Mean	375		395		424		371		391	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		3.22		11.15		2.47			
Nutrient management (B)	**		2.50		7.29		2.21			
B within A	**		4.99		14.58					
A within B			5.20		15.17					
Grains/earhead										
RDF	33.81	1	32.49	3	33.82	1	36.39	1	34.13	1
150% RDF + FYM 15 t/ha	30.92	2	33.27	1	29.76	2	36.04	2	32.50	2
150% RDF+FYM+GR	29.26	3	32.67	2	29.60	3	34.70	3	31.56	3
Mean	31.33		32.81		31.06		35.71		32.73	
	F. Test		SEm		CD (0.05)		CV% %			
Date of sowing (A)	**		0.40		1.40		3.70			
Nutrient management (B)	**		0.34		1.00		3.64			
B within A	*		0.69		2.01					
A within B			0.69		2.02					
1000 grains weight, g										
RDF	49.55	3	46.75	1	43.24	3	44.44	3	46.00	3
150% RDF + FYM 15 t/ha	50.82	2	45.83	3	48.80	1	44.47	2	47.48	2
150% RDF+FYM+GR	50.99	1	46.35	2	48.62	2	45.20	1	47.79	1
Mean	50.46		46.31		46.89		44.70		47.09	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.47		1.63		3.00			
Nutrient management (B)	**		0.36		1.06		2.66			
B within A	**		0.72		2.11					
A within B			0.76		2.21					
Biomass, q/ha										
RDF	81.97	3	90.29	1	91.30	3	82.21	3	86.44	3
150% RDF + FYM 15 t/ha	86.32	2	86.93	3	91.63	2	83.82	2	87.17	2
150% RDF+FYM+GR	91.68	1	89.79	2	93.72	1	90.29	1	91.37	1
Mean	86.65		89.00		92.22		85.44		88.33	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.48		1.67		1.64			
Nutrient management (B)	**		0.57		1.67		2.25			
B within A	**		1.15		3.34					
A within B			1.05		3.07					
Plant Height, cm										
RDF	89.87	2	92.67	2	86.30	2	87.60	2	89.11	2
150% RDF + FYM 15 t/ha	90.27	1	93.33	1	100.33	1	92.07	1	94.00	1
150% RDF+FYM+GR	80.87	3	84.33	3	79.60	3	79.10	3	80.98	3
Mean	87.00		90.11		88.74		86.26		88.03	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	N.S.		1.19		4.12		4.06			
Nutrient management (B)	**		0.69		2.02		2.73			
B within A	**		1.39		4.05					
A within B			1.64		4.79					

Date of Sowing: 02.11.2020, 12.11.2020, 22.11.2020, 02.12.2020
Date of Harvesting: 27.03.2021, 02.04.2021, 05.04.2021, 08.04.2021

Table 6.4.3. Central Zone			**SPL-1**			**Jabalpur**			**2020-21**	
	Date of Sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
				Yield, q/ha						
RDF	34.25	3	50.75	3	46.24	3	42.40	3	43.41	3
150% RDF + FYM 15 t/ha	39.60	2	53.95	2	52.00	2	47.20	2	48.19	2
150% RDF+FYM+GR	41.69	1	56.80	1	54.83	1	50.32	1	50.91	1
Mean	38.51		53.83		51.02		46.64		47.50	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.43		1.50		2.73			
Nutrient management (B)	**		0.57		1.66		4.15			
B within A	NS		1.14		NS					
A within B			1.03		NS					
				Earhead/sqm						
RDF	272	3	330	3	310	3	286	3	300	3
150% RDF + FYM 15 t/ha	283	2	354	2	339	2	295	2	318	2
150% RDF+FYM+GR	300	1	389	1	367	1	314	1	342	1
Mean	285		358		338		298		320	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.30		4.51		1.22			
Nutrient management (B)	**		1.37		4.00		1.48			
B within A	**		2.74		8.00					
A within B			2.59		7.56					
				Grains/earhead						
RDF	33.07	2	37.80	1	34.71	1	37.66	1	35.81	1
150% RDF + FYM 15 t/ha	34.86	1	33.84	2	34.39	2	37.63	2	35.18	2
150% RDF+FYM+GR	32.89	3	30.28	3	32.85	3	36.95	3	33.24	3
Mean	33.60		33.97		33.99		37.41		34.74	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.45		1.55		3.86			
Nutrient management (B)	*		0.67		1.96		6.70			
B within A	NS		NS		3.92					
A within B			NS		3.46					
				1000 grains weight, g						
RDF	38.07	3	40.70	3	43.15	3	39.40	3	40.33	3
150% RDF + FYM 15 t/ha	40.23	2	45.07	2	44.69	2	42.51	2	43.13	2
150% RDF+FYM+GR	42.25	1	48.26	1	45.56	1	43.43	1	44.88	1
Mean	40.19		44.68		44.47		41.78		42.78	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.27		0.92		1.86			
Nutrient management (B)	**		0.48		1.39		3.85			
B within A	NS		0.95		NS					
A within B			0.82		NS					
				Biomass, q/ha						
RDF	72.19	3	89.12	3	86.34	3	83.40	3	82.76	3
150% RDF + FYM 15 t/ha	75.77	2	95.27	2	93.23	2	86.97	2	87.81	2
150% RDF+FYM+GR	81.70	1	103.57	1	96.35	1	92.90	1	93.63	1
Mean	76.55		95.99		91.97		87.75		88.07	
	F. Test		S.E.m		C.D.		C.V.(%)			
Date of sowing (A)	**		0.47		1.61		1.59			
Nutrient management (B)	**		0.82		2.40		3.23			
B within A	N.S.		1.64		4.80					
A within B			1.42		4.15					
				Plant Height, cm						
RDF	68.65	3	78.10	3	76.51	3	73.88	3	74.29	3
150% RDF + FYM 15 t/ha	74.92	2	88.52	2	81.43	2	76.76	2	80.41	2
150% RDF+FYM+GR	79.86	1	96.14	1	86.26	1	83.44	1	86.43	1
Mean	74.48		87.58		81.40		78.03		80.37	
	F. Test		S.E.m		C.D.		C.V.(%)			
Date of sowing (A)	**		0.78		2.70		2.92			
Nutrient management (B)	**		0.71		2.07		3.05			
B within A	N.S.		1.42		4.13					
A within B			1.40		4.07					
Date of Sowing: 25.10.2020, 11.05.2020, 15.11.2020, 25.11.2020										
Date of Harvesting: 03.08.2021, 18.03.2021, 26.03.2021, 04.02.2021										

Table 6.4.4. Central Zone **SPL-1** **Junagadh** **2020-21**

	Date of Sowing							
Nutrient Management	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha								
RDF	47.88	3	52.54	3	54.98	3	51.80	3
150% RDF + FYM 15 t/ha	55.91	2	60.32	2	60.92	2	59.05	2
150% RDF+FYM+GR	57.21	1	60.60	1	62.17	1	59.99	1
Mean	53.67		57.82		59.36		56.95	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	N.S.		1.13		4.45		5.97	
Nutrient management (B)	**		1.52		4.69		8.02	
B within A	N.S.		2.64		8.13			
A within B			2.43		7.50			
Earhead/sqm								
RDF	383	3	404	3	402	3	396	3
150% RDF + FYM 15 t/ha	394	2	407	1	414	2	405	2
150% RDF+FYM+GR	402	1	407	1	417	1	409	1
Mean	393		406		411		403	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	*		2.57		10.09		1.91	
Nutrient management (B)	**		1.40		4.32		1.04	
B within A	*		2.43		7.49			
A within B			3.25		10.01			
Grains/earhead								
RDF	26.09	1	24.74	1	24.90	1	25.24	1
150% RDF + FYM 15 t/ha	25.38	2	24.59	3	24.14	2	24.70	2
150% RDF+FYM+GR	24.86	3	24.60	2	24.00	3	24.49	3
Mean	25.44		24.64		24.35		24.81	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	*		0.16		0.62		1.91	
Nutrient management (B)	**		0.09		0.27		1.05	
B within A	*		0.15		0.46			
A within B			0.20		0.62			
1000 grains weight, g								
RDF	47.88	3	52.54	3	54.98	3	51.80	3
150% RDF + FYM 15 t/ha	55.91	2	60.32	2	60.92	2	59.05	2
150% RDF+FYM+GR	57.21	1	60.60	1	62.17	1	59.99	1
Mean	53.67		57.82		59.36		56.95	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	N.S.		1.13		4.45		5.97	
Nutrient management (B)	**		1.52		4.69		8.02	
B within A	N.S.		2.64		8.13			
A within B			2.43		7.50			
Biomass, q/ha								
RDF	109.96	2	112.74	3	117.40	2	113.37	2
150% RDF + FYM 15 t/ha	117.55	1	121.40	1	120.98	1	119.98	1
150% RDF+FYM+GR	109.13	3	114.85	2	114.71	3	112.90	3
Mean	112.21		116.33		117.69		115.41	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	N.S.		1.16		4.55		3.01	
Nutrient management (B)	**		1.38		4.24		3.58	
B within A	N.S.		2.38		7.35			
A within B			2.27		6.98			
Plant height, cm								
RDF	80.80	2	85.47	2	85.00	2	83.76	2
150% RDF + FYM 15 t/ha	84.67	1	87.33	1	87.93	1	86.64	1
150% RDF+FYM+GR	73.80	3	74.27	3	76.67	3	74.91	3
Mean	79.76		82.36		83.20		81.77	
	F. Test		SEm		CD (0.05)		CV (%)	
Date of sowing (A)	**		0.35		1.36		1.27	
Nutrient management (B)	**		1.33		4.09		4.87	
B within A	N.S.		2.30		7.08			
A within B			1.91		5.88			

Date of Sowing: 05.11.2020, 15.11.2020, 25.11.2020 Date of Harvesting: 25.02.2021, 25.02.2021, 10.03.2021

Table 6.4.5. Central Zone **SPL-1** **Pawarkheda** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
RDF	25.41	3	30.51	3	47.73	3	41.44	3	36.27	3
150% RDF + FYM 15 t/ha	28.61	2	35.62	2	49.68	2	46.74	2	40.16	2
150% RDF+FYM+GR	29.63	1	37.54	1	54.38	1	49.03	1	42.65	1
Mean	27.88		34.56		50.60		45.74		39.69	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.55		1.90		4.15			
Nutrient management (B)	**		0.38		1.12		3.34			
B within A	N.S.		0.77		NS					
A within B			0.83		NS					
Earhead/sqm										
RDF	360	3	383	3	458	3	432	3	408	3
150% RDF + FYM 15 t/ha	362	2	400	2	465	2	493	1	430	2
150% RDF+FYM+GR	375	1	430	1	480	1	490	2	444	1
Mean	366		404		468		472		427	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		6.43		22.26		4.51			
Nutrient management (B)	NS		9.43		NS		7.64			
B within A	NS		18.86		NS					
A within B			16.69		NS					
Grains/earhead										
RDF	17.87	3	18.70	3	20.69	3	21.71	2	19.74	3
150% RDF + FYM 15 t/ha	19.83	2	19.40	2	21.09	2	20.55	3	20.21	2
150% RDF+FYM+GR	20.79	1	19.99	1	22.79	1	21.92	1	21.37	1
Mean	19.49		19.36		21.52		21.39		20.44	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	NS		0.60		NS		8.85			
Nutrient management (B)	NS		0.61		NS		10.37			
B within A	NS		1.22		NS					
A within B			1.17		NS					
1000 grains weight, g										
RDF	39.67	2	43.17	3	50.42	2	44.43	3	44.42	2
150% RDF + FYM 15 t/ha	41.17	1	45.94	1	50.67	1	46.17	1	45.99	1
150% RDF+FYM+GR	38.17	3	43.92	2	49.83	3	45.73	2	44.41	3
Mean	39.67		44.34		50.31		45.44		44.94	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.72		2.48		4.78			
Nutrient management (B)	NS		0.63		NS		4.87			
B within A	NS		1.26		NS					
A within B			1.26		NS					
Biomass, q/ha										
RDF	41.63	1	49.76	3	95.43	3	89.08	3	68.97	3
150% RDF + FYM 15 t/ha	38.56	3	58.60	2	101.75	1	98.05	2	74.24	2
150% RDF+FYM+GR	39.39	2	66.08	1	100.68	2	100.62	1	76.69	1
Mean	39.86		58.15		99.29		95.92		73.30	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		2.00		6.94		8.20			
Nutrient management (B)	**		1.20		3.51		5.69			
B within A	*		2.41		7.02					
A within B			2.81		8.19					
Plant height, cm										
RDF	72.00	2	87.67	2	96.33	2	96.00	2	88.00	2
150% RDF + FYM 15 t/ha	75.33	1	88.33	1	98.00	1	97.00	1	89.67	1
150% RDF+FYM+GR	67.33	3	76.67	3	85.67	3	81.00	3	77.67	3
Mean	71.56		84.22		93.33		91.33		85.11	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.73		5.99		6.11			
Nutrient management (B)	**		1.10		3.22		4.50			
B within A	N.S.		2.21		6.45					
A within B			2.50		7.30					

Date of Sowing: 25.10.2020, 11.05.2020, 15.11.2020, 25.11.2020
Date of Harvesting: 03.08.2021, 18.03.2021, 26.03.2021, 04.02.2021

Table 6.4.6. Central Zone **SPL-1** **Udaipur** **2020-21**

Nutrient Management	Date of Sowing: 25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
Yield, q/ha										
RDF	19.55	3	35.29	2	32.50	1	33.32	1	30.17	3
150% RDF + FYM 15 t/ha	28.53	1	36.41	1	25.33	3	30.46	3	30.18	2
150% RDF+FYM+GR	26.76	2	35.05	3	27.51	2	32.37	2	30.42	1
Mean	24.94		35.59		28.45		32.05		30.26	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.18		4.08		11.69			
Nutrient management (B)	NS		1.11		3.24		12.71			
B within A	NS		2.22		6.48					
A within B			2.16		6.31					
Earhead/sqm										
RDF	266	2	290	2	203	3	283	3	260	3
150% RDF + FYM 15 t/ha	268	1	285	3	247	2	337	1	284	2
150% RDF+FYM+GR	263	3	311	1	259	1	326	2	290	1
Mean	266		295		236		315		278	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	*		11.82		40.90		12.75			
Nutrient management (B)	NS		8.77		NS		10.92			
B within A	NS		17.54		NS					
A within B			18.57		NS					
Grains/earhead										
RDF	14.58	3	23.31	3	40.47	1	27.02	1	26.35	1
150% RDF + FYM 15 t/ha	21.79	1	24.86	1	25.49	3	18.50	3	22.66	3
150% RDF+FYM+GR	21.66	2	24.29	2	28.11	2	22.51	2	24.14	2
Mean	19.34		24.16		31.36		22.68		24.38	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	*		2.27		7.86		27.95			
Nutrient management (B)	NS		1.79		NS		25.45			
B within A	NS		3.58		NS					
A within B			3.70		NS					
1000 grains weight, g										
RDF	50.77	1	52.56	1	43.13	1	45.68	2	48.04	1
150% RDF + FYM 15 t/ha	49.71	2	52.30	2	40.31	2	48.92	1	47.81	2
150% RDF+FYM+GR	46.88	3	46.45	3	37.99	3	43.89	3	43.80	3
Mean	49.12		50.44		40.48		46.16		46.55	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.67		2.30		4.29			
Nutrient management (B)	**		0.60		1.76		4.48			
B within A	NS		1.21		NS					
A within B			1.19		NS					
Biomass, q/ha										
RDF	58.14	3	85.68	1	81.60	1	73.10	3	74.63	1
150% RDF + FYM 15 t/ha	73.44	1	80.58	2	63.24	3	76.16	2	73.36	3
150% RDF+FYM+GR	68.68	2	79.56	3	63.92	2	85.00	1	74.29	2
Mean	66.75		81.94		69.59		78.09		74.09	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.80		6.22		7.28			
Nutrient management (B)	N.S.		1.72		5.01		8.03			
B within A	**		3.43		10.02					
A within B			3.33		9.72					
Plant Height, cm										
RDF	71.33	2	79.80	1	80.60	1	76.47	2	77.05	2
150% RDF + FYM 15 t/ha	74.27	1	79.47	2	79.13	2	80.40	1	78.32	1
150% RDF+FYM+GR	63.87	3	69.00	3	67.27	3	64.67	3	66.20	3
Mean	69.82		76.09		75.67		73.84		73.86	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	N.S.		2.54		8.81		10.34			
Nutrient management (B)	**		1.68		4.90		7.87			
B within A	N.S.		3.36		9.80					
A within B			3.74		10.92					

Date of Sowing: 25.10.2020, 5.11.2020, 15.11.2020, 25.11.2020
Date of Harvesting: 19.03.2021, 25.03.2021, 04.04.2021, 10.04.2021

Table 6.4.7. Central Zone			**SPL-1**			**Vijapur**			**2020-21**	
	Date of Sowing									
Nutrient Management	25th Oct	Rk	5th Nov	Rk	15th Nov	Rk	25th Nov	Rk	Mean	Rk
				Yield, q/ha						
RDF	38.77	3	44.88	3	50.93	3	52.96	3	46.89	3
150% RDF + FYM 15 t/ha	42.17	2	55.65	2	57.81	2	60.15	2	53.95	2
150% RDF+FYM+GR	43.75	1	60.83	1	60.48	1	63.40	1	57.11	1
Mean	41.56		53.79		56.41		58.84		52.65	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		2.19		7.56		12.45			
Nutrient management (B)	**		1.16		3.39		7.65			
B within A	N.S.		2.32		6.79					
A within B			2.89		8.45					
				Earhead/sqm						
RDF	272	3	324	2	316	2	419	2	333	2
150% RDF + FYM 15 t/ha	303	2	317	3	307	3	395	3	331	3
150% RDF+FYM+GR	308	1	327	1	366	1	438	1	360	1
Mean	294		323		330		417		341	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		11.48		39.74		10.10			
Nutrient management (B)	*		7.67		22.39		7.79			
B within A	NS		15.34		44.77					
A within B			16.99		49.60					
				Grains/earhead						
RDF	21.07	3	23.16	3	26.47	3	23.31	3	23.50	3
150% RDF + FYM 15 t/ha	21.08	2	28.65	2	28.71	1	27.33	1	26.44	2
150% RDF+FYM+GR	21.95	1	31.97	1	26.94	2	25.40	2	26.57	1
Mean	21.37		27.93		27.37		25.34		25.50	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	*		1.05		3.62		12.31			
Nutrient management (B)	*		0.87		2.54		11.82			
B within A	NS		1.74		NS					
A within B			1.76		NS					
				1000 grains weight, g						
RDF	67.65	1	59.98	2	60.95	3	54.45	3	60.76	2
150% RDF + FYM 15 t/ha	66.15	2	61.36	1	65.89	1	55.83	2	62.31	1
150% RDF+FYM+GR	64.86	3	59.16	3	61.92	2	57.04	1	60.75	3
Mean	66.22		60.17		62.92		55.77		61.27	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		0.85		2.96		4.18			
Nutrient management (B)	NS		0.69		2.02		3.91			
B within A	NS		1.38		4.03					
A within B			1.42		4.13					
				Biomass, q/ha						
RDF	102.50	3	105.63	3	120.33	3	141.38	3	117.46	3
150% RDF + FYM 15 t/ha	110.17	2	134.58	2	144.58	1	160.21	2	137.39	2
150% RDF+FYM+GR	116.83	1	149.17	1	143.29	2	161.58	1	142.72	1
Mean	109.83		129.79		136.07		154.39		132.52	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		4.02		13.90		9.09			
Nutrient management (B)	**		2.85		8.32		7.45			
B within A	N.S.		5.70		16.63					
A within B			6.15		17.94					
				Plant height, cm						
RDF	84.53	1	85.00	2	92.73	2	94.73	2	89.25	2
150% RDF + FYM 15 t/ha	83.40	3	91.33	1	92.87	1	98.47	1	91.52	1
150% RDF+FYM+GR	84.47	2	83.67	3	84.67	3	93.20	3	86.50	3
Mean	84.13		86.67		90.09		95.47		89.09	
	F. Test		SEm		CD (0.05)		CV (%)			
Date of sowing (A)	**		1.17		4.06		3.95			
Nutrient management (B)	**		0.66		1.94		2.58			
B within A	*		1.33		3.88					
A within B			1.60		4.66					
Date of Sowing: 25.10.2020, 05.11.2020, 15.11.2020, 25.11.2020										
Date of Harvesting: 09.03.2021, 12.03.2021, 18.03.2021, 18.03.2021										

Table 6.5.1. Peninsular Zone **SPL-1** **Dharwad** **2020-21**

Nutrient management	Sowing time								Mean	Rk
	25th Oct	Rk	05th Nov	Rk	15th Nov	Rk	25th Nov	Rk		
Yield, q/ha										
Recommended fertiliser dose (RFD)	19.39	3	33.08	3	27.50	3	20.64	3	25.15	3
150% RFD+FYM15 t/ha	23.31	1	36.03	1	32.47	2	25.81	2	29.40	2
150% RFD+FYM15 t/ha+GR	22.97	2	35.83	2	35.42	1	31.22	1	31.36	1
Mean	21.89		34.98		31.80		25.89		28.64	
	F. Test		SEm		CD (0.05)		CV (%)			
Sowing (A)	*		2.16		7.48		22.63			
Nutrient (B)	**		0.82		2.38		9.88			
B within A	N.S.		1.63		4.77					
A within B			2.54		7.41					
Earheads/sqm										
Recommended fertiliser dose (RFD)	255	1	245	2	240	3	264	1	251	1
150% RFD+FYM15 t/ha	249	2	245	3	253	1	239	3	247	3
150% RFD+FYM15 t/ha+GR	238	3	257	1	249	2	252	2	249	2
Mean	247		249		247		252		249	
	F. Test		SEm		CD (0.05)		CV (%)			
Sowing (A)	N.S.		1.62		5.60		1.95			
Nutrient (B)	N.S.		1.02		5.60		2.67			
B within A	**		3.84		11.20					
A within B			3.53		10.29					
Grains/Earhead										
Recommended fertiliser dose (RFD)	19.23	3	32.10	3	24.27	3	17.53	3	23.28	3
150% RFD+FYM15 t/ha	23.58	2	34.99	1	27.53	2	22.96	2	27.26	2
150% RFD+FYM15 t/ha+GR	23.93	1	34.01	2	30.45	1	27.95	1	29.09	1
Mean	22.25		33.70		27.41		22.82		26.54	
	F. Test		SEm		CD (0.05)		CV (%)			
Sowing (A)	*		2.09		7.22		23.59			
Nutrient (B)	**		0.81		2.37		10.59			
B within A	N.S.		1.62		4.74					
A within B			2.47		7.22					
1000 grains weight, g										
Recommended fertiliser dose (RFD)	39.64	3	41.98	2	47.19	1	44.52	2	43.33	2
150% RFD+FYM15 t/ha	39.90	2	42.01	1	46.70	3	47.08	1	43.92	1
150% RFD+FYM15 t/ha+GR	40.29	1	40.98	3	46.70	2	44.50	3	43.12	3
Mean	39.94		41.66		46.86		45.36		43.46	
	F. Test		SEm		CD (0.05)		CV (%)			
Sowing (A)	**		0.28		0.98		1.96			
Nutrient (B)	N.S.		#NUM!		#NUM!		#NUM!			
B within A	N.S.		#NUM!		#NUM!					
A within B			0.28		0.83					
Biomass, q/ha										
Recommended fertiliser dose (RFD)	98.14	2	100.21	2	101.83	2	93.39	3	98.39	3
150% RFD+FYM15 t/ha	94.46	3	99.16	3	113.77	1	108.55	2	103.98	2
150% RFD+FYM15 t/ha+GR	100.23	1	114.98	1	98.98	3	123.22	1	109.35	1
Mean	97.61		104.78		104.86		108.39		103.91	
	F. Test		SEm		CD (0.05)		CV (%)			
Sowing (A)	N.S.		2.36		8.18		6.82			
Nutrient (B)	*		2.35		6.86		7.83			
B within A	*		4.70		13.71					
A within B			4.51		13.15					
Date of Sowing:	25.10.2020		05.11.2020		15.11.2020		25.11.2020			
Date of Harvesting:	28.02.2021		12.03.2021		20.03.2021		28.03.2021			

Table 6.5.2. Peninsular Zone	**SPL-1**				**Pune**		**2020-21**	
Nutrient management	Sowing time						Mean	Rk
	09th Nov	Rk	19th Nov	Rk	29th Nov	Rk		
				Yield, q/ha				
Recommended fertiliser dose (RFD)	50.65	1	50.32	3	52.15	1	51.04	2
150% RFD+FYM15 t/ha	47.03	3	54.96	1	52.12	2	51.37	1
150% RFD+FYM15 t/ha+GR	49.32	2	52.78	2	50.49	3	50.86	3
Mean	49.00		52.69		51.59		51.09	
	F. Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	N.S.		1.14		4.46		6.67	
Nutrient (B)	N.S.		0.94		2.91		5.54	
B within A	N.S.		1.63		5.04			
A within B			1.75		5.40			
				Earheads/sqm				
Recommended fertiliser dose (RFD)	343	3	325	3	422	1	363	3
150% RFD+FYM15 t/ha	360	1	362	2	418	2	380	1
150% RFD+FYM15 t/ha+GR	358	2	387	1	392	3	379	2
Mean	354		358		411		374	
	F. Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	N.S.		12.19		47.88		9.78	
Nutrient (B)	N.S.		19.67		60.62		15.78	
B within A	N.S.		34.08		105.00			
A within B			30.38		93.61			
				Grains/Earhead				
Recommended fertiliser dose (RFD)	38.81	1	38.30	1	28.25	2	35.12	1
150% RFD+FYM15 t/ha	38.31	2	37.07	2	27.91	3	34.43	2
150% RFD+FYM15 t/ha+GR	37.84	3	30.36	3	30.68	1	32.96	3
Mean	38.32		35.24		28.94		34.17	
	F. Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	N.S.		2.03		7.95		17.78	
Nutrient (B)	N.S.		1.67		5.16		14.70	
B within A	N.S.		2.90		8.94			
A within B			3.12		9.60			
				1000 grains weight, g				
Recommended fertiliser dose (RFD)	38.17	1	40.53	3	44.10	2	40.93	2
150% RFD+FYM15 t/ha	35.33	3	42.33	2	44.97	1	40.88	3
150% RFD+FYM15 t/ha+GR	36.40	2	45.37	1	42.83	3	41.53	1
Mean	36.63		42.74		43.97		41.11	
	F. Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	*		1.02		4.01		7.45	
Nutrient (B)	N.S.		0.72		2.23		5.27	
B within A	N.S.		1.25		3.85			
A within B			1.44		4.45			
				Biomass, q/ha				
Recommended fertiliser dose (RFD)	123.85	1	128.02	3	134.28	2	128.72	3
150% RFD+FYM15 t/ha	118.18	3	143.81	1	138.13	1	133.37	1
150% RFD+FYM15 t/ha+GR	123.45	2	128.77	2	133.97	3	128.73	2
Mean	121.83		133.53		135.46		130.27	
	F. Test		SEm		CD (0.05)		CV (%)	
Sowing (A)	N.S.		4.36		17.12		10.04	
Nutrient (B)	N.S.		2.55		7.85		5.87	
B within A	N.S.		4.41		13.60			
A within B			5.66		17.43			
Date of Sowing:	09.11.2020		19.11.2020		29.11.2020			
Date of Harvesting:	06.03.2021		06.03.2021		12.03.2021			

Table 6.6.1. Northern Hill Zone		**SPL-2**	**Bajaura**		**2020-21**	
	Seed treatment with sea weed extract					
Sea weed exract spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	36.84	6	40.42	6	38.63	6
Seaweed ext 4ml/lit tillering	38.76	5	42.71	4	40.74	4
Seaweed ext 2ml/lit heading	39.48	4	41.47	5	40.47	5
Seaweed ext 4ml/lit heading	40.87	2	43.31	3	42.09	3
Seaweed ext 2ml/lit tillering & heading	40.31	3	45.13	2	42.72	2
Seaweed ext 4ml/lit tillering & heading	42.47	1	46.27	1	44.37	1
Mean	39.79		43.22		41.50	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	**	0.05	0.29		0.49	
Spray (B)	**	0.77	2.26		4.52	
B within A	N.S.	1.08	3.20			
A within B		0.99	2.92			
			Earheads/sq.m.			
Seaweed ext 2ml/lit tillering	324	1	343	6	333	4
Seaweed ext 4ml/lit tillering	318	5	348	5	333	5
Seaweed ext 2ml/lit heading	323	2	358	1	340	1
Seaweed ext 4ml/lit heading	311	6	350	4	331	6
Seaweed ext 2ml/lit tillering & heading	320	4	357	2	338	3
Seaweed ext 4ml/lit tillering & heading	321	3	356	3	339	2
Mean	320		352		336	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	**	2.27	13.82		2.87	
Spray (B)	N.S.	8.20	24.20		5.99	
B within A	N.S.	11.60	34.23			
A within B		10.83	31.96			
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	41.18	6	42.27	6	41.73	6
Seaweed ext 4ml/lit tillering	41.54	4	43.37	5	42.45	5
Seaweed ext 2ml/lit heading	42.15	3	43.90	4	43.03	4
Seaweed ext 4ml/lit heading	42.45	2	44.03	3	43.24	2
Seaweed ext 2ml/lit tillering & heading	41.54	4	44.57	2	43.05	3
Seaweed ext 4ml/lit tillering & heading	42.62	1	44.77	1	43.69	1
Mean	41.91		43.82		42.87	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	N.S.	0.47	2.88		4.69	
Spray (B)	N.S.	0.51	1.51		2.92	
B within A	N.S.	0.72	2.13			
A within B		0.81	2.39			
			Grains/Earhead			
Seaweed ext 2ml/lit tillering	27.62	6	28.02	5	27.82	5
Seaweed ext 4ml/lit tillering	29.51	4	28.38	3	28.95	4
Seaweed ext 2ml/lit heading	29.15	5	26.47	6	27.81	6
Seaweed ext 4ml/lit heading	31.01	2	28.17	4	29.59	2
Seaweed ext 2ml/lit tillering & heading	30.41	3	28.47	2	29.44	3
Seaweed ext 4ml/lit tillering & heading	31.08	1	29.34	1	30.21	1
Mean	29.80		28.14		28.97	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	N.S.	0.29	1.76		4.24	
Spray (B)	N.S.	1.04	3.06		8.77	
B within A	N.S.	1.47	4.33			
A within B		1.37	4.04			

			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	86.56	6	93.71	6	90.13	6
Seaweed ext 4ml/lit tillering	91.83	5	99.79	5	95.81	5
Seaweed ext 2ml/lit heading	96.43	3	104.35	3	100.39	3
Seaweed ext 4ml/lit heading	99.64	1	105.32	2	102.48	1
Seaweed ext 2ml/lit tillering & heading	93.74	4	103.30	4	98.52	4
Seaweed ext 4ml/lit tillering & heading	97.01	2	105.93	1	101.47	2
Mean	94.20		102.07		98.13	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	**	0.28	1.72		1.22	
Spray (B)	**	2.03	5.98		5.06	
B within A	N.S.	2.87	8.45			
A within B		2.63	7.76			
Date of Sowing:	16.11.2020		Date of Harvesting:		05.06.2021	

Table 6.6.2. Northern Hill Zone **SPL-2** **Malan** **2020-21**

	Seed treatment with sea weed extract					
Sea weed exract spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	34.24	6	39.72	6	36.98	6
Seaweed ext 4ml/lit tillering	35.37	5	41.16	4	38.27	5
Seaweed ext 2ml/lit heading	37.43	4	40.64	5	39.03	4
Seaweed ext 4ml/lit heading	38.56	3	42.43	3	40.49	3
Seaweed ext 2ml/lit tillering & heading	39.98	2	44.22	2	42.10	2
Seaweed ext 4ml/lit tillering & heading	43.53	1	48.61	1	46.07	1
Mean	38.18		42.80		40.49	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	*	0.67	4.09		7.05	
Spray (B)	**	0.87	2.56		5.25	
B within A	N.S.	1.23	3.62			
A within B		1.31	3.85			
			Earheads/sq.m.			
Seaweed ext 2ml/lit tillering	413	6	428	6	421	6
Seaweed ext 4ml/lit tillering	415	5	432	4	424	5
Seaweed ext 2ml/lit heading	425	3	430	5	428	4
Seaweed ext 4ml/lit heading	423	4	436	3	430	3
Seaweed ext 2ml/lit tillering & heading	427	2	439	2	433	2
Seaweed ext 4ml/lit tillering & heading	429	1	465	1	447	1
Mean	422		438		430	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	N.S.	3.60	21.91		3.55	
Spray (B)	*	5.45	16.07		3.10	
B within A	N.S.	7.70	22.73			
A within B		7.90	23.31			
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	40.03	5	39.45	6	39.74	6
Seaweed ext 4ml/lit tillering	39.87	6	40.79	5	40.33	5
Seaweed ext 2ml/lit heading	40.59	4	40.98	3	40.78	4
Seaweed ext 4ml/lit heading	41.11	2	40.86	4	40.98	3
Seaweed ext 2ml/lit tillering & heading	40.94	3	41.08	2	41.01	2
Seaweed ext 4ml/lit tillering & heading	41.32	1	41.68	1	41.50	1
Mean	40.64		40.81		40.72	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	*	0.02	0.15		0.26	
Spray (B)	*	0.35	1.03		2.10	
B within A	N.S.	0.49	1.46			
A within B		0.45	1.33			

			Grains/Earhead			
Seaweed ext 2ml/lit tillering	20.73	6	23.53	4	22.13	6
Seaweed ext 4ml/lit tillering	21.37	5	23.38	5	22.37	5
Seaweed ext 2ml/lit heading	21.69	4	23.07	6	22.38	4
Seaweed ext 4ml/lit heading	22.15	3	23.80	3	22.98	3
Seaweed ext 2ml/lit tillering & heading	22.91	2	24.55	2	23.73	2
Seaweed ext 4ml/lit tillering & heading	24.58	1	25.08	1	24.83	1
Mean	22.24		23.90		23.07	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	N.S.	0.43	2.64		7.98	
Spray (B)	**	0.50	1.48		5.33	
B within A	N.S.	0.71	2.09			
A within B		0.78	2.30			
			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	80.22	6	93.33	6	86.78	6
Seaweed ext 4ml/lit tillering	82.71	5	96.29	4	89.50	5
Seaweed ext 2ml/lit heading	87.39	4	95.63	5	91.51	4
Seaweed ext 4ml/lit heading	90.12	3	99.45	3	94.78	3
Seaweed ext 2ml/lit tillering & heading	93.54	2	104.33	2	98.94	2
Seaweed ext 4ml/lit tillering & heading	101.72	1	114.08	1	107.90	1
Mean	89.28		100.52		94.90	
	F. Test	SEm	CD (0.05)		CV (%)	
Seed treatment (A)	*	1.66	10.09		7.41	
Spray (B)	**	1.93	5.68		4.97	
B within A	N.S.	2.72	8.04			
A within B		2.99	8.82			
Date of Sowing:	10.11.2020		Date of Harvesting:		04.05.2021	

Table 6.7.1. North Western Plains Zone			**SPL-2**		**Agra**	**2020-21**
	Seaweed extract seed treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Spray @2ml/litre at tillering (T)	52.39	2	56.72	2	54.56	2
Spray @4ml/litre at tillering	47.56	5	51.80	5	49.68	5
Spray @2ml/litre at heading (H)	50.79	3	54.38	3	52.59	3
Spray @4ml/litre at heading	45.60	6	50.90	6	48.25	6
Spray @2ml/litre at T & H	54.86	1	59.33	1	57.10	1
Spray @4ml/litre at T & H	49.45	4	53.68	4	51.57	4
Mean	50.11		54.47		52.29	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		0.39		2.37	3.16
Spray (B)	**		0.81		2.40	3.82
B within A	N.S.		1.15		3.40	
A within B			1.12		3.31	
			Earhead/sqm			
Spray @2ml/litre at tillering (T)	248	2	254	2	251	2
Spray @4ml/litre at tillering	244	5	248	5	246	5
Spray @2ml/litre at heading (H)	247	3	251	3	249	3
Spray @4ml/litre at heading	243	6	248	6	246	6
Spray @2ml/litre at T & H	250	1	255	1	253	1
Spray @4ml/litre at T & H	246	4	249	4	248	4
Mean	246		251		249	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	**		0.17		1.01	0.28
Spray (B)	**		1.13		3.33	1.11
B within A	N.S.		1.60		4.71	
A within B			1.47		4.32	
			Grains/earhead			
Spray @2ml/litre at tillering (T)	51.34	3	52.90	3	52.12	4
Spray @4ml/litre at tillering	50.91	5	52.83	4	51.87	5
Spray @2ml/litre at heading (H)	51.02	4	53.67	2	52.34	2
Spray @4ml/litre at heading	50.68	6	52.30	5	51.49	6
Spray @2ml/litre at T & H	52.31	1	54.04	1	53.18	1
Spray @4ml/litre at T & H	52.09	2	52.18	6	52.14	3
Mean	51.39		52.99		52.19	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.60		3.66	4.89
Spray (B)	N.S.		1.67		4.94	7.85
B within A	N.S.		2.37		6.98	
A within B			2.24		6.62	
			1000 grains weight, g			
Spray @2ml/litre at tillering (T)	41.19	2	42.27	2	41.73	2
Spray @4ml/litre at tillering	38.42	5	39.56	5	38.99	5
Spray @2ml/litre at heading (H)	40.36	3	40.36	4	40.36	3
Spray @4ml/litre at heading	36.98	6	39.38	6	38.18	6
Spray @2ml/litre at T & H	42.10	1	43.10	1	42.60	1
Spray @4ml/litre at T & H	38.70	4	41.39	3	40.05	4
Mean	39.63		41.01		40.32	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		0.19		1.16	2.01
Spray (B)	*		0.97		2.87	5.91
B within A	N.S.		1.38		4.06	
A within B			1.27		3.75	
			Biomass, q/ha			
Spray @2ml/litre at tillering (T)	123.57	2	134.48	2	129.03	2
Spray @4ml/litre at tillering	117.85	5	125.87	5	121.86	5
Spray @2ml/litre at heading (H)	122.39	3	129.98	3	126.19	3
Spray @4ml/litre at heading	113.83	6	124.78	6	119.31	6
Spray @2ml/litre at T & H	128.27	1	140.56	1	134.42	1
Spray @4ml/litre at T & H	119.68	4	128.83	4	124.26	4
Mean	120.93		130.75		125.84	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	**		0.27		1.66	0.92
Spray (B)	**		0.91		2.69	1.77
B within A	N.S.		1.29		3.80	
A within B			1.21		3.56	
Date of Sowing:	16.11.2020		Date of Harvesting:		12.04.2021	

Table 6.7.2. North Western Plains Zone			**SPL-2**		**Durgapura 2020-21**	
	Seaweed extract seed treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Spray @2ml/litre at tillering (T)	37.74	6	40.63	6	39.19	6
Spray @4ml/litre at tillering	39.78	4	46.92	4	43.35	4
Spray @2ml/litre at heading (H)	38.76	5	41.31	5	40.04	5
Spray @4ml/litre at heading	41.31	3	49.47	2	45.39	2
Spray @2ml/litre at T & H	42.16	2	47.60	3	44.88	3
Spray @4ml/litre at T & H	45.12	1	51.65	1	48.38	1
Mean	40.81		46.26		43.54	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		1.10		6.68	10.70
Spray (B)	N.S.		2.64		7.80	14.87
B within A	N.S.		3.74		11.03	
A within B			3.59		10.58	
			Earhead/sqm			
Spray @2ml/litre at tillering (T)	325	6	347	6	336	6
Spray @4ml/litre at tillering	346	4	395	4	371	4
Spray @2ml/litre at heading (H)	341	5	357	5	349	5
Spray @4ml/litre at heading	356	3	406	2	381	2
Spray @2ml/litre at T & H	360	2	396	3	378	3
Spray @4ml/litre at T & H	375	1	418	1	397	1
Mean	351		387		369	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		5.81		35.34	6.68
Spray (B)	N.S.		15.24		44.95	10.13
B within A	N.S.		21.55		63.57	
A within B			20.51		60.51	
			Grains/earhead			
Spray @2ml/litre at tillering (T)	30.63	3	29.70	5	30.16	3
Spray @4ml/litre at tillering	29.13	4	30.51	2	29.82	5
Spray @2ml/litre at heading (H)	28.75	6	28.59	6	28.67	6
Spray @4ml/litre at heading	30.64	2	29.88	4	30.26	2
Spray @2ml/litre at T & H	28.89	5	30.99	1	29.94	4
Spray @4ml/litre at T & H	31.94	1	30.04	3	30.99	1
Mean	30.00		29.95		29.97	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		1.42		8.64	20.10
Spray (B)	N.S.		1.56		4.61	12.76
B within A	N.S.		2.21		6.52	
A within B			2.47		7.28	
			1000 grains weight, g			
Spray @2ml/litre at tillering (T)	38.24	5	39.58	4	38.91	6
Spray @4ml/litre at tillering	39.65	2	39.34	5	39.50	5
Spray @2ml/litre at heading (H)	39.51	3	41.30	1	40.41	1
Spray @4ml/litre at heading	38.36	4	40.75	3	39.55	4
Spray @2ml/litre at T & H	40.71	1	38.78	6	39.75	2
Spray @4ml/litre at T & H	38.02	6	41.09	2	39.56	3
Mean	39.08		40.14		39.61	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		1.58		9.60	16.89
Spray (B)	N.S.		1.59		4.70	9.84
B within A	N.S.		2.25		6.64	
A within B			2.59		7.64	
			Biomass, q/ha			
Spray @2ml/litre at tillering (T)	85.68	6	94.57	6	90.12	6
Spray @4ml/litre at tillering	87.45	3	106.74	4	97.09	4
Spray @2ml/litre at heading (H)	87.18	4	97.99	5	92.58	5
Spray @4ml/litre at heading	86.55	5	115.32	2	100.93	3
Spray @2ml/litre at T & H	95.50	2	109.28	3	102.39	2
Spray @4ml/litre at T & H	101.87	1	120.64	1	111.25	1
Mean	90.70		107.42		99.06	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		2.71		16.49	11.60
Spray (B)	N.S.		4.98		14.69	12.31
B within A	N.S.		7.04		20.78	
A within B			6.98		20.58	
Date of Sowing:	27.11.2020		Date of Harvesting:		03.04.2021	

Table 6.7.3. North Western Plains Zone			**SPL-2**		**Gurdaspur 2020-21**	
	Seaweed extract seed treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Spray @2ml/litre at tillering (T)	66.46	1	66.00	1	66.23	1
Spray @4ml/litre at tillering	64.32	2	64.64	2	64.48	2
Spray @2ml/litre at heading (H)	63.01	3	62.77	3	62.89	3
Spray @4ml/litre at heading	61.53	5	62.57	4	62.05	5
Spray @2ml/litre at T & H	62.00	4	62.17	6	62.09	4
Spray @4ml/litre at T & H	60.88	6	62.53	5	61.71	6
Mean	63.03		63.45		63.24	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.51		3.12	3.44
Spray (B)	N.S.		1.73		5.10	6.69
B within A	N.S.		2.44		7.21	
A within B			2.29		6.75	
			Earhead/sqm			
Spray @2ml/litre at tillering (T)	347	1	358	1	352	1
Spray @4ml/litre at tillering	341	2	343	2	342	2
Spray @2ml/litre at heading (H)	333	3	339	3	336	3
Spray @4ml/litre at heading	329	5	334	5	332	4
Spray @2ml/litre at T & H	330	4	330	6	330	6
Spray @4ml/litre at T & H	324	6	337	4	331	5
Mean	334		340		337	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		2.26		13.76	2.85
Spray (B)	*		5.36		15.81	3.90
B within A	N.S.		7.58		22.36	
A within B			7.28		21.47	
			Grains/earhead			
Spray @2ml/litre at tillering (T)	43.10	4	41.77	6	42.44	6
Spray @4ml/litre at tillering	44.62	1	43.03	1	43.83	1
Spray @2ml/litre at heading (H)	42.90	5	42.45	3	42.67	5
Spray @4ml/litre at heading	43.32	3	42.04	5	42.68	4
Spray @2ml/litre at T & H	43.84	2	42.20	4	43.02	2
Spray @4ml/litre at T & H	42.88	6	42.73	2	42.81	3
Mean	43.45		42.37		42.91	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.69		4.19	6.82
Spray (B)	N.S.		1.52		4.47	8.65
B within A	N.S.		2.14		6.32	
A within B			2.07		6.12	
			1000 grains weight, g			
Spray @2ml/litre at tillering (T)	44.49	1	44.22	3	44.35	1
Spray @4ml/litre at tillering	42.38	6	43.85	4	43.11	6
Spray @2ml/litre at heading (H)	44.27	2	43.66	5	43.97	3
Spray @4ml/litre at heading	43.28	4	44.70	2	43.99	2
Spray @2ml/litre at T & H	43.02	5	44.71	1	43.86	4
Spray @4ml/litre at T & H	43.71	3	43.50	6	43.61	5
Mean	43.52		44.11		43.81	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.31		1.91	3.05
Spray (B)	N.S.		0.39		1.16	2.20
B within A	N.S.		0.56		1.65	
A within B			0.60		1.77	
			Biomass, q/ha			
Spray @2ml/litre at tillering (T)	153.01	1	152.17	1	152.59	1
Spray @4ml/litre at tillering	142.64	4	150.62	3	146.63	3
Spray @2ml/litre at heading (H)	145.75	3	140.72	5	143.23	5
Spray @4ml/litre at heading	139.85	6	140.64	6	140.25	6
Spray @2ml/litre at T & H	150.22	2	151.65	2	150.94	2
Spray @4ml/litre at T & H	142.12	5	146.00	4	144.06	4
Mean	145.60		146.97		146.28	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		2.06		12.53	5.97
Spray (B)	N.S.		3.67		10.82	6.14
B within A	N.S.		5.19		15.31	
A within B			5.16		15.24	
Date of Sowing:	24.11.2020		Date of Harvesting:		30.04.2021	

Table 6.7.4. North Western Plains Zone			**SPL-2**		**Jammu 2020-21**	
	Seaweed extract seed treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Spray @2ml/litre at tillering (T)	43.58	4	47.17	4	45.38	4
Spray @4ml/litre at tillering	44.26	3	48.56	3	46.41	3
Spray @2ml/litre at heading (H)	41.84	6	44.77	6	43.31	6
Spray @4ml/litre at heading	42.52	5	46.20	5	44.36	5
Spray @2ml/litre at T & H	45.13	2	49.65	2	47.39	2
Spray @4ml/litre at T & H	46.56	1	51.72	1	49.14	1
Mean	43.98		48.01		46.00	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		0.62		3.78	5.72
Spray (B)	**		0.79		2.34	4.23
B within A	N.S.		1.12		3.32	
A within B			1.20		3.54	
			Earhead/sqm			
Spray @2ml/litre at tillering (T)	364	5	421	2	392	4
Spray @4ml/litre at tillering	378	4	422	1	400	2
Spray @2ml/litre at heading (H)	353	6	417	3	385	6
Spray @4ml/litre at heading	381	2	403	6	392	5
Spray @2ml/litre at T & H	380	3	414	5	397	3
Spray @4ml/litre at T & H	402	1	415	4	408	1
Mean	376		415		396	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	*		6.19		37.66	6.63
Spray (B)	N.S.		9.79		28.87	6.06
B within A	N.S.		13.84		40.83	
A within B			14.07		41.50	
			Grains/earhead			
Spray @2ml/litre at tillering (T)	32.51	2	30.04	5	31.27	2
Spray @4ml/litre at tillering	31.19	4	30.15	4	30.67	5
Spray @2ml/litre at heading (H)	33.10	1	29.49	6	31.29	1
Spray @4ml/litre at heading	30.78	5	30.94	2	30.86	4
Spray @2ml/litre at T & H	31.71	3	30.26	3	30.99	3
Spray @4ml/litre at T & H	29.91	6	31.20	1	30.55	6
Mean	31.53		30.35		30.94	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.43		2.60	5.87
Spray (B)	N.S.		0.94		2.77	7.43
B within A	N.S.		1.33		3.92	
A within B			1.28		3.79	
			1000 grains weight, g			
Spray @2ml/litre at tillering (T)	36.92	4	37.51	4	37.21	4
Spray @4ml/litre at tillering	37.59	3	38.23	3	37.91	3
Spray @2ml/litre at heading (H)	35.84	6	36.44	6	36.14	6
Spray @4ml/litre at heading	36.52	5	37.20	5	36.86	5
Spray @2ml/litre at T & H	37.79	2	39.65	2	38.72	2
Spray @4ml/litre at T & H	38.76	1	40.06	1	39.41	1
Mean	37.24		38.18		37.71	
	F Test		SEm		CD (0.05)	CV (%)
Seed treatmnet (A)	N.S.		0.31		1.87	3.46
Spray (B)	**		0.57		1.67	3.68
B within A	N.S.		0.80		2.36	
A within B			0.79		2.34	
Date of Sowing:	14.11.2020		Date of Harvesting:		02.05.2021	

Table 6.8.1. North Eastern Plains Zone		**SPL-2**		**Coochbehar**	**2020-21**
		Seed treatment with sea weed extract			
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	47.53	2	44.97	4	46.25	5
Seaweed ext 4ml/lit tillering	44.93	5	49.27	1	47.10	1
Seaweed ext 2ml/lit heading	49.10	1	44.43	5	46.77	3
Seaweed ext 4ml/lit heading	44.80	6	47.97	2	46.38	4
Seaweed ext 2ml/lit tillering & heading	45.50	4	43.67	6	44.58	6
Seaweed ext 4ml/lit tillering & heading	46.97	3	46.83	3	46.90	2
Mean	46.47		46.19		46.33	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	3.77	NS	
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	310	1	304	2	307	1
Seaweed ext 4ml/lit tillering	281	5	292	4	287	5
Seaweed ext 2ml/lit heading	308	2	290	5	299	2
Seaweed ext 4ml/lit heading	294	3	301	3	298	3
Seaweed ext 2ml/lit tillering & heading	284	4	280	6	282	6
Seaweed ext 4ml/lit tillering & heading	280	6	307	1	294	4
Mean	293		296		294	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	38	5	37	6	37	6
Seaweed ext 4ml/lit tillering	39	4	42	1	40	1
Seaweed ext 2ml/lit heading	40	3	38	5	39	5
Seaweed ext 4ml/lit heading	38	5	40	2	39	4
Seaweed ext 2ml/lit tillering & heading	40	2	39	3	40	3
Seaweed ext 4ml/lit tillering & heading	42	1	38	4	40	2
Mean	40		39		39	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		2	3	NS	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	40.30	2	39.88	5	40.09	2
Seaweed ext 4ml/lit tillering	40.38	1	40.13	3	40.26	1
Seaweed ext 2ml/lit heading	39.83	6	40.28	1	40.06	3
Seaweed ext 4ml/lit heading	40.07	3	39.80	6	39.93	6
Seaweed ext 2ml/lit tillering & heading	40.07	3	39.93	4	40.00	4
Seaweed ext 4ml/lit tillering & heading	39.85	5	40.15	2	40.00	4
Mean	40.08		40.03		40.06	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
Date of Sowing:	23.11.2020		Date of Harvesting:		26.03.2021	

Table 6.8.2. North Eastern Plains Zone	**SPL-2**		**Sabour**		**2020-21**	
	Seed Treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	39.70	6	40.06	4	39.88	6
Seaweed ext 4ml/lit tillering	42.13	3	39.81	5	40.97	3
Seaweed ext 2ml/lit heading	40.27	5	41.56	3	40.92	4
Seaweed ext 4ml/lit heading	40.91	4	39.00	6	39.96	5
Seaweed ext 2ml/lit tillering & heading	42.68	1	42.36	2	42.52	2
Seaweed ext 4ml/lit tillering & heading	42.53	2	42.75	1	42.64	1
Mean	41.37		40.92		41.15	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	297	2	272	6	285	4
Seaweed ext 4ml/lit tillering	287	3	292	2	289	2
Seaweed ext 2ml/lit heading	268	6	281	3	275	6
Seaweed ext 4ml/lit heading	298	1	278	5	288	3
Seaweed ext 2ml/lit tillering & heading	284	4	298	1	291	1
Seaweed ext 4ml/lit tillering & heading	271	5	280	4	276	5
Mean	284		284		284	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	45	5	43	6	44	6
Seaweed ext 4ml/lit tillering	47	2	44	5	45	5
Seaweed ext 2ml/lit heading	46	4	46	2	46	1
Seaweed ext 4ml/lit heading	44	6	47	1	46	2
Seaweed ext 2ml/lit tillering & heading	47	2	44	4	45	4
Seaweed ext 4ml/lit tillering & heading	47	1	44	3	46	2
Mean	46		45		45	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	41.33	5	42.00	1	41.67	1
Seaweed ext 4ml/lit tillering	41.67	2	39.00	5	40.33	5
Seaweed ext 2ml/lit heading	43.00	1	40.00	2	41.50	2
Seaweed ext 4ml/lit heading	41.67	2	40.00	2	40.83	3
Seaweed ext 2ml/lit tillering & heading	41.67	2	39.00	5	40.33	5
Seaweed ext 4ml/lit tillering & heading	41.33	5	40.00	2	40.67	4
Mean	41.78		40.00		40.89	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
Date of Sowing:	30.11.2020		Date of Harvesting:		17.04.2021	

Table 6.8.3. North Eastern Plains Zone		**SPL-2**		**Ranchi**		**2020-21**
	Seed Treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	56.17	6	57.37	6	56.77	6
Seaweed ext 4ml/lit tillering	57.70	5	61.03	5	59.37	5
Seaweed ext 2ml/lit heading	58.13	4	61.73	3	59.93	3
Seaweed ext 4ml/lit heading	58.60	3	61.13	4	59.87	4
Seaweed ext 2ml/lit tillering & heading	60.97	2	62.57	2	61.77	2
Seaweed ext 4ml/lit tillering & heading	62.27	1	64.47	1	63.37	1
Mean	58.97		61.38		60.18	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	357	6	408	3	383	6
Seaweed ext 4ml/lit tillering	372	4	398	6	385	4
Seaweed ext 2ml/lit heading	367	5	402	5	384	5
Seaweed ext 4ml/lit heading	377	3	405	4	391	3
Seaweed ext 2ml/lit tillering & heading	380	2	423	2	402	2
Seaweed ext 4ml/lit tillering & heading	402	1	455	1	428	1
Mean	376		415		395	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	36.60	4	40.13	3	38.37	4
Seaweed ext 4ml/lit tillering	37.00	3	38.67	6	37.83	6
Seaweed ext 2ml/lit heading	36.57	5	39.67	4	38.12	5
Seaweed ext 4ml/lit heading	36.20	6	41.93	2	39.07	2
Seaweed ext 2ml/lit tillering & heading	38.07	2	39.33	5	38.70	3
Seaweed ext 4ml/lit tillering & heading	39.93	1	42.93	1	41.43	1
Mean	37.39		40.44		38.92	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	40.57	6	41.67	6	41.12	6
Seaweed ext 4ml/lit tillering	43.67	1	42.00	5	42.83	3
Seaweed ext 2ml/lit heading	42.93	3	43.27	3	43.10	2
Seaweed ext 4ml/lit heading	40.67	5	44.07	2	42.37	5
Seaweed ext 2ml/lit tillering & heading	41.73	4	43.07	4	42.40	4
Seaweed ext 4ml/lit tillering & heading	43.67	1	45.00	1	44.33	1
Mean	42.21		43.18		42.69	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
Date of Sowing:	30.11.2020		Date of Harvesting:		15.04.2021	

Table 6.8.4. North Eastern Plains Zone	**SPL-2**		**Varanasi**		**2020-21**	
	Seed Treatment					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	46.89	3	48.18	5	47.53	3
Seaweed ext 4ml/lit tillering	49.16	1	49.67	2	49.42	1
Seaweed ext 2ml/lit heading	44.88	4	48.87	3	46.88	5
Seaweed ext 4ml/lit heading	47.97	2	48.15	6	48.06	2
Seaweed ext 2ml/lit tillering & heading	42.97	6	48.70	4	45.83	6
Seaweed ext 4ml/lit tillering & heading	44.30	5	50.07	1	47.18	4
Mean	46.03		48.94		47.48	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	2.02		1.45	2.05	2.11	
			Earhead/sqm			
Seaweed ext 2ml/lit tillering	391	3	339	5	365	5
Seaweed ext 4ml/lit tillering	390	4	379	3	385	3
Seaweed ext 2ml/lit heading	385	6	319	6	352	6
Seaweed ext 4ml/lit heading	390	4	355	4	373	4
Seaweed ext 2ml/lit tillering & heading	392	1	416	2	404	2
Seaweed ext 4ml/lit tillering & heading	392	1	439	1	415	1
Mean	390		374		382	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	10		12	17	14	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	33.62	5	42.64	2	38.13	3
Seaweed ext 4ml/lit tillering	37.81	2	40.61	3	39.21	2
Seaweed ext 2ml/lit heading	33.65	4	45.32	1	39.48	1
Seaweed ext 4ml/lit heading	35.25	3	39.59	4	37.42	4
Seaweed ext 2ml/lit tillering & heading	30.88	6	35.84	6	33.36	6
Seaweed ext 4ml/lit tillering & heading	37.86	1	36.27	5	37.06	5
Mean	34.84		40.05		37.45	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	1.26		2.36	3.34	3.11	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	35.73	1	34.47	5	35.10	3
Seaweed ext 4ml/lit tillering	33.37	6	34.89	4	34.13	5
Seaweed ext 2ml/lit heading	34.60	4	33.53	6	34.06	6
Seaweed ext 4ml/lit heading	34.87	3	35.43	1	35.15	2
Seaweed ext 2ml/lit tillering & heading	35.48	2	35.02	3	35.25	1
Seaweed ext 4ml/lit tillering & heading	34.09	5	35.11	2	34.60	4
Mean	34.69		34.74		34.72	
	Seed treatment (A)		Foliar spray (B)	B within	A within B	
CD (0.05)	NS		NS	NS	NS	
Date of Sowing:	23.11.2020		Date of Harvesting:		15.04.2021	

Table 6.9.1. Central Zone	**SPL-2**		**Dhanduka**		**2020-21**	
	Seed Treatment with seaweed extract					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	24.41	5	29.75	5	27.08	6
Seaweed ext 4ml/lit tillering	26.19	3	28.38	6	27.28	4
Seaweed ext 2ml/lit heading	25.85	4	31.22	2	28.54	3
Seaweed ext 4ml/lit heading	24.28	6	30.10	4	27.19	5
Seaweed ext 2ml/lit tillering & heading	29.34	1	32.23	1	30.79	1
Seaweed ext 4ml/lit tillering & heading	29.21	2	30.25	3	29.73	2
Mean	26.55		30.32		28.43	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	*		0.45		2.71	6.66
Foliar application (B)	**		0.66		1.93	5.65
B within A	NS		0.93		NS	
A within B			0.96		NS	
			Earhead/sq.m.			
Seaweed ext 2ml/lit tillering	277	3	282	6	279	5
Seaweed ext 4ml/lit tillering	264	4	294	5	279	6
Seaweed ext 2ml/lit heading	261	6	300	3	281	4
Seaweed ext 4ml/lit heading	262	5	317	2	290	3
Seaweed ext 2ml/lit tillering & heading	290	2	330	1	310	1
Seaweed ext 4ml/lit tillering & heading	298	1	299	4	299	2
Mean	275		304		290	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	*		3.06		18.62	4.48
Foliar application (B)	*		7.43		21.93	6.29
B within A	NS		10.5		NS	
A within B			10.1		NS	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	21.08	5	25.56	1	23.32	1
Seaweed ext 4ml/lit tillering	23.67	1	22.27	3	22.97	3
Seaweed ext 2ml/lit heading	22.72	3	23.54	2	23.13	2
Seaweed ext 4ml/lit heading	20.68	6	21.20	5	20.94	6
Seaweed ext 2ml/lit tillering & heading	22.26	4	20.27	6	21.26	5
Seaweed ext 4ml/lit tillering & heading	23.33	2	22.06	4	22.69	4
Mean	22.29		22.48		22.39	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	NS		0.24		NS	4.62
Foliar application (B)	NS		0.95		NS	10.39
B within A	NS		1.34		NS	
A within B			1.25		NS	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	42.29	4	41.67	6	41.98	6
Seaweed ext 4ml/lit tillering	42.00	6	43.67	5	42.83	5
Seaweed ext 2ml/lit heading	44.00	3	44.33	4	44.17	3
Seaweed ext 4ml/lit heading	45.00	2	45.00	3	45.00	2
Seaweed ext 2ml/lit tillering & heading	45.58	1	48.13	1	46.86	1
Seaweed ext 4ml/lit tillering & heading	42.09	5	46.00	2	44.05	4
Mean	43.49		44.80		44.15	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	*		0.19		NS	1.79
Foliar application (B)	NS		1.21		NS	6.69
B within A	NS		1.71		NS	
A within B			1.57		NS	
Date of Sowing:			Date of Harvesting: 09.03.2021			

Table 6.9.2. Central Zone			**SPL-2**		**Udaipur**	**2020-21**
	Seed Treatment with seaweed extract					
Foliar spray	Control	Rk	Seed treatment	Rk	Mean	Rk
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	60.21	2	61.27	2	60.74	2
Seaweed ext 4ml/lit tillering	62.36	1	63.14	1	62.75	1
Seaweed ext 2ml/lit heading	60.18	3	60.52	3	60.35	3
Seaweed ext 4ml/lit heading	55.74	5	58.75	5	57.25	5
Seaweed ext 2ml/lit tillering & heading	54.69	6	59.53	4	57.11	6
Seaweed ext 4ml/lit tillering & heading	59.09	4	55.45	6	57.27	4
Mean	58.71		59.78		59.25	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	NS		1.35		NS	9.69
Foliar application (B)	NS		1.61		NS	6.67
B within A	NS		2.28		NS	
A within B			2.48		NS	
			Earhead/sq.m.			
Seaweed ext 2ml/lit tillering	408	3	391	6	399	6
Seaweed ext 4ml/lit tillering	412	1	401	4	406	1
Seaweed ext 2ml/lit heading	401	5	412	1	406	1
Seaweed ext 4ml/lit heading	406	4	403	3	405	4
Seaweed ext 2ml/lit tillering & heading	411	2	401	4	406	3
Seaweed ext 4ml/lit tillering & heading	396	6	410	2	403	5
Mean	405		403		404	
	F. Test		SEm		CD (0.05)	CV (%)
Seed Treatment (A)	NS		1.19		NS	1.25
Foliar application (B)	NS		6.09		NS	3.69
B within A	NS		8.61		NS	
A within B			7.95		NS	
			Grains/earhead			
Seaweed ext 2ml/lit tillering	31.86	2	33.64	2	32.75	2
Seaweed ext 4ml/lit tillering	33.86	1	35.04	1	34.45	1
Seaweed ext 2ml/lit heading	30.72	4	32.29	3	31.50	3
Seaweed ext 4ml/lit heading	28.24	6	31.10	4	29.67	6
Seaweed ext 2ml/lit tillering & heading	29.12	5	30.94	5	30.03	5
Seaweed ext 4ml/lit tillering & heading	31.84	3	30.30	6	31.07	4
Mean	30.94		32.22		31.58	
	F. Test		SEm		CD	CV (%)
Seed Treatment (A)	NS		0.77		NS	10.39
Foliar application (B)	*		1.07		3.17	8.33
B within A	NS		1.52		NS	
A within B			1.59		NS	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	46.37	4	46.81	3	46.59	4
Seaweed ext 4ml/lit tillering	44.81	6	45.10	5	44.95	6
Seaweed ext 2ml/lit heading	48.98	1	45.50	4	47.24	2
Seaweed ext 4ml/lit heading	48.66	2	46.94	2	47.80	1
Seaweed ext 2ml/lit tillering & heading	45.70	5	48.10	1	46.90	3
Seaweed ext 4ml/lit tillering & heading	46.92	3	44.62	6	45.77	5
Mean	46.91		46.18		46.54	
	F. Test		SEm		CD	CV (%)
Seed Treatment (A)	*		0.06		0.38	0.57
Foliar application (B)	**		0.13		0.40	0.71
B within A	**		0.19		0.56	
A within B			0.18		0.54	
Date of Sowing: 11.11.2020			Date of Harvesting: 25.03.2021			

Table 6.10.1. Peninsular Zone		**SPL-2**	**Dharwad**		**2020-21**	
Foliar application	Seed treatment with seaweed extract				Mean	Rk
	Control	Rk	Seed treatment	Rk		
			Yield, q/ha			
Seaweed ext 2ml/lit tillering	23.02	6	22.33	6	22.67	6
Seaweed ext 4ml/lit tillering	25.21	3	22.69	5	23.95	5
Seaweed ext 2ml/lit heading	23.72	5	26.03	2	24.87	3
Seaweed ext 4ml/lit heading	26.57	2	22.90	4	24.73	4
Seaweed ext 2ml/lit tillering & heading	31.50	1	27.30	1	29.40	1
Seaweed ext 4ml/lit tillering & heading	24.24	4	25.84	3	25.04	2
Mean	25.71		24.51		25.11	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		0.41		2.48	6.90
Foliar application (B)	**		1.01		2.98	9.84
B within A	N.S.		1.43		4.21	
A within B			1.36		4.03	
			Earheads/sqm			
Seaweed ext 2ml/lit tillering	200	6	202	6	201	6
Seaweed ext 4ml/lit tillering	211	5	214	5	213	5
Seaweed ext 2ml/lit heading	219	4	220	4	220	4
Seaweed ext 4ml/lit heading	227	2	237	2	232	2
Seaweed ext 2ml/lit tillering & heading	230	1	247	1	239	1
Seaweed ext 4ml/lit tillering & heading	225	3	230	3	228	3
Mean	218		225		222	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		1.53		9.32	2.93
Foliar application (B)	**		0.43		1.27	0.48
B within A	**		0.61		1.80	
A within B			1.63		4.80	
			Grains/Earhead			
Seaweed ext 2ml/lit tillering	24.81	4	22.98	3	23.89	3
Seaweed ext 4ml/lit tillering	25.36	2	22.13	5	23.75	4
Seaweed ext 2ml/lit heading	24.58	5	25.55	1	25.06	2
Seaweed ext 4ml/lit heading	25.11	3	20.70	6	22.90	6
Seaweed ext 2ml/lit tillering & heading	29.98	1	22.94	4	26.46	1
Seaweed ext 4ml/lit tillering & heading	22.20	6	24.55	2	23.37	5
Mean	25.34		23.14		24.24	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		0.59		3.58	10.29
Foliar application (B)	N.S.		0.99		2.92	10.01
B within A	*		1.40		4.13	
A within B			1.41		4.15	
			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	46.41	4	48.00	2	47.20	2
Seaweed ext 4ml/lit tillering	47.17	2	47.83	3	47.50	1
Seaweed ext 2ml/lit heading	44.19	6	46.26	5	45.22	6
Seaweed ext 4ml/lit heading	46.75	3	46.60	4	46.67	5
Seaweed ext 2ml/lit tillering & heading	45.85	5	48.09	1	46.97	4
Seaweed ext 4ml/lit tillering & heading	48.42	1	45.71	6	47.07	3
Mean	46.46		47.08		46.77	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		0.19		1.13	1.68
Foliar application (B)	**		0.11		0.32	0.57
B within A	**		0.16		0.46	
A within B			0.23		0.69	

			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	101.48	6	99.17	6	100.33	6
Seaweed ext 4ml/lit tillering	113.48	2	107.73	5	110.61	2
Seaweed ext 2ml/lit heading	107.52	4	107.83	3	107.67	4
Seaweed ext 4ml/lit heading	107.82	3	111.33	2	109.57	3
Seaweed ext 2ml/lit tillering & heading	106.67	5	107.83	3	107.25	5
Seaweed ext 4ml/lit tillering & heading	117.97	1	114.83	1	116.40	1
Mean	109.16		108.12		108.64	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		0.52		3.19	2.05
Foliar application (B)	**		1.39		4.11	3.14
B within A	N.S.		1.97		5.81	
A within B			1.87		5.53	
Date of Sowing:	15.11.2020		Date of Harvesting:		20.03.2021	

Table 6.10.2. Peninsular Zone **SPL-2** **Niphad** **2020-21**

Foliar application	Seed treatment with seaweed extract				Mean	Rk
	Control	Rk	Seed treatment	Rk		
Yield, q/ha			**Yield, q/ha**			
Seaweed ext 2ml/lit tillering	41.55	6	44.23	6	42.89	6
Seaweed ext 4ml/lit tillering	42.47	5	45.98	5	44.23	5
Seaweed ext 2ml/lit heading	43.66	4	46.59	4	45.13	4
Seaweed ext 4ml/lit heading	45.20	3	48.64	3	46.92	3
Seaweed ext 2ml/lit tillering & heading	46.11	2	49.19	2	47.65	2
Seaweed ext 4ml/lit tillering & heading	47.51	1	51.19	1	49.35	1
Mean	44.42		47.64		46.03	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	*		0.46		2.81	4.25
Foliar application (B)	**		0.60		1.77	3.19
B within A	N.S.		0.85		2.50	
A within B			0.90		2.66	
			Earheads/sqm			
Seaweed ext 2ml/lit tillering	376	5	392	6	384	6
Seaweed ext 4ml/lit tillering	407	3	414	3	411	3
Seaweed ext 2ml/lit heading	375	6	396	5	386	5
Seaweed ext 4ml/lit heading	417	1	416	2	417	2
Seaweed ext 2ml/lit tillering & heading	390	4	408	4	399	4
Seaweed ext 4ml/lit tillering & heading	413	2	427	1	420	1
Mean	397		409		403	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	*		1.88		11.46	1.98
Foliar application (B)	**		4.48		13.22	2.73
B within A	N.S.		6.34		18.69	
A within B			6.08		17.95	
			Grains/Earhead			
Seaweed ext 2ml/lit tillering	31.27	3	29.44	3	30.35	3
Seaweed ext 4ml/lit tillering	26.54	6	27.25	6	26.89	6
Seaweed ext 2ml/lit heading	31.79	1	30.26	2	31.03	2
Seaweed ext 4ml/lit heading	27.13	5	28.53	5	27.83	5
Seaweed ext 2ml/lit tillering & heading	31.57	2	30.79	1	31.18	1
Seaweed ext 4ml/lit tillering & heading	28.56	4	28.95	4	28.76	4
Mean	29.48		29.20		29.34	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	N.S.		0.40		2.46	5.84
Foliar application (B)	**		0.61		1.79	5.07
B within A	N.S.		0.86		2.53	
A within B			0.88		2.60	

			1000 grains weight, g			
Seaweed ext 2ml/lit tillering	35.32	6	38.35	6	36.84	6
Seaweed ext 4ml/lit tillering	39.32	3	40.81	3	40.06	3
Seaweed ext 2ml/lit heading	36.63	5	38.92	5	37.78	5
Seaweed ext 4ml/lit heading	39.98	2	40.96	2	40.47	2
Seaweed ext 2ml/lit tillering & heading	37.49	4	39.20	4	38.35	4
Seaweed ext 4ml/lit tillering & heading	40.25	1	41.45	1	40.85	1
Mean	38.17		39.95		39.06	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	*		0.25		1.51	2.70
Foliar application (B)	**		0.34		1.00	2.13
B within A	N.S.		0.48		1.42	
A within B			0.50		1.49	
			Biomass, q/ha			
Seaweed ext 2ml/lit tillering	49.86	6	53.96	6	51.91	6
Seaweed ext 4ml/lit tillering	51.82	5	56.79	5	54.30	5
Seaweed ext 2ml/lit heading	53.71	4	58.00	4	55.85	4
Seaweed ext 4ml/lit heading	56.04	3	61.04	3	58.54	3
Seaweed ext 2ml/lit tillering & heading	57.63	2	62.23	2	59.93	2
Seaweed ext 4ml/lit tillering & heading	59.86	1	65.53	1	62.70	1
Mean	54.82		59.59		57.21	
	F. Test		SEm		CD (0.05)	CV (%)
Seed treatment (A)	*		0.57		3.48	4.24
Foliar application (B)	**		0.74		2.19	3.18
B within A	N.S.		1.05		3.10	
A within B			1.12		3.29	
Date of Sowing:	03.12.2020		Date of Harvesting:		30.03.2021	

Table 6.11.1. North Eastern Plains Zone		**SPL-3**	**Ayodhya**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	214	33.20	32.40	30.58
Dry SS with-125 kg/ha	236	32.73	32.10	31.84
Dry SS- 150 kg/ha	249	31.93	31.23	31.14
Soaked seed SS-100 kg/ha	232	35.07	32.67	33.21
Soaked seed SS-125 kg/ha	257	34.53	32.97	35.10
Soaked seed SS-150 kg/ha	265	33.27	32.43	34.43
Seed priming (1% KNO_3)-100 kg/ha	262	38.47	33.90	36.15
Seed priming (1% KNO_3)-125 kg/ha	284	38.40	33.50	37.92
Seed priming (1% KNO_3)-150 kg/ha	296	37.33	32.73	37.26
Seed priming (1% $CaCl_2$)-100 kg/ha	265	39.07	33.97	35.61
Seed priming (1% $CaCl_2$)-125 kg/ha	283	38.53	33.77	36.60
Seed priming (1% $CaCl_2$)-150 kg/ha	296	37.47	32.73	35.73
CD (0.05)	8.00	1.13	0.71	2.49
Date of Sowing:	11.11.2020		Date of Harvesting:	19.03.2021

Table 6.11.2. North Eastern Plains Zone		**SPL-3**	**IARI, Pusa**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	193	59.20	40.34	39.32
Dry SS with-125 kg/ha	204	56.40	37.05	41.68
Dry SS- 150 kg/ha	207	52.07	40.02	41.76
Soaked seed SS-100 kg/ha	196	51.33	39.70	40.97
Soaked seed SS-125 kg/ha	216	61.60	40.09	42.26
Soaked seed SS-150 kg/ha	220	62.33	40.15	43.14
Seed priming (1% KNO_3)-100 kg/ha	227	62.33	40.24	47.43
Seed priming (1% KNO_3)-125 kg/ha	243	71.53	43.21	48.03
Seed priming (1% KNO_3)-150 kg/ha	238	69.47	42.56	47.93
Seed priming (1% $CaCl_2$)-100 kg/ha	237	66.67	40.32	47.73
Seed priming (1% $CaCl_2$)-125 kg/ha	249	72.07	43.81	48.28
Seed priming (1% $CaCl_2$)-150 kg/ha	247	71.60	43.38	48.17
CD (0.05)	34.00	11.25	3.42	4.64
Date of Sowing:	16.11.2020		Date of Harvesting:	1.04.2021

Table 6.11.3. North Eastern Plains Zone		**SPL-3**	**Kanpur**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	436	61.67	41.2	46.20
Dry SS with-125 kg/ha	440	62.00	41.8	47.30
Dry SS- 150 kg/ha	442	61.33	42.1	48.90
Soaked seed SS-100 kg/ha	438	61.33	41.8	48.30
Soaked seed SS-125 kg/ha	440	61.33	42.4	49.60
Soaked seed SS-150 kg/ha	442	60.33	42.8	50.12
Seed priming (1% KNO_3)-100 kg/ha	447	63.00	42.1	51.30
Seed priming (1% KNO_3)-125 kg/ha	451	60.33	42.8	52.50
Seed priming (1% KNO_3)-150 kg/ha	453	62.00	43.2	54.30
Seed priming (1% $CaCl_2$)-100 kg/ha	440	61.67	41.1	49.55
Seed priming (1% $CaCl_2$)-125 kg/ha	443	62.67	42.6	51.20
Seed priming (1% $CaCl_2$)-150 kg/ha	445	61.00	41.7	52.30
CD (0.05)	8.00	2.96	3.80	3.71
Date of Sowing:	12.11.2020		Date of Harvesting:	15.04.2021

Table 6.11.4. North Eastern Plains Zone		**SPL-3**	**RPCAU PUSA**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	326	28.68	37.56	37.48
Dry SS with-125 kg/ha	327	29.10	37.83	38.02
Dry SS- 150 kg/ha	332	29.55	37.56	39.29
Soaked seed SS-100 kg/ha	330	29.76	37.51	38.24
Soaked seed SS-125 kg/ha	334	32.00	38.57	38.98
Soaked seed SS-150 kg/ha	336	32.66	37.56	40.13
Seed priming (1% KNO_3)-100 kg/ha	339	34.52	38.77	43.17
Seed priming (1% KNO_3)-125 kg/ha	342	35.06	38.91	44.57
Seed priming (1% KNO_3)-150 kg/ha	345	36.70	39.12	44.66
Seed priming (1% $CaCl_2$)-100 kg/ha	341	35.23	39.15	45.01
Seed priming (1% $CaCl_2$)-125 kg/ha	344	35.29	39.58	46.62
Seed priming (1% $CaCl_2$)-150 kg/ha	348	36.13	39.29	46.05
CD (0.05)	4.00	2.61	6.17	2.94
Date of Sowing:	05.12.2020		Date of Harvesting:	19.04.2021

Table 6.11.5. North Eastern Plains Zone		**SPL-3**	**Sabour**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	277	40.33	40.00	37.69
Dry SS with-125 kg/ha	271	43.67	39.33	38.26
Dry SS- 150 kg/ha	279	40.00	41.00	39.70
Soaked seed SS-100 kg/ha	278	42.67	40.00	38.77
Soaked seed SS-125 kg/ha	263	40.00	40.00	39.83
Soaked seed SS-150 kg/ha	291	40.67	42.00	39.76
Seed priming (1% KNO_3)-100 kg/ha	280	42.67	39.00	38.98
Seed priming (1% KNO_3)-125 kg/ha	264	43.67	41.00	37.05
Seed priming (1% KNO_3)-150 kg/ha	284	44.00	41.00	39.42
Seed priming (1% $CaCl_2$)-100 kg/ha	286	43.67	39.67	39.46
Seed priming (1% $CaCl_2$)-125 kg/ha	298	45.67	40.00	40.24
Seed priming (1% $CaCl_2$)-150 kg/ha	309	45.00	40.33	41.59
CD (0.05)	NS	NS	NS	NS
Date of Sowing:	16.12.2020		Date of Harvesting:	20.04.2021

Table 6.11.6. North Eastern Plains Zone		**SPL-3**	**Varanasi**	**2020-21**
Treatments	Earheads/sqm	Grains/Earhead	1000 grains weight, g	Yield, q/ha
Dry surface seeding (SS)-100 kg/ha	222	45.75	35.09	37.33
Dry SS with-125 kg/ha	241	44.83	34.73	37.33
Dry SS- 150 kg/ha	261	46.15	33.93	40.83
Soaked seed SS-100 kg/ha	260	41.39	36.11	38.73
Soaked seed SS-125 kg/ha	270	42.36	35.05	40.02
Soaked seed SS-150 kg/ha	284	42.15	35.11	41.96
Seed priming (1% KNO_3)-100 kg/ha	266	48.83	34.05	46.27
Seed priming (1% KNO_3)-125 kg/ha	297	44.73	36.13	47.90
Seed priming (1% KNO_3)-150 kg/ha	348	42.08	33.91	48.57
Seed priming (1% $CaCl_2$)-100 kg/ha	248	40.43	36.33	36.48
Seed priming (1% $CaCl_2$)-125 kg/ha	250	52.13	36.71	40.47
Seed priming (1% $CaCl_2$)-150 kg/ha	265	47.49	35.41	41.17
CD (0.05)	21.00	4.51	2.60	3.19
Date of Sowing:			Date of Harvesting:	

Table 6.12.1. Northern Hill Zone **SPL-4** **Bajaura** **2020-21**

Treatments	Earheads/sqm	Rk	1000 grains weight, g	Rk	Grains/ Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk	Plant height, cm	Rk
*Absolute control	215	9	38.58	9	22.90	7	19.00	9	58.20	9	77.35	9
**50% Rec. NPK	279	8	40.35	8	27.21	1	30.44	8	86.63	7	81.83	8
75% Rec. NPK	299	7	42.49	7	26.04	2	33.08	7	84.86	8	85.83	4
100% Rec. NPK	353	6	43.58	4	23.13	6	35.47	6	87.30	6	92.50	3
125% Rec. NPK	389	4	43.27	5	22.39	9	37.68	5	89.41	5	95.20	2
150% Rec. NPK	404	1	42.55	6	22.65	8	38.89	4	95.07	4	97.83	1
100% Rec. NPK + GR	386	5	46.27	3	25.26	4	45.03	3	95.79	3	84.43	6
125% Rec. NPK + GR	399	2	47.32	2	24.72	5	46.75	2	97.69	2	85.67	5
150% Rec. NPK + GR	396	3	48.09	1	25.58	3	48.69	1	99.49	1	84.43	6
SEm	13.66		0.97		0.77		1.75		2.95		1.40	
CD (0.05)	40.95		2.91		2.32		5.25		8.86		4.19	
CV (%)	6.82		3.85		5.49		8.14		5.80		2.78	
Date of Sowing:	12.11.2020				Date of Harvesting:		25.05.2021					

*Absolute control (No fertilizers and no growth regulators spray) **Recommended doses of NPK

Table 6.12.2. Northern Hill Zone **SPL-4** **Malan** **2020-21**

Treatments	Earheads/sqm	Rk	1000 grains weight, g	Rk	Grains/ Earhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk	Plant height, cm	Rk
Absolute control	334	9	39.24	9	19.85	9	25.86	9	59.86	9	74.67	9
50% Rec. NPK	406	8	40.36	6	19.91	8	32.65	8	75.87	8	81.33	8
75% Rec. NPK	418	7	40.10	8	22.36	7	37.29	7	86.88	7	86.00	7
100% Rec. NPK	427	5	40.70	4	24.27	6	42.05	6	98.11	6	88.00	6
125% Rec. NPK	427	4	40.47	5	25.29	5	43.78	5	102.46	5	91.67	5
150% Rec. NPK	426	6	41.09	3	27.03	2	47.33	3	110.90	4	94.00	4
100% Rec. NPK + GR	455	1	41.57	1	26.34	3	49.48	2	115.81	1	96.00	2
125% Rec. NPK + GR	455	1	40.36	7	25.70	4	47.17	4	113.98	2	95.67	3
150% Rec. NPK + GR	446	3	41.21	2	27.43	1	50.44	1	111.94	3	97.67	1
SEm	7.90		0.41		1.78		2.49		5.97		0.79	
CD (0.05)	23.68		1.24		5.34		7.48		17.88		2.36	
CV (%)	3.24		1.76		12.72		10.34		10.62		1.53	
Date of Sowing:	06.11.2020				Date of Harvesting:		05.05.2021					

Table 6.13.1. North Western Plains Zone SPL-4 Agra 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	230	30.3	28.04	19.50	48.75	65.3
50% Rec. NPK	274	36.5	44.33	44.35	110.04	79.9
75% Rec NPK	278	37.1	47.36	48.83	121.09	81.7
100% Rec. NPK	281	38.5	48.18	52.04	128.53	83.0
125% Rec. NPK	285	39.1	48.27	53.50	131.07	84.2
150% Rec. NPK	289	39.9	47.57	54.75	133.48	85.7
100% Rec. NPK+GR	291	40.4	47.48	55.90	135.27	88.6
125% Rec. NPK + GR	296	41.3	46.46	56.80	136.88	89.6
150% Rec NPK + GR	299	41.9	45.76	57.30	137.52	90.4
Mean	280	38.3	44.83	49.22	120.29	83.17
SEm	1.16	1.06	1.79	1.31	1.80	1.11
CD (0.05)	3.48	3.19	5.38	3.92	5.41	3.32
CV (%)	0.72	4.81	6.93	4.60	2.60	2.30
Date of Sowing:	04.11.2020			Date of Harvesting:	01.04.2021	

Table 6.13.2. North Western Plains Zone SPL-4 Dugapura 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	271	36.9	31.41	31.28	70.89	84.3
50% Rec. NPK	308	37.9	29.33	34.51	80.62	85.6
75% Rec NPK	339	38.3	30.96	39.93	89.42	86.4
100% Rec. NPK	365	37.1	33.40	45.10	92.50	88.3
125% Rec. NPK	381	37.6	33.65	47.91	107.85	89.4
150% Rec. NPK	391	38.4	33.86	50.36	112.45	91.2
100% Rec. NPK+GR	370	39.2	32.64	46.67	108.62	78.5
125% Rec. NPK + GR	384	38.5	33.65	48.99	115.61	79.3
150% Rec NPK + GR	395	39.9	32.44	50.79	126.86	80.7
Mean	356	38.2	32.37	43.95	100.54	84.85
SEm	19.50	2.36	2.41	3.30	7.54	2.47
CD (0.05)	58.47	7.08	7.22	9.88	22.60	7.42
CV (%)	9.49	10.72	12.89	12.99	12.99	5.05
Date of Sowing:	15.11.2020			Date of Harvesting:	17.03.2021	

Table 6.13.3. North Western Plains Zone SPL-4 Gurdaspur 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	233	44.9	34.31	35.54	75.49	71.7
50% Rec. NPK	314	43.4	32.36	44.15	105.01	77.5
75% Rec NPK	372	43.6	31.34	50.81	120.25	78.3
100% Rec. NPK	381	43.5	33.26	54.97	133.01	78.4
125% Rec. NPK	402	43.4	33.57	58.45	134.00	79.1
150% Rec. NPK	406	42.7	34.44	59.64	136.57	80.3
100% Rec. NPK+GR	399	43.5	32.89	56.89	129.78	75.7
125% Rec. NPK + GR	406	44.0	33.27	59.50	133.43	76.5
150% Rec NPK + GR	411	44.4	33.05	60.15	128.67	77.1
Mean	369	43.7	33.17	53.35	121.80	77.19
SEm	9.27	0.76	1.46	1.40	2.62	1.12
CD (0.05)	27.78	2.28	4.39	4.19	7.86	3.37
CV (%)	4.35	3.01	7.64	4.54	3.73	2.52
Date of Sowing:	16.11.2020			Date of Harvesting:	29.04.2021	

Table 6.13.4. North Western Plains Zone SPL-4 Hisar 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	267	39.7	17.75	18.98	67.04	91.3
50% Rec. NPK	340	41.5	29.39	40.97	148.89	104.1
75% Rec NPK	388	43.1	29.25	49.07	175.46	109.1
100% Rec. NPK	445	43.3	31.34	59.72	214.44	112.3
125% Rec. NPK	475	43.8	29.99	62.27	224.91	113.2
150% Rec. NPK	488	40.7	32.45	64.58	231.76	113.7
100% Rec. NPK+GR	458	40.9	33.23	61.81	222.22	108.0
125% Rec. NPK + GR	487	41.7	31.47	63.89	230.83	110.1
150% Rec NPK + GR	493	40.0	33.32	65.74	236.02	110.3
Mean	427	41.6	29.80	54.12	194.62	108.02
SEm	14.48	0.64	2.10	2.98	11.73	1.41
CD (0.05)	43.40	1.91	6.29	8.92	35.17	4.21
CV (%)	5.87	2.66	12.20	9.53	10.44	2.25
Date of Sowing:	28.10.2020			Date of Harvesting:	07.04.2021	

Table 6.13.5. North Western Plains Zone SPL-4 Jammu 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	289	31.3	33.84	30.60		74.3
50% Rec. NPK	325	34.4	36.05	40.22		80.4
75% Rec NPK	353	35.5	37.70	47.17		87.6
100% Rec. NPK	365	36.4	39.29	51.50		94.8
125% Rec. NPK	378	37.7	37.72	53.24		98.4
150% Rec. NPK	379	39.0	38.10	55.95		101.6
100% Rec. NPK+GR	378	37.7	37.65	53.46		93.4
125% Rec. NPK + GR	384	38.4	38.08	55.79		97.7
150% Rec NPK + GR	391	40.3	36.80	57.47		99.3
Mean	360	36.7	37.25	49.49		91.94
SEm	14.61	0.75	2.89	2.34		2.57
CD (0.05)	43.80	2.24	8.66	7.03		7.69
CV (%)	7.02	3.52	13.43	8.20		4.83
Date of Sowing:	11.11.2020			Date of Harvesting:	29.04.2021	

Table 6.13.6. North Western Plains Zone SPL-4 Ludhiana 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	168	44.8	34.07	25.33	75.46	70.3
50% Rec. NPK	238	43.9	35.79	36.42	97.73	79.2
75% Rec NPK	254	44.9	41.75	47.55	112.27	81.1
100% Rec. NPK	289	41.2	39.04	46.26	121.03	83.6
125% Rec. NPK	293	40.6	39.63	47.10	127.63	85.1
150% Rec. NPK	295	40.6	42.75	51.00	129.28	85.7
100% Rec. NPK+GR	287	40.1	41.26	47.40	117.18	78.4
125% Rec. NPK + GR	295	40.4	44.59	53.24	121.72	82.1
150% Rec NPK + GR	296	40.2	45.91	54.10	122.89	82.9
Mean	268	41.8	40.53	45.38	113.91	80.94
SEm	11.42	1.26	2.69	2.26	7.38	3.07
CD (0.05)	34.24	3.77	8.07	6.78	22.13	9.19
CV (%)	7.38	5.21	11.50	8.63	11.22	6.56
Date of Sowing:	27.10.2020			Date of Harvesting:	16.04.2021	

Table 6.13.7. North Western Plains Zone SPL-4 Pantnagar 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	297	30.1	31.80	28.40	64.29	80.1
50% Rec. NPK	303	30.5	45.53	41.62	108.94	92.1
75% Rec NPK	308	31.2	45.86	43.93	133.85	87.0
100% Rec. NPK	326	35.6	41.24	47.43	134.97	89.7
125% Rec. NPK	342	37.3	38.54	48.72	137.66	90.5
150% Rec. NPK	365	37.3	36.46	48.67	138.26	94.2
100% Rec. NPK+GR	332	37.7	39.49	49.05	133.48	81.7
125% Rec. NPK + GR	386	38.3	34.60	50.81	135.35	81.0
150% Rec NPK + GR	389	39.3	32.89	49.99	136.22	81.3
Mean	338	35.3	38.49	45.40	124.78	86.41
SEm	14.97	1.31	3.10	2.13	9.02	2.63
CD (0.05)	44.88	3.92	9.30	6.38	27.03	7.90
CV (%)	7.66	6.42	13.96	8.12	12.52	5.28
Date of Sowing:	23.11.2020			Date of Harvesting:	09.04.2021	

Table 6.13.8. North Western Plains Zone SPL-4 Karnal 2020-21

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/E arhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	313	38.9	14.03	16.96	42.86	64.3
50% Rec. N	373	38.7	34.74	49.93	121.43	90.6
75% Rec N	469	36.7	33.50	57.60	139.58	93.9
100% Rec. N	502	36.0	34.04	61.38	149.40	95.0
125% Rec. N	531	36.5	32.58	63.07	149.11	96.3
150% Rec. N	535	36.0	31.89	61.38	144.35	94.9
100% Rec NPK	524	36.7	33.61	64.28	154.46	94.9
125% Rec. N+ GR	524	36.6	33.40	63.96	149.40	79.6
150% Rec N + GR	531	36.4	33.44	64.36	148.21	80.7
150% Rec. NPK + GR	525	36.3	33.73	64.32	150.30	79.8
Mean	483	36.9	31.50	56.72	134.91	87.00
SEm	13.07	0.50	0.89	0.71	1.50	1.04
CD (0.05)	38.84	1.49	2.63	2.11	4.45	3.08
CV (%)	4.69	2.36	4.87	2.17	1.92	2.06
Date of Sowing:	02.12.2020			Date of Harvesting:	25.04.2021	

Table 6.14.1. North Eastern Plains Zone			**SPL-4**	**Burdwan**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	187	20.4	36.27	13.77	31.09	80.7
50% Rec. NPK	218	30.6	38.23	25.53	60.21	89.0
75% Rec NPK	245	37.7	38.83	35.86	84.08	94.0
100% Rec. NPK	270	38.1	41.03	42.13	96.69	97.7
125% Rec. NPK	280	38.2	41.38	44.22	100.23	99.0
150% Rec. NPK	283	38.1	41.88	45.19	106.23	101.3
100% Rec. NPK+GR	272	37.4	41.10	41.71	95.02	90.0
125% Rec. NPK + GR	283	38.0	41.81	45.02	103.93	91.0
150% Rec NPK + GR	288	38.1	42.55	46.69	110.30	92.3
Mean	259	35.2	40.34	37.79	87.53	92.8
CD (0.05)	28	2.26	0.98	2.95	6.85	4.97
CV (%)	6	3.70	1.41	4.51	4.52	3.10
Date of Sowing:	26.11.2020			Date of Harvesting:	22.03.2021	

Table 6.14.2. North Eastern Plains Zone			**SPL-4**	**Coochbehar**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	170	32.0	33.25	18.10	46.10	70.3
50% Rec. NPK	210	37.0	36.75	28.60	74.07	82.0
75% Rec NPK	240	38.7	38.10	35.73	88.40	89.7
100% Rec. NPK	285	42.3	39.87	47.77	115.70	98.0
125% Rec. NPK	305	42.0	40.13	51.40	125.37	99.0
150% Rec. NPK	292	40.0	40.20	47.10	118.83	99.0
100% Rec. NPK+GR	293	42.7	39.70	50.03	123.70	89.0
125% Rec. NPK + GR	311	42.0	40.13	52.37	129.83	88.0
150% Rec NPK + GR	302	40.0	40.00	48.27	120.50	90.0
Mean	267	39.6	38.68	42.15	104.72	89.4
CD (0.05)	19	4.82	1.36	3.87	16.24	11.1
CV (%)	4	7.02	2.03	5.30	8.96	7.2
Date of Sowing:	24.11.2020			Date of Harvesting:	26.03.2021	

Table 6.14.3. North Eastern Plains Zone			**SPL-4**	**IARI Pusa**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	146	50.5	40.66	20.21	47.11	77.3
50% Rec. NPK	178	51.7	41.22	31.06	72.28	88.5
75% Rec NPK	190	55.7	41.46	36.10	87.71	93.4
100% Rec. NPK	202	57.1	42.30	41.73	97.26	93.7
125% Rec. NPK	220	61.1	43.72	45.90	105.10	93.9
150% Rec. NPK	223	66.3	44.04	46.74	107.54	96.3
100% Rec. NPK+GR	207	58.4	43.10	44.41	97.53	93.7
125% Rec. NPK + GR	223	63.4	43.80	46.36	105.23	94.9
150% Rec NPK + GR	225	70.7	44.36	51.65	110.41	96.9
Mean	201	59.4	42.74	40.46	92.24	92.1
CD (0.05)	27	9.76	4.34	4.98	7.54	4.2
CV (%)	8	9.49	5.87	7.12	4.72	2.6
Date of Sowing:	15.11.2020			Date of Harvesting:	01.04.2021	

Table 6.14.4. North Eastern Plains Zone **SPL-4** **Kalyani** **2020-21**

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	125	39.3	34.90	18.13	41.37	88.7
50% Rec. NPK	168	39.7	37.40	23.75	55.96	91.8
75% Rec NPK	237	50.0	37.60	27.71	66.56	93.7
100% Rec. NPK	215	44.7	39.70	38.01	94.76	101.2
125% Rec. NPK	241	55.3	38.80	41.90	109.65	103.4
150% Rec. NPK	239	61.0	40.50	44.37	104.04	102.4
100% Rec. NPK+GR	294	53.7	42.70	43.03	105.69	99.6
125% Rec. NPK + GR	300	56.0	42.87	47.70	114.70	97.3
150% Rec NPK + GR	280	50.0	40.87	45.40	103.27	97.7
Mean	233	50.0	39.48	36.67	88.44	97.3
CD (0.05)	60	9.28	2.90	6.96	17.23	3.1
CV (%)	15	10.73	4.25	10.96	11.26	1.8
Date of Sowing:	12.11.2020			Date of Harvesting:	30.03.2021	

Table 6.14.5. North Eastern Plains Zone **SPL-4** **Kanpur** **2020-21**

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	390	60.7	42.10	36.12	118.50	74.1
50% Rec. NPK	406	64.3	42.27	45.52	120.30	75.3
75% Rec NPK	415	64.7	42.50	47.60	123.30	76.3
100% Rec. NPK	395	63.3	42.60	48.30	120.10	76.3
125% Rec. NPK	410	61.7	42.70	50.23	122.30	78.9
150% Rec. NPK	420	65.7	42.90	51.28	124.30	78.8
100% Rec. NPK+GR	398	62.3	42.70	48.90	122.80	77.0
125% Rec. NPK + GR	415	64.3	42.90	52.30	123.60	78.8
150% Rec NPK + GR	425	63.7	43.11	53.46	124.20	79.7
Mean	408	63.4	42.64	48.19	122.16	77.2
CD (0.05)	12	3.92	3.72	3.94	4.31	3.7
CV (%)	2	3.57	5.03	4.72	2.04	2.8
Date of Sowing:	12.11.2020			Date of Harvesting:	20.04.2021	

Table 6.14.6. North Eastern Plains Zone **SPL-4** **Ranchi** **2020-21**

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	263	26.9	36.00	24.23	55.07	74.2
50% Rec. NPK	272	32.6	39.33	49.97	112.53	90.9
75% Rec NPK	377	37.0	40.67	55.47	115.07	94.2
100% Rec. NPK	392	40.9	41.67	63.63	137.27	99.3
125% Rec. NPK	390	40.9	42.00	66.33	143.93	103.9
150% Rec. NPK	400	39.6	43.00	65.13	140.67	112.6
100% Rec. NPK+GR	393	41.5	43.33	64.07	135.97	89.8
125% Rec. NPK + GR	407	43.4	44.67	66.13	141.87	88.3
150% Rec NPK + GR	433	44.3	45.00	69.20	145.67	90.5
Mean	370	38.6	41.74	58.24	125.34	93.8
CD (0.05)	59	5.77	2.46	5.23	12.57	11.3
CV (%)	9	8.65	3.41	5.19	5.79	7.0
Date of Sowing:	19.11.2020			Date of Harvesting:	14.04.2021	

Table 6.14.7. North Eastern Plains Zone			**SPL-4**	**RPCAU Pusa**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	287	28.1	34.74	29.13	63.12	93.3
50% Rec. NPK	306	30.2	35.82	34.14	82.02	96.6
75% Rec NPK	323	32.1	36.16	38.29	96.35	97.9
100% Rec. NPK	342	34.2	37.16	45.26	101.51	99.1
125% Rec. NPK	344	35.2	37.20	46.23	102.67	99.6
150% Rec. NPK	345	35.2	37.20	46.27	103.33	100.2
100% Rec. NPK+GR	349	36.1	37.73	47.25	108.87	97.8
125% Rec. NPK + GR	351	36.9	38.15	47.73	108.47	96.9
150% Rec NPK + GR	353	37.2	38.65	48.16	109.89	97.8
Mean	333	33.9	36.98	42.50	97.36	97.7
CD (0.05)	5	1.82	3.25	2.61	5.59	4.7
CV (%)	1	3.10	5.08	3.54	3.32	2.8
Date of Sowing:	05.12.2020			Date of Harvesting:	19.04.2021	

Table 6.14.8. North Eastern Plains Zone			**SPL-4**	**Sabour**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	290	41.0	40.57	28.21	71.08	103.0
50% Rec. NPK	298	44.3	41.33	37.37	88.94	102.7
75% Rec NPK	337	44.7	42.00	37.60	90.67	102.0
100% Rec. NPK	363	45.7	42.37	38.07	87.18	102.0
125% Rec. NPK	360	46.7	41.73	41.31	97.94	102.0
150% Rec. NPK	365	45.3	43.93	43.81	100.48	104.3
100% Rec. NPK+GR	385	44.0	43.07	44.04	101.10	94.7
125% Rec. NPK + GR	382	45.0	43.60	45.13	102.50	94.0
150% Rec NPK + GR	388	45.3	43.50	45.69	103.24	93.3
Mean	352	44.7	42.46	40.14	93.68	99.8
CD (0.05)	85	4.75	2.78	9.77	20.33	6.9
CV (%)	14	6.14	3.78	14.07	12.54	4.0
Date of Sowing:	29.11.2020			Date of Harvesting:	16.04.2021	

Table 6.14.9. North Eastern Plains Zone			**SPL-4**	**Shillongani**		**2020-21**
Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	182	18.1	36.91	12.07	33.81	83.7
50% Rec. NPK	223	30.4	39.32	26.53	68.36	91.8
75% Rec NPK	283	30.9	39.46	34.05	79.88	96.1
100% Rec. NPK	313	31.6	38.27	37.43	94.17	99.2
125% Rec. NPK	324	28.2	39.30	35.81	99.30	100.1
150% Rec. NPK	336	25.2	37.39	31.53	84.42	97.8
100% Rec. NPK+GR	335	29.4	40.45	39.80	99.89	91.8
125% Rec. NPK + GR	337	31.5	39.60	41.92	107.92	91.0
150% Rec NPK + GR	372	24.3	37.15	33.38	94.60	87.7
Mean	300	27.7	38.65	32.50	84.71	93.2
CD (0.05)	35	5.23	3.32	3.64	7.35	4.1
CV (%)	7	10.90	4.96	6.48	5.01	2.5
Date of Sowing:	18.11.2020			Date of Harvesting:	31.03.2021	

Table 6.14.10. North Eastern Plains Zone **SPL-4** **Varanasi** **2020-21**

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	148	40.7	40.89	24.48	38.08	72.3
50% Rec. NPK	199	43.7	39.70	34.34	71.74	90.3
75% Rec NPK	238	49.8	36.74	43.08	109.14	95.0
100% Rec. NPK	307	42.5	37.09	46.78	137.70	96.4
125% Rec. NPK	364	47.2	35.57	48.77	162.18	99.1
150% Rec. NPK	380	49.6	34.67	49.37	148.92	97.3
100% Rec. NPK+GR	293	44.9	34.83	45.87	114.24	88.5
125% Rec. NPK + GR	323	47.4	34.51	47.34	145.86	91.1
150% Rec NPK + GR	373	45.9	34.24	48.40	150.62	92.5
Mean	292	45.8	36.47	43.16	119.83	91.4
CD (0.05)	25	7.68	2.41	2.48	7.51	4.0
CV (%)	5	9.70	3.81	3.32	3.62	2.6
Date of Sowing:	17.11.2020			Date of Harvesting:	14.04.2021	

Table 6.14.11. North Eastern Plains Zone **SPL-4** **AYODHYA** **2020-21**

Treatments	Earheads/ sqm	Grains/ Earhead	1000 grains weight, g	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	328	37.0	36.90	29.28	61.22	94.7
50% Rec. N	349	38.6	37.73	36.19	75.72	96.5
75% Rec N	355	39.7	38.03	38.80	81.26	97.1
100% Rec. N	354	41.3	38.90	41.46	87.47	97.9
125% Rec. N	356	42.0	39.27	42.15	88.55	99.0
150% Rec. N	360	43.1	39.73	43.33	90.63	99.8
100% Rec NPK	375	45.0	40.13	52.37	110.01	99.5
125% Rec. N+ GR	360	44.1	39.87	46.36	97.03	98.3
150% Rec N + GR	362	44.9	40.20	47.23	99.15	98.6
150% Rec. NPK + GR	382	46.7	41.40	54.20	113.74	101.0
Mean	358	42.2	39.22	43.14	90.48	98.2
CD (0.05)	8	1.24	1.07	1.82	4.12	1.4
CV (%)	1	1.71	1.59	2.44	2.65	0.8
Date of Sowing:	12.11.2020			Date of Harvesting:	21.03.2021	

Table 6.15.1. Central Zone			**SPL-4**		**Bilaspur**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	184	35.62	29.81	19.57	39.46	72.83
50% Rec. NPK	244	38.38	36.21	33.76	68.08	76.20
75% Rec NPK	297	38.76	30.65	35.28	72.33	78.10
100% Rec. NPK	317	39.23	30.75	38.06	79.72	81.20
125% Rec. NPK	334	39.45	30.25	39.72	83.91	81.93
150% Rec. NPK	343	41.36	30.18	42.65	92.73	83.93
100% Rec. NPK + GR	336	40.00	29.22	39.23	81.26	80.33
125% Rec. NPK + GR	359	40.45	28.52	41.05	86.19	79.33
150% Rec NPK + GR	377	41.68	28.39	44.56	98.98	82.00
Mean	310	39.44	30.44	37.10	78.07	79.54
SEm	4.62	1.21	1.47	1.03	1.90	1.65
CD (0.05)	13.86	3.62	4.40	3.08	5.69	4.96
CV (%)	2.58	5.30	8.35	4.79	4.21	3.60
Date of Sowing:	15.11.2020		Date of Harvesting: 13.03.2021			

Table 6.15.2. Central Zone			**SPL-4**		**Gwalior**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	257	37.64	38.71	37.40	56.67	84.53
50% Rec. NPK	311	37.73	37.20	43.40	65.38	83.47
75% Rec NPK	324	36.49	39.40	46.42	70.10	81.73
100% Rec. NPK	382	36.11	40.78	56.15	85.90	86.40
125% Rec. NPK	372	35.73	42.50	56.40	85.73	85.47
150% Rec. NPK	365	34.77	45.31	57.23	87.37	84.60
100% Rec. NPK + GR	405	34.66	42.50	59.61	91.81	77.07
125% Rec. NPK + GR	399	35.20	41.72	58.43	89.20	78.73
150% Rec NPK + GR	417	36.37	39.75	60.11	91.97	77.93
Mean	359	36.08	40.88	52.79	80.46	82.21
SEm	9.16	1.27	1.72	0.67	1.15	2.17
CD (0.05)	27.47	3.81	5.15	2.00	3.45	6.50
Date of Sowing:	25.11.2020		Date of Harvesting: 08.04.2021			

Table 6.15.3. Central Zone			**SPL-4**		**Indore**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	243	40.63	25.75	25.47	74.33	89.27
50% Rec. NPK	261	40.40	29.04	30.60	93.20	99.60
75% Rec NPK	301	39.77	31.81	38.00	99.27	103.20
100% Rec. NPK	354	38.30	32.47	44.00	118.33	108.87
125% Rec. NPK	398	38.87	28.38	43.93	122.10	109.60
150% Rec. NPK	385	39.13	24.97	37.57	120.67	109.80
100% Rec. NPK + GR	432	37.50	25.75	41.63	124.53	93.13
125% Rec. NPK + GR	453	36.13	25.08	41.03	123.13	94.27
150% Rec NPK + GR	452	37.03	25.45	42.57	123.60	95.07
Mean	364	38.64	27.63	38.31	111.02	100.31
SEm	6.30	0.57	0.73	0.86	2.07	1.08
CD (0.05)	18.90	1.70	2.19	2.57	6.21	3.23
CV (%)	3.00	2.55	4.57	3.87	3.23	1.86
Date of Sowing:	12.11.2020		Date of Harvesting: 26.03.2021			

Table 6.15.4. Central Zone			**SPL-4**		**Jabalpur**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	224	39.10	31.39	27.55	60.61	58.03
50% Rec. NPK	250	40.95	30.35	31.13	65.55	63.34
75% Rec NPK	270	42.52	29.17	33.40	72.16	69.62
100% Rec. NPK	326	44.81	28.15	41.14	81.54	73.29
125% Rec. NPK	344	43.56	29.87	44.73	84.67	77.95
150% Rec. NPK	369	44.14	29.43	47.88	88.02	78.43
100% Rec. NPK + GR	372	44.97	30.28	50.62	95.38	84.74
125% Rec. NPK + GR	385	44.67	30.48	52.26	99.33	83.49
150% Rec NPK + GR	431	46.50	27.77	55.62	104.96	90.33
Mean	330	43.47	29.66	42.70	83.58	75.47
SEm	2.76	0.52	1.22	1.30	1.37	1.42
CD (0.05)	8.28	1.56	3.67	3.90	4.12	4.25
CV (%)	1.45	2.07	7.14	5.28	2.85	3.25
Date of Sowing:	16.11.2020		Date of Harvesting: 08.04.2021			

Table 6.15.5. Central Zone			**SPL-4**		**Junagadh**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	341	42.23	23.13	33.37	77.55	74.00
50% Rec. NPK	368	50.47	27.76	51.51	97.73	79.53
75% Rec NPK	392	52.83	27.49	56.84	110.14	82.73
100% Rec. NPK	435	56.63	25.48	62.64	119.50	89.07
125% Rec. NPK	435	57.40	25.85	64.59	129.02	92.33
150% Rec. NPK	443	57.63	26.01	66.39	130.26	94.80
100% Rec. NPK + GR	435	56.07	25.93	63.25	121.00	80.47
125% Rec. NPK + GR	440	57.33	25.88	65.24	124.49	84.87
150% Rec NPK + GR	444	57.33	25.99	66.11	127.84	85.77
Mean	415	54.21	25.95	58.88	115.28	84.84
SEm	3.02	0.56	1.05	2.13	2.32	1.98
CD (0.05)	9.05	1.67	3.14	6.38	6.96	5.92
CV (%)	1.26	1.78	6.99	6.26	3.49	4.03
Date of Sowing:	17.11.2020		Date of Harvesting: 04.03.2021			

Table 6.15.6. Central Zone			**SPL-4**		**Pawarkheda**	**2020-21**
Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	392	26.67	22.75	23.51	54.76	70.33
50% Rec. NPK	433	28.50	23.67	28.91	85.00	86.33
75% Rec NPK	433	29.50	24.87	31.63	87.14	89.00
100% Rec. NPK	444	32.67	24.03	34.69	88.16	92.00
125% Rec. NPK	451	35.00	27.44	43.27	90.61	94.00
150% Rec. NPK	446	33.50	27.40	40.82	88.81	90.67
100% Rec. NPK + GR	443	34.17	23.72	35.88	91.22	71.33
125% Rec. NPK + GR	456	38.17	25.49	44.30	98.88	75.67
150% Rec NPK + GR	458	36.00	25.32	41.67	96.05	73.00
Mean	439	32.69	24.96	36.08	86.74	82.48
SEm	10.23	0.43	0.69	0.76	3.98	1.19
CD (0.05)	30.68	1.28	2.08	2.28	11.93	3.56
CV (%)	4.03	2.26	4.82	3.66	7.95	2.49
Date of Sowing:	22.11.2020		Date of Harvesting: 24.03.2021			

Table 6.15.7. Central Zone **SPL-4** **Udaipur** **2020-21**

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	235	45.71	26.62	19.96	73.44	63.93
50% Rec. NPK	338	45.37	27.61	40.53	101.32	78.00
75% Rec NPK	345	48.13	32.54	45.66	117.64	78.80
100% Rec. NPK	336	46.83	32.02	51.03	121.04	77.93
125% Rec. NPK	375	48.34	36.15	57.89	134.64	79.27
150% Rec. NPK	382	47.01	39.16	65.18	145.52	83.73
100% Rec. NPK + GR	344	45.58	32.31	59.67	142.80	76.33
125% Rec. NPK + GR	346	49.91	31.43	55.69	146.88	71.27
150% Rec NPK + GR	368	49.88	31.43	57.63	138.72	75.60
Mean	341	47.42	32.14	50.36	124.67	76.10
SEm	14.51	0.21	2.17	2.46	6.25	3.10
CD (0.05)	43.49	0.62	6.49	7.37	18.75	9.30
CV (%)	7.36	0.75	11.67	8.45	8.69	7.06
Date of Sowing:	12.11.2020		Date of Harvesting: 25.03.2021			

Not included in pooled analysis due to improper data

Table 6.15.8. Central Zone **SPL-4** **Vijapur** **2020-21**

Treatments	Earheads/ sqm	1000 grains weight, g	Grains/ Earhead	Yield, q/ha	Biomass, q/ha	Plant height, cm
Absolute control	266	47.59	20.96	26.48	74.92	70.80
50% Rec. NPK	306	46.36	29.98	42.07	101.42	77.60
75% Rec NPK	350	45.85	27.02	43.09	103.33	79.20
100% Rec. NPK	352	48.33	28.66	48.08	122.46	80.67
125% Rec. NPK	364	48.25	28.51	49.88	121.83	77.93
150% Rec. NPK	400	45.60	28.55	51.79	126.38	81.00
100% Rec. NPK + GR	373	46.02	27.41	47.02	116.54	73.93
125% Rec. NPK + GR	399	53.37	23.41	48.86	118.21	72.20
150% Rec NPK + GR	447	46.85	25.82	53.81	132.25	75.47
Mean	362	47.58	26.70	45.68	113.04	76.53
SEm	20.37	1.78	2.09	1.90	4.87	1.53
CD (0.05)	61.08	5.35	6.26	5.71	14.59	4.58
CV (%)	9.75	6.50	13.55	7.22	7.46	3.45
Date of Sowing:	23.11.2020		Date of Harvesting: 12.03.2021			

Table 6.16.1. Peninsular Zone SPL-4 Dharwad 2020-21

Treatment	Earheads/ sqm	Rk	1000 grains weight, g	Rk	Grains/E arhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute control	195	9	39.87	6	45.09	2	35.01	8	105.38	7
50% Rec. NPK	229	8	39.46	8	38.46	5	34.68	9	104.13	8
75% Rec NPK	249	5	39.51	7	36.14	7	35.41	7	103.15	9
100% Rec. NPK	253	4	37.98	9	37.04	6	35.48	6	108.04	6
125% Rec. NPK	274	2	40.16	5	35.96	8	39.34	5	109.08	5
150% Rec. NPK	281	1	42.01	2	34.34	9	40.55	4	116.46	3
100% Rec. NPK+GR	238	6	41.93	3	45.81	1	45.60	1	114.51	4
125% Rec. NPK + GR	265	3	41.93	4	40.22	4	44.63	2	124.44	1
150% Rec NPK + GR	236	7	42.91	1	43.58	3	44.10	3	123.27	2
Mean	246		40.64		39.63		39.42		112.05	
CD (0.05)	6.19		1.66		2.55		6.25		5.05	
CV (%)	1.45		2.35		7.65		9.16		2.60	
Date of Sowing :	14.11.2020				Date of Harvesting:		20.03.2021			

Table 6.16.2. Peninsular Zone SPL-4 Niphad 2020-21

Treatment	Earheads/ sqm	Rk	1000 grains weight, g	Rk	Grains/E arhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute control	346	9	41.97	9	15.30	9	22.17	9	26.60	9
50% Rec. NPK	373	8	42.92	8	23.92	8	38.17	8	46.56	8
75% Rec NPK	392	7	43.19	7	26.01	4	44.03	7	54.16	7
100% Rec. NPK	421	6	43.51	6	26.27	3	47.77	6	59.71	6
125% Rec. NPK	432	5	43.89	5	26.43	2	49.60	4	62.99	4
150% Rec. NPK	435	4	44.26	4	27.02	1	51.47	2	66.39	2
100% Rec. NPK+GR	437	3	44.46	3	24.73	7	48.20	5	60.73	5
125% Rec. NPK + GR	444	2	44.73	2	25.26	6	50.13	3	64.17	3
150% Rec NPK + GR	459	1	45.04	1	25.29	5	52.20	1	67.34	1
Mean	415		43.78		24.47		44.86		56.52	
CD (0.05)	27.57		0.79		6.43		10.76		13.54	
CV (%)	3.83		1.05		15.18		13.86		13.84	
Date of Sowing :	26.11.2020				Date of Harvesting:		21.03.2021			

Table 6.16.3. Peninsular Zone SPL-4 Pune 2020-21

Treatment	Earheads/ sqm	Rk	1000 grains weight, g	Rk	Grains/E arhead	Rk	Yield, q/ha	Rk	Biomass, q/ha	Rk
Absolute control	290	9	43.13	9	18.20	9	22.77	9	55.61	9
50% Rec. NPK	357	7	44.80	7	22.81	6	36.29	8	87.65	8
75% Rec NPK	358	6	45.33	5	24.80	2	40.18	7	96.09	6
100% Rec. NPK	355	8	46.27	3	26.89	1	43.87	1	104.22	2
125% Rec. NPK	388	3	46.50	1	24.16	4	43.33	2	99.96	4
150% Rec. NPK	383	4	46.23	4	24.50	3	43.32	3	106.53	1
100% Rec. NPK+GR	380	5	45.33	5	23.41	5	40.24	6	93.30	7
125% Rec. NPK + GR	423	2	44.53	8	21.93	7	41.20	5	96.43	5
150% Rec NPK + GR	427	1	46.33	2	21.76	8	42.20	4	102.82	3
Mean	374		45.39		23.16		39.27		93.62	
CD (0.05)	66.30		2.29		4.25		4.08		11.65	
CV (%)	10.25		2.92		10.60		6.01		7.19	
Date of Sowing :	09.11.2020				Date of Harvesting:		06.03.2021			

Table 6.18.1. Peninsular Zone **SPL-5** **Dharwad** **2020-21**

Growth regulator	Varieties						Mean	Rk
	MACS 2971	Rk	DDK 1029	Rk	HW 1098	Rk		
				Yield, q/ha				
Control	29.65	1	28.39	2	27.08	2	28.37	1
CCC @ 1000 ppm	24.73	3	26.42	3	22.50	5	24.55	4
CCC @ 1500 ppm	25.42	2	23.74	5	24.22	4	24.46	5
Ethephon @ 10 ppm	22.42	5	25.34	4	27.66	1	25.14	3
Ethephon @ 30 ppm	24.68	4	30.55	1	26.69	3	27.30	2
Mean	25.38		26.89		25.63		25.96	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		1.42		5.56		21.12	
Growth regulator (B)	*		1.02		2.98		11.81	
B within A	N.S.		1.77		5.17			
A within B			2.12		6.20			
				Earheads/sqm				
Control	301	2	309	4	230	5	280	4
CCC @ 1000 ppm	361	1	336	2	248	4	315	2
CCC @ 1500 ppm	279	4	263	5	281	3	274	5
Ethephon @ 10 ppm	259	5	313	3	294	2	288	3
Ethephon @ 30 ppm	296	3	347	1	306	1	316	1
Mean	299		313		27[illegible]		295	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	**		0.97		3.82		1.28	
Growth regulator (B)	**		0.63		1.94		0.67	
B within A	**		1.15		3.35			
A within B			1.42		4.13			
				Grains/Earhead				
Control	24.62	1	22.74	1	29.43	1	25.60	1
CCC @ 1000 ppm	16.27	5	18.53	5	23.68	2	19.49	5
CCC @ 1500 ppm	21.01	2	22.00	2	21.93	4	21.64	2
Ethephon @ 10 ppm	20.91	3	19.09	4	22.77	3	20.92	3
Ethephon @ 30 ppm	19.66	4	21.44	3	21.22	5	20.77	4
Mean	20.49		20.76		23.80		21.69	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		1.34		5.26		23.94	
Growth regulator (B)	**		0.85		2.47		11.70	
B within A	N.S.		1.47		4.28			
A within B			1.87		5.47			
				1000 grains weight, g				
Control	40.03	5	40.37	5	40.10	3	40.17	5
CCC @ 1000 ppm	42.23	3	42.41	1	38.37	5	41.00	4
CCC @ 1500 ppm	43.52	1	41.10	3	39.37	4	41.33	3
Ethephon @ 10 ppm	41.40	4	42.41	1	41.35	1	41.72	1
Ethephon @ 30 ppm	42.35	2	41.10	3	41.22	2	41.56	2
Mean	41.91		41.48		40.08		41.16	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		0.38		1.51		3.61	
Growth regulator (B)	**		0.21		0.61		1.53	
B within A	**		0.36		1.06			
A within B			0.50		1.47			

				Biomass, q/ha				
Control	126.35	1	126.85	2	76.85	4	110.02	2
CCC @ 1000 ppm	108.85	4	106.85	5	76.35	5	97.35	5
CCC @ 1500 ppm	111.35	3	110.35	4	101.85	3	107.85	4
Ethephon @ 10 ppm	108.85	4	118.10	3	102.10	2	109.68	3
Ethephon @ 30 ppm	118.85	2	151.85	1	104.60	1	125.10	1
Mean	114.85		122.80		92.35		110.00	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	**		0.53		2.08		1.86	
Growth regulator (B)	**		0.15		0.44		0.41	
B within A	**		0.26		0.75			
A within B			0.58		1.69			
Date of Sowing:	14.11.2020		Date of Harvesting:				18.03.2021	

Table 6.18.2. Peninsular Zone **SPL-5** **Niphad** **2020-21**

Growth regulator	Varieties						Mean	Rk
	MACS 2971	Rk	DDK 1029	Rk	HW 1098	Rk		
					Yield, q/ha			
Control	35.30	5	35.00	5	33.83	4	34.71	5
CCC @ 1000 ppm	38.93	4	35.47	4	32.87	5	35.76	4
CCC @ 1500 ppm	40.87	3	36.93	2	35.83	3	37.88	3
Ethephon @ 10 ppm	43.07	1	38.27	1	35.93	2	39.09	2
Ethephon @ 30 ppm	41.80	2	36.50	3	39.40	1	39.23	1
Mean	39.99		36.43		35.57		37.33	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	*		0.87		3.42		9.05	
Growth regulator (B)	**		0.97		2.84		7.81	
B within A	N.S.		1.68		4.91			
A within B			1.74		5.08			
					Earheads/sqm			
Control	417	1	405	3	396	4	406	1
CCC @ 1000 ppm	406	2	406	1	403	3	405	2
CCC @ 1500 ppm	386	5	405	2	395	5	395	5
Ethephon @ 10 ppm	389	4	398	5	406	1	398	4
Ethephon @ 30 ppm	406	2	402	4	404	2	404	3
Mean	401		403		401		402	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		2.46		9.67		2.38	
Growth regulator (B)	N.S.		4.93		14.38		3.68	
B within A	N.S.		8.53		24.91			
A within B			8.02		23.41			
					Grains/Earhead			
Control	20.86	5	19.93	5	20.27	4	20.35	5
CCC @ 1000 ppm	22.43	4	21.26	4	19.50	5	21.06	4
CCC @ 1500 ppm	24.19	2	22.19	2	22.19	3	22.86	3
Ethephon @ 10 ppm	26.85	1	23.75	1	23.52	2	24.71	1
Ethephon @ 30 ppm	24.05	3	21.44	3	24.30	1	23.26	2
Mean	23.68		21.71		21.95		22.45	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		0.54		2.10		9.25	
Growth regulator (B)	**		0.71		2.09		9.55	
B within A	N.S.		1.24		3.61			
A within B			1.23		3.59			

				1000 grains weight, g				
Control	40.58	5	43.47	1	42.20	1	42.08	1
CCC @ 1000 ppm	42.89	2	41.14	3	41.82	2	41.95	3
CCC @ 1500 ppm	43.82	1	41.10	4	40.96	3	41.96	2
Ethephon @ 10 ppm	41.33	4	40.54	5	37.70	5	39.85	5
Ethephon @ 30 ppm	42.88	3	42.44	2	40.19	4	41.83	4
Mean	42.30		41.74		40.57		41.54	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	*		0.21		0.84		1.99	
Growth regulator (B)	**		0.17		0.50		1.24	
B within A	**		0.30		0.87			
A within B			0.34		0.99			
				Biomass, q/ha				
Control	42.36	5	42.00	5	40.60	4	41.65	5
CCC @ 1000 ppm	47.50	4	43.27	4	40.09	5	43.62	4
CCC @ 1500 ppm	50.27	3	45.43	3	44.08	3	46.59	3
Ethephon @ 10 ppm	53.40	1	47.45	1	44.56	2	48.47	2
Ethephon @ 30 ppm	52.25	2	45.63	2	49.25	1	49.05	1
Mean	49.16		44.75		43.72		45.88	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	*		1.06		4.17		8.97	
Growth regulator (B)	**		1.19		3.47		7.78	
B within A	N.S.		2.06		6.01			
A within B			2.13		6.21			
Date of Sowing:	13.11.2020		Date of Harvesting:				12.03.2021	

Table 6.18.3. Peninsular Zone **SPL-5** **Pune** **2020-21**

Growth regulator	Varieties						Mean	Rk
	MACS 2971	Rk	DDK 1029	Rk	HW 1098	Rk		
					Yield, q/ha			
Control	35.56	4	35.48	4	34.95	5	35.33	5
CCC @ 1000 ppm	33.97	5	34.41	5	40.37	3	36.25	4
CCC @ 1500 ppm	38.30	2	38.01	3	44.85	2	40.39	3
Ethephon @ 10 ppm	35.64	3	41.32	2	48.11	1	41.69	2
Ethephon @ 30 ppm	42.28	1	48.25	1	39.85	4	43.46	1
Mean	37.15		39.49		41.63		39.42	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	*		0.71		2.79		6.97	
Growth regulator (B)	**		0.99		2.89		7.53	
B within A	**		1.71		5.00			
A within B			1.69		4.93			
					Earheads/sqm			
Control	405	5	403	5	413	5	407	5
CCC @ 1000 ppm	430	3	425	4	420	4	425	4
CCC @ 1500 ppm	418	4	442	2	432	3	431	3
Ethephon @ 10 ppm	438	2	440	3	440	2	439	2
Ethephon @ 30 ppm	445	1	480	1	490	1	472	1
Mean	427		438		439		435	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		8.86		34.78		7.89	
Growth regulator (B)	N.S.		19.72		57.55		13.60	
B within A	N.S.		34.15		99.68			
A within B			31.80		92.83			

				Grains/Earhead				
Control	22.94	3	19.04	3	20.98	4	20.99	4
CCC @ 1000 ppm	21.20	5	17.44	5	23.14	3	20.59	5
CCC @ 1500 ppm	25.95	1	18.57	4	25.36	2	23.29	1
Ethephon @ 10 ppm	21.36	4	20.91	2	25.67	1	22.65	2
Ethephon @ 30 ppm	24.33	2	21.73	1	20.07	5	22.04	3
Mean	23.16		19.54		23.04		21.91	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	*		0.55		2.16		9.71	
Growth regulator (B)	N.S.		1.11		3.24		15.20	
B within A	N.S.		1.92		5.61			
A within B			1.81		5.27			
				1000 grains weight, g				
Control	38.40	3	46.37	4	41.00	5	41.92	4
CCC @ 1000 ppm	37.63	4	46.63	2	42.47	2	42.24	2
CCC @ 1500 ppm	35.77	5	46.93	1	41.23	3	41.31	5
Ethephon @ 10 ppm	38.60	2	45.73	5	43.00	1	42.44	1
Ethephon @ 30 ppm	39.17	1	46.47	3	41.03	4	42.22	3
Mean	37.91		46.43		41.75		42.03	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	**		0.41		1.60		3.75	
Growth regulator (B)	N.S.		0.36		1.05		2.56	
B within A	*		0.62		1.81			
A within B			0.69		2.01			
				Biomass, q/ha				
Control	100.57	5	109.35	4	100.23	5	103.38	5
CCC @ 1000 ppm	104.70	4	107.25	5	117.42	2	109.79	3
CCC @ 1500 ppm	113.06	3	110.60	3	105.32	4	109.66	4
Ethephon @ 10 ppm	113.43	2	112.16	2	130.53	1	118.71	1
Ethephon @ 30 ppm	115.70	1	120.02	1	113.60	3	116.44	2
Mean	109.49		111.88		113.42		111.60	
	F. Test		SEm		CD (0.05)		CV (%)	
Varieties (A)	N.S.		3.15		12.37		10.93	
Growth regulator (B)	*		3.52		10.29		9.47	
B within A	N.S.		6.10		17.82			
A within B			6.30		18.40			
Date of Sowing:	09.11.2020		Date of Harvesting:				06.03.2021	

Table 6.19.1. Peninsular Zone **SPL-6** **Dharwad** **2020-21**

Residue management	Tillage								Mean	Rk
	CT-Flat bed	Rk	ZT-Flat bed	Rk	CT-Broad bed	Rk	ZT-Broad bed	Rk		
					Yield, q/ha					
Control	33.02	1	25.92	4	27.88	4	29.75	4	29.15	4
Wheat residue @3 t/ha	31.31	3	30.73	3	33.58	1	33.18	1	32.20	1
Soybean residue @3 t/ha	29.24	4	34.79	1	29.94	2	31.61	3	31.40	3
Soybean + wheat residue @3 t/ha	31.63	2	32.94	2	29.48	3	32.02	2	31.52	2
Mean	31.30		31.10		30.22		31.64		31.06	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		1.38		4.78		15.42			
Residue management (B)	N.S.		0.96		2.79		10.67			
B within A	N.S.		1.91		5.59					
A within B			2.16		6.30					
					Earheads/sqm					
Control	220	3	187	4	236	4	210	4	213	4
Wheat residue @3 t/ha	217	4	207	3	248	2	234	3	226	3
Soybean residue @3 t/ha	221	2	218	2	247	3	236	2	230	2
Soybean + wheat residue @3 t/ha	253	1	221	1	254	1	248	1	244	1
Mean	228		208		246		232		229	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	**		0.90		3.12		1.37			
Residue management (B)	**		0.29		0.85		0.44			
B within A	**		0.59		1.71					
A within B			1.03		3.02					
					Grains/Earhead					
Control	32.00	2	31.17	4	26.01	4	34.98	1	31.04	3
Wheat residue @3 t/ha	33.03	1	32.11	3	29.89	1	34.75	2	32.44	1
Soybean residue @3 t/ha	29.24	3	36.06	1	27.57	2	32.48	3	31.49	2
Soybean + wheat residue @3 t/ha	28.99	4	33.26	2	27.17	3	30.06	4	29.87	4
Mean	30.96		33.15		27.66		33.07		31.21	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		1.51		5.23		16.76			
Residue management (B)	N.S.		0.93		2.73		10.37			
B within A	N.S.		1.87		5.45					
A within B			2.21		6.46					
					1000 grains weight, g					
Control	46.96	1	44.45	3	45.51	1	40.42	4	44.33	1
Wheat residue @3 t/ha	43.72	3	46.28	1	45.26	2	40.90	3	44.04	2
Soybean residue @3 t/ha	44.40	2	44.17	4	43.98	3	41.34	2	43.47	3
Soybean + wheat residue @3 t/ha	43.11	4	44.92	2	42.83	4	42.93	1	43.45	4
Mean	44.55		44.96		44.39		41.40		43.82	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	#DIV/0!		0.00		0.00		0.00			
Residue management (B)	N.S.		#NUM!		#NUM!		#NUM!			
B within A	N.S.		#NUM!		#NUM!					
A within B			#NUM!		#NUM!					
					Biomass, q/ha					
Control	130.48	4	82.53	4	136.43	3	118.93	3	117.1	4
Wheat residue @3 t/ha	152.53	3	103.53	2	138.53	2	115.08	4	127.4	3
Soybean residue @3 t/ha	163.73	2	101.08	3	139.58	1	143.08	2	136.9	2
Soybean + wheat residue @3 t/ha	170.73	1	117.53	1	132.58	4	153.93	1	143.7	1
Mean	154.37		101.17		136.78		132.76		131.3	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	#DIV/0!		0.00	0			0.00			
Residue management (B)	**		0.00	0			0.00			
B within A	**		0.00	0						
A within B			0.00	0						
Date of Sowing:	15.11.2020				Date of Harvesting:		18.03.2021			

Table 6.19.2. Peninsular Zone	**SPL-6**				**Niphad**				**2020-21**	
Residue management	Tillage								Mean	Rk
	CT-Flat bed	Rk	ZT-Flat bed	Rk	CT-Broad bed	Rk	ZT-Broad bed	Rk		
					Yield, q/ha					
Control	48.33	3	42.20	4	42.53	4	40.43	4	43.38	4
Wheat residue @3 t/ha	47.53	4	45.10	2	48.33	3	43.53	3	46.13	3
Soybean residue @3 t/ha	50.97	1	42.70	3	50.50	1	43.67	2	46.96	2
Soybean + wheat residue @3 t/ha	48.40	2	46.27	1	50.40	2	44.53	1	47.40	1
Mean	48.81		44.07		47.94		43.04		45.96	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	**		0.79		2.75		5.99			
Residue management (B)	*		1.01		2.96		7.65			
B within A	N.S.		2.03		5.92					
A within B			1.93		5.63					
					Earheads/sqm					
Control	384	4	349	4	406	1	386	2	381	4
Wheat residue @3 t/ha	415	3	406	3	392	4	370	4	396	3
Soybean residue @3 t/ha	420	2	408	2	397	3	386	2	403	2
Soybean + wheat residue @3 t/ha	422	1	412	1	401	2	390	1	406	1
Mean	410		394		399		383		396	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	**		2.16		7.48		1.89			
Residue management (B)	**		1.43		4.17		1.25			
B within A	**		2.86		8.34					
A within B			3.29		9.59					
					Grains/Earhead					
Control	29.38	2	28.72	1	26.81	4	27.50	4	28.10	4
Wheat residue @3 t/ha	28.05	3	26.71	3	30.46	3	30.24	2	28.86	2
Soybean residue @3 t/ha	29.51	1	26.09	4	33.23	1	29.83	3	29.66	1
Soybean + wheat residue @3 t/ha	26.12	4	26.74	2	31.62	2	30.65	1	28.78	3
Mean	28.27		27.06		30.53		29.55		28.85	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	*		0.61		2.13		7.38			
Residue management (B)	N.S.		0.64		1.87		7.69			
B within A	*		1.28		3.74					
A within B			1.27		3.70					
					1000 grains weight, g					
Control	42.89	2	42.10	2	39.11	3	38.12	2	40.56	2
Wheat residue @3 t/ha	40.82	4	41.54	3	40.47	1	39.02	1	40.46	3
Soybean residue @3 t/ha	41.22	3	40.11	4	38.27	4	38.00	3	39.40	4
Soybean + wheat residue @3 t/ha	43.88	1	42.20	1	39.70	2	37.21	4	40.75	1
Mean	42.20		41.49		39.39		38.09		40.29	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	**		0.22		0.74		1.85			
Residue management (B)	*		0.33		0.96		2.84			
B within A	N.S.		0.66		1.93					
A within B			0.61		1.78					
					Biomass, q/ha					
Control	58.00	4	51.06	4	51.68	4	49.33	4	52.52	4
Wheat residue @3 t/ha	58.47	3	55.93	2	59.69	3	53.98	3	57.02	3
Soybean residue @3 t/ha	63.71	1	53.80	3	63.38	2	55.02	2	58.98	2
Soybean + wheat residue @3 t/ha	61.47	2	59.22	1	64.26	1	57.00	1	60.49	1
Mean	60.41		55.00		59.75		53.83		57.25	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	**		0.99		3.44		6.02			
Residue management (B)	**		1.27		3.72		7.71			
B within A	N.S.		2.55		7.44					
A within B			2.42		7.06					
Date of Sowing:	03.12.2020				Date of Harvesting:		30.03.2021			

Table 6.19.3. Peninsular Zone	**SPL-6**					**Pune**	**2020-21**			
Residue management	Tillage								Mean	Rk
	CT-Flat bed	Rk	ZT-Flat bed	Rk	CT-Broad bed	Rk	ZT-Broad bed	Rk		
					Yield, q/ha					
Control	34.29	3	38.01	1	35.61	4	36.21	4	36.03	4
Wheat residue @3 t/ha	34.26	4	35.84	3	37.82	3	38.09	2	36.50	3
Soybean residue @3 t/ha	36.18	2	35.94	2	39.09	2	36.43	3	36.91	2
Soybean + wheat residue @3 t/ha	36.25	1	35.44	4	39.67	1	39.16	1	37.63	1
Mean	35.24		36.31		38.05		37.47		36.77	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		1.04		3.61		9.84			
Residue management (B)	N.S.		0.64		1.87		6.04			
B within A	N.S.		1.28		3.74					
A within B			1.52		4.45					
					Earheads/sqm					
Control	362	1	355	1	330	4	327	3	343	2
Wheat residue @3 t/ha	303	4	313	4	340	3	322	4	320	4
Soybean residue @3 t/ha	340	2	325	2	362	2	338	2	341	3
Soybean + wheat residue @3 t/ha	312	3	325	2	372	1	385	1	348	1
Mean	329		330		351		343		338	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		6.12		21.20		6.27			
Residue management (B)	N.S.		8.74		25.50		8.95			
B within A	N.S.		17.47		51.00					
A within B			16.33		47.65					
					Grains/Earhead					
Control	22.69	4	25.42	4	26.89	1	25.95	2	25.24	4
Wheat residue @3 t/ha	26.91	2	27.57	1	26.79	2	28.52	1	27.45	1
Soybean residue @3 t/ha	25.67	3	26.09	3	26.68	3	25.42	3	25.96	3
Soybean + wheat residue @3 t/ha	27.53	1	26.51	2	25.72	4	24.41	4	26.04	2
Mean	25.70		26.40		26.52		26.07		26.17	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		0.64		2.21		8.44			
Residue management (B)	N.S.		0.85		2.47		11.22			
B within A	N.S.		1.70		4.95					
A within B			1.60		4.67					
					1000 grains weight, g					
Control	42.30	2	43.07	1	40.37	4	42.77	1	42.13	1
Wheat residue @3 t/ha	42.10	3	41.60	3	41.57	2	41.57	4	41.71	4
Soybean residue @3 t/ha	41.50	4	42.43	2	40.70	3	42.30	2	41.73	3
Soybean + wheat residue @3 t/ha	42.30	1	41.53	4	41.60	1	41.93	3	41.84	2
Mean	42.05		42.16		41.06		42.14		41.85	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		0.30		1.04		2.50			
Residue management (B)	N.S.		0.34		0.99		2.81			
B within A	N.S.		0.68		1.98					
A within B			0.66		1.93					
					Biomass, q/ha					
Control	86.08	1	87.93	1	85.62	3	86.72	1	86.59	1
Wheat residue @3 t/ha	83.15	4	83.38	4	87.60	2	84.55	4	84.67	3
Soybean residue @3 t/ha	85.45	2	84.45	2	83.22	4	85.38	3	84.63	4
Soybean + wheat residue @3 t/ha	83.87	3	84.45	2	89.45	1	85.47	2	85.81	2
Mean	84.64		85.05		86.47		85.53		85.42	
	F. Test		SEm		CD (0.05)		CV (%)			
Tillage (A)	N.S.		1.73		6.00		7.03			
Residue management (B)	N.S.		1.03		3.01		4.18			
B within A	N.S.		2.06		6.02					
A within B			2.49		7.26					
Date of Sowing:	29.11.2020				Date of Harvesting:		18.03.2021			

Table 6.20. Peninsular Zone	**SPL-7**		**Dharwad**		**2020-21**	
Nutrient management	Drip Irrigation				Mean	Rk
	Surface drip	Rk	Subsurface drip	Rk		
			Yield, q/ha			
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through soil application	33.87	4	33.22	1	33.54	2
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through drip irrigation	34.26	3	32.18	2	33.22	3
1/3rd NP basal + 2/3rd NP at fortnight interval upto 60 DAS (4 splits) through drip irrigation	29.44	6	27.31	6	28.38	6
1/3rd NP basal + 2/3rd NP weekly interval (8 splits) through drip irrigation	35.00	2	29.28	5	32.14	4
30% NP basal + 30% NP 20 DAS + 20% NP 40 DAS + 20% NP 60 DAS through drip irrigation	30.23	5	29.42	4	29.83	5
100% NPK through water soluble fertilizer at fortnight interval	35.32	1	32.04	3	33.68	1
Mean	33.02		30.57		31.80	
	F. Test		SEm		CD (0.05)	CV (%)
Drip irrigation (A)	N.S.		1.37		8.31	18.22
Nutrient management (B)	*		1.31		3.85	10.06
B within A	N.S.		1.85		5.45	
A within B			2.17		6.40	
			Earheads/sqm			
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through soil application	218	5	219	6	218	5
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through drip irrigation	222	4	224	3	223	3
1/3rd NP basal + 2/3rd NP at fortnight interval upto 60 DAS (4 splits) through drip irrigation	211	6	221	4	216	6
1/3rd NP basal + 2/3rd NP weekly interval (8 splits) through drip irrigation	236	1	234	1	235	1
30% NP basal + 30% NP 20 DAS + 20% NP 40 DAS + 20% NP 60 DAS through drip irrigation	222	3	220	5	221	4
100% NPK through water soluble fertilizer at fortnight interval	230	2	234	2	232	2
Mean	223		225		224	
	F. Test		SEm		CD (0.05)	CV (%)
Drip irrigation (A)	N.S.		1.72		10.45	3.25
Nutrient management (B)	*		4.47		13.17	4.88
B within A	N.S.		6.32		18.63	
A within B			6.02		17.75	
			Grains/Earhead			
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through soil application	35.20	2	34.16	1	34.68	1
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through drip irrigation	35.83	1	33.28	2	34.56	2
1/3rd NP basal + 2/3rd NP at fortnight interval upto 60 DAS (4 splits) through drip irrigation	33.59	3	28.54	5	31.06	4
1/3rd NP basal + 2/3rd NP weekly interval (8 splits) through drip irrigation	33.24	4	28.39	6	30.82	5
30% NP basal + 30% NP 20 DAS + 20% NP 40 DAS + 20% NP 60 DAS through drip irrigation	30.09	6	29.47	4	29.78	6
100% NPK through water soluble fertilizer at fortnight interval	32.61	5	30.46	3	31.54	3
Mean	33.43		30.72		32.07	
	F. Test		SEm		CD (0.05)	CV (%)
Drip irrigation (A)	N.S.		1.26		7.64	16.61
Nutrient management (B)	N.S.		1.58		4.65	12.04
B within A	N.S.		2.23		6.58	
A within B			2.39		7.05	

	1000 grains weight, g					
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through soil application	44.33	4	44.33	3	44.33	3
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through drip irrigation	43.00	5	43.33	5	43.17	5
1/3rd NP basal + 2/3rd NP at fortnight interval upto 60 DAS (4 splits) through drip irrigation	42.00	6	43.33	5	42.67	6
1/3rd NP basal + 2/3rd NP weekly interval (8 splits) through drip irrigation	44.67	3	44.00	4	44.33	4
30% NP basal + 30% NP 20 DAS + 20% NP 40 DAS + 20% NP 60 DAS through drip irrigation	45.33	2	45.67	1	45.50	2
100% NPK through water soluble fertilizer at fortnight interval	47.00	1	45.00	2	46.00	1
Mean	44.39		44.28		44.33	
	F. Test		SEm		CD (0.05)	CV (%)
Drip irrigation (A)	#DIV/0!		0.00		0.00	0.00
Nutrient management (B)	N.S.		#NUM!		#NUM!	#####
B within A	N.S.		#NUM!		#NUM!	
A within B			#NUM!		#NUM!	
	Biomass, q/ha					
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through soil application	130.00	2	149.13	1	139.57	1
1/3rd NP basal + 1/3rd NP 20-25 DAS + 1/3rd of NP 40-45 DAS through drip irrigation	122.60	5	126.53	3	124.57	4
1/3rd NP basal + 2/3rd NP at fortnight interval upto 60 DAS (4 splits) through drip irrigation	159.73	1	110.93	5	135.33	2
1/3rd NP basal + 2/3rd NP weekly interval (8 splits) through drip irrigation	125.33	4	137.83	2	131.58	3
30% NP basal + 30% NP 20 DAS + 20% NP 40 DAS + 20% NP 60 DAS through drip irrigation	129.33	3	110.83	6	120.08	5
100% NPK through water soluble fertilizer at fortnight interval	120.13	6	118.83	4	119.48	6
Mean	131.19		125.68		128.43	
	F. Test		SEm		CD (0.05)	CV (%)
Drip irrigation (A)	*		0.85		5.17	2.81
Nutrient management (B)	**		0.82		2.43	1.57
B within A	**		1.17		3.44	
A within B			1.36		4.02	
Date of Sowing:	16.11.2020		Date of Harvesting:		12.03.2021	

METEOROLOGICAL INFORMATION: 2020-2021

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								
BAJAURA	**Latitude 31^{0}48' N**		**Longitude 77^{0}00' E**		**Height above MSL 1090 m**			
42 (15-21 Oct)	31.0	10.2	86.0	38.0	0.0			
43 (22-28 Oct)	28.7	6.8	86.0	34.0	0.0			
44 (29-04 Nov)	27.4	5.9	79.0	45.0	0.0			
45 (05-11 Nov)	26.3	3.2	85.0	36.0	0.0			
46 (12-18 Nov)	23.5	2.3	86.0	31.0	11.2			
47 (19-25 Nov)	18.0	0.2	90.0	48.0	4.0			
48 (26-02 Dec)	13.5	0.4	90.0	57.0	40.4			
49 (03-09 Dec)	21.3	0.4	89.0	27.0	0.0			
50 (10-16 Dec)	17.2	-1.1	90.0	27.0	14.0			
51 (17-23 Dec)	18.2	-1.4	90.0	28.0	0.0			
52 (24-31 Dec)	17.1	-1.9	91.0	32.0	0.0			
1 (01-07 Jan)	16.3	1.3	91.0	35.0	21.5			
2 (08-14 Jan)	17.8	-1.8	91.0	30.0	0.0			
3 (15-21 Jan)	15.0	-0.6	90.0	32.0	0.0			
4 (22-28 Jan)	18.2	0.0	91.0	35.0	0.0			
5 (29-04 Feb)	18.9	-0.3	87.0	44.0	5.4			
6 (05-11 Feb)	19.2	0.7	89.0	38.0	10.5			
7 (12-18 Feb)	23.2	1.9	90.0	33.0	0.0			
8 (19-25 Feb)	24.8	4.4	89.0	27.0	0.0			
9 (26-04 Mar)	24.3	4.1	89.0	27.0	1.8			
10 (05-11 Mar)	24.3	5.7	90.0	33.0	27.5			
11 (12-18 Mar)	24.6	5.6	87.0	42.0	0.0			
12 (19-25 Mar)	22.4	5.4	88.0	46.0	23.1			
13 (26-01 Apr)	27.0	6.8	88.0	29.0	6.8			
14 (02-08 Apr)	24.2	5.5	86.0	44.0	19.4			
15 (09-15 Apr)	28.6	5.4	82.0	36.0	0.0			
16 (16-22 Apr)	23.2	7.6	88.0	33.0	79.0			
17 (23-29 Apr)	26.2	5.6	90.0	34.0	53.8			
18 (30-06 May)	29.2	9.7	85.0	48.0	23.6			
19 (7-13 May)	26.2	11.2	87.0	61.0	26.8			
20 (14-20 May)	29.9	11.1	84.0	45.0	9.6			
KHUDWANI	**Latitude 34^0 N**		**Longitude 74^0 E**		**Height above MSL 1560 m**			
41 (08-14 Oct)	26.5	4.9	54.6	37.0	9.0			5.7
42 (15-21 Oct)	24.9	4.4	61.3	37.0	6.2			6.7
43 (22-28 Oct)	22.3	2.1	68.7	35.7	1.6			5.2
44 (29-04 Nov)	19.0	2.1	76.3	54.4	3.1			0.0
45 (05-11 Nov)	19.2	0.2	74.6	46.0	0.0			0.3
46 (12-18 Nov)	12.2	1.8	84.1	63.1	0.0			0.3
47 (19-25 Nov)	7.4	1.3	90.0	74.1	14.0			2.1
48 (26-02 Dec)	13.1	-0.3	90.7	67.0	3.3			0.0
49 (03-09 Dec)	8.4	2.6	91.1	81.4	0.0			1.5
50 (10-16 Dec)	9.2	-0.7	88.6	63.4	14.5			2.0
51 (17-23 Dec)	9.4	-4.8	91.1	57.7	6.0			2.5
52 (24-31 Dec)	8.0	-3.0	89.3	62.8	6.6			2.5
1 (01-07 Jan)	3.7	-1.3	95.9	89.3	4.8			0.4
2 (08-14 Jan)	5.5	-4.6	86.4	78.1	7.5			1.6
3 (15-21 Jan)	9.2	-8.5	87.7	62.6	42.5			0.0
4 (22-28 Jan)	2.6	-5.9	92.0	88.9	30.6			1.8
5 (29-04 Feb)	3.8	-5.5	92.1	83.3	0.6			1.3
6 (05-11 Feb)	12.2	-4.1	79.4	56.0	0.0			1.6
7 (12-18 Feb)	15.7	-2.4	70.4	43.1	1.6			1.8
8 (19-25 Feb)	16.8	3.2	74.6	50.9	0.0			2.3

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
9 (26-04 Mar)	14.8	2.2	82.1	51.6	44.5			2.7
10 (05-11 Mar)	11.0	3.8	85.0	78.1	0.0			4.3
11 (12-18 Mar)	15.4	5.0	77.9	59.1	21.2			3.5
12 (19-25 Mar)	15.1	5.1	84.7	65.0	0.0			4.5
13 (26-01 Apr)	20.5	6.7	71.3	41.9	33.9			5.6
14 (02-08 Apr)	18.4	4.7	69.7	44.6	45.1			7.8
15 (09-15 Apr)	18.2	6.1	78.7	63.9	2.0			1.9
16 (16-22 Apr)	14.8	5.8	84.4	67.1	2.2			7.9
17 (23-29 Apr)	22.3	6.2	54.7	39.0	3.3			4.4
MALAN	**Latitude 32^{0}1' N**		**Longitude 76^{0}2' E**				**Height above MSL 950 m**	
40 (01-07 Oct)	31.2	15.1	80.0	73.4	0.0			
41 (08-14 Oct)	31.2	12.7	80.4	75.0	0.0			
42 (15-21 Oct)	30.8	14.1	80.7	73.3	0.0			
43 (22-28 Oct)	29.8	12.1	76.0	68.6	0.0			
44 (29-04 Nov)	28.8	10.1	68.0	63.3	0.0			
45 (05-11 Nov)	28.1	9.4	63.6	59.9	0.0			
46 (12-18 Nov)	25.6	8.2	67.1	62.6	19.9			
47 (19-25 Nov)	25.2	6.9	71.9	64.9	0.0			
48 (26-02 Dec)	25.4	6.4	74.0	65.0	0.0			
49 (03-09 Dec)	25.4	6.3	74.0	66.7	0.0			
50 (10-16 Dec)	25.4	6.1	75.7	67.9	22.3			
51 (17-23 Dec)	25.3	5.8	74.7	68.9	0.0			
52 (24-31 Dec)	25.0	5.5	74.1	65.6	0.0			
1 (01-07 Jan)	23.4	6.0	74.1	66.3	22.8			
2 (08-14 Jan)	23.1	6.1	74.3	70.0	7.3			
3 (15-21 Jan)	23.8	6.9	76.4	71.8	0.0			
4 (22-28 Jan)	25.1	8.0	76.3	69.6	11.4			
5 (29-04 Feb)	25.4	7.4	75.1	71.0	0.0			
6 (05-11 Feb)	25.1	6.9	77.0	71.9	5.2			
7 (12-18 Feb)	27.0	7.8	77.3	72.9	0.0			
8 (19-25 Feb)	26.1	8.4	77.9	73.9	0.0			
9 (26-04 Mar)	27.4	10.3	78.8	74.4	0.0			
10 (05-11 Mar)	27.3	9.4	79.5	75.7	0.0			
11 (12-18 Mar)	27.1	10.5	79.9	75.4	0.0			
12 (19-25 Mar)	26.9	10.6	77.9	74.3	23.8			
13 (26-01 Apr)	27.7	12.0	79.9	75.3	2.3			
14 (02-08 Apr)	28.2	11.8	80.6	74.4	19.4			
15 (09-15 Apr)	28.8	11.7	80.4	75.3	0.0			
16 (16-22 Apr)	26.9	13.1	80.7	73.1	31.5			
17 (23-29 Apr)	28.6	15.1	80.0	72.7	73.0			
18 (30-06 May)	32.0	15.4	82.0	75.7	26.0			
19 (7-13 May)	29.9	15.3	81	73.9	6.3			
20 (14-20 May)	30.1	14.3	81.3	74	47.8			
21 (21-27 May)	30.5	15.3	81	74.7	0.0			

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	21.0	87.6	53.1	-	4.4		
41 (08-14 Oct)	35.8	20.7	88.4	56.7	-	3.6		
42 (15-21 Oct)	35.5	20.7	82.6	52.1	-	3.3		
43 (22-28 Oct)	33.9	18.4	91.0	35.4	-	3.1		
44 (29-04 Nov)	31.4	14.4	83.8	39.0	-	2.3		
45 (05-11 Nov)	30.3	13.4	89.7	48.8	-	2.1		
46 (12-18 Nov)	29.0	14.5	91.4	64.8	9.0	1.8		
47 (19-25 Nov)	25.0	10.7	89.1	60.1	-	1.3		
48 (26-02 Dec)	25.4	11.0	89.0	59.7	-	1.4		
49 (03-09 Dec)	28.0	12.3	89.3	51.1	-	1.8		
50 (10-16 Dec)	22.6	13.2	89.0	75.8	-	1.3		
51 (17-23 Dec)	22.1	6.9	87.1	71.9	-	1.0		

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
52 (24-31 Dec)	21.1	6.8	86.3	69.4	-	1.3		
1 (01-07 Jan)	21.7	11.4	88.3	71.3	-	1.0		
2 (08-14 Jan)	19.3	8.4	86.9	75.0	-	1.4		
3 (15-21 Jan)	20.7	7.4	86.2	72.7	-	1.0		
4 (22-28 Jan)	19.4	6.9	86.6	76.1	-	1.0		
5 (29-04 Feb)	25.0	8.1	87.4	64.1	-	1.4		
6 (05-11 Feb)	26.1	10.2	87.6	68.6	-	1.8		
7 (12-18 Feb)	28.2	11.9	89.0	67.7	-	1.7		
8 (19-25 Feb)	30.7	13.4	89.7	63.3	-	3.0		
9 (26-04 Mar)	32.9	15.3	86.1	49.9	-	3.1		
10 (05-11 Mar)	32.9	16.7	89.3	52.1	-	3.1		
11 (12-18 Mar)	33.8	18.0	91.0	57.8	-	3.3		
12 (19-25 Mar)	35.5	19.4	91.4	37.8	-	4.0		
13 (26-01 Apr)	37.5	20.1	91.4	33.3	-	7.1		
14 (02-08 Apr)	39.7	19.2	88.6	25.6	-	5.6		
15 (09-15 Apr)	40.5	20.9	84.6	31.4	-	6.8		
16 (16-22 Apr)	39.6	22.7	75.7	30.4	-	6.2		
17 (23-29 Apr)	39.3	20.1	89.8	33.8	-	8.0		
18 (30-06 May)	41.2	25.6	91.5	30.8	-	7.8		
19 (7-13 May)	40.2	24.2	82.0	33.1	4.1	6.0		
20 (14-20 May)	34.8	24.1	89.0	60.8	88.0	3.1		
21 (21-27 May)	35.5	22.9	84.5	51.7	4.5	5.4		
DELHI	**Latitude 28^0 40' N**			**Longitude 70^0 79' E**			**Height above MSL 228 m**	
40 (01-07 Oct)	35.4	19.8	76.1	45.7	0.0	6.0	4.3	8.9
41 (08-14 Oct)	34.9	19.8	81.9	41.6	0.0	5.3	2.6	7.3
42 (15-21 Oct)	34.1	16.2	82.3	32.0	0.0	4.3	2.0	6.7
43 (22-28 Oct)	32.8	12.9	85.7	31.4	0.0	3.5	1.9	5.5
44 (29-04 Nov)	30.2	10.9	86.6	28.7	0.0	3.0	2.2	4.8
45 (05-11 Nov)	28.7	10.5	86.4	32.0	0.0	2.8	1.6	1.6
46 (12-18 Nov)	27.1	11.3	82.1	44.4	3.2	2.9	1.8	1.6
47 (19-25 Nov)	24.5	7.8	84.1	35.6	0.0	2.4	2.4	1.6
48 (26-02 Dec)	25.0	9.2	81.9	34.3	0.0	2.7	2.7	1.6
49 (03-09 Dec)	26.4	9.8	89.3	48.1	0.0	2.5	1.8	1.6
50 (10-16 Dec)	22.8	8.7	92.1	57.9	0.6	1.8	3.4	1.6
51 (17-23 Dec)	19.8	3.3	82.6	40.3	0.0	1.9	3.1	1.6
52 (24-31 Dec)	19.6	3.4	91.6	50.4	0.0	1.6	3.5	1.6
1 (01-07 Jan)	18.5	9.4	92.0	76.9	65.7	1.1	3.5	0.6
2 (08-14 Jan)	16.7	5.7	91.3	69.0	0.0	1.4	4.0	3.1
3 (15-21 Jan)	17.9	6.1	95.1	56.4	0.0	1.7	3.3	2.0
4 (22-28 Jan)	18.3	4.7	88.6	63.3	0.0	1.8	3.2	4.7
5 (29-04 Feb)	22.6	5.4	82.1	35.7	0.8	2.4	2.4	6.7
6 (05-11 Feb)	23.1	7.1	89.6	45.1	6.2	2.8	2.6	6.9
7 (12-18 Feb)	27.1	8.5	90.7	36.3	0.0	3.1	1.3	5.5
8 (19-25 Feb)	27.7	8.8	90.9	32.7	0.0	3.2	2.6	7.4
9 (26-04 Mar)	29.9	12.4	82.0	29.1	0.0	4.4	4.6	8.9
10 (05-11 Mar)	31.4	14.4	80.9	32.7	0.3	4.1	4.2	7.5
11 (12-18 Mar)	30.8	14.4	85.4	36.1	0.0	3.8	3.7	4.7
12 (19-25 Mar)	32.8	16.3	76.3	41.0	0.0	3.9	4.5	4.4
13 (26-01 Apr)	35.1	17.2	76.3	34.0	0.0	4.7	6.4	7.7
14 (02-08 Apr)	36.0	16.9	70.4	29.1	0.0	5.6	5.2	8.7
15 (09-15 Apr)	38.0	18.4	65.4	23.9	0.0	6.8	4.3	9.5
16 (16-22 Apr)	36.9	18.4	72.1	38.0	5.2	6.9	6.0	7.9
17 (23-29 Apr)	36.8	19.0	64.4	36.0	0.0	7.7	5.1	9.3
18 (30-06 May)	40.5	24.9	61.6	36.3	0.0	9.4	4.8	6.5
19 (7-13 May)	37.5	22.9	61.6	45.3	5.9	9.4	5.6	8.1
20 (14-20 May)	32.2	21.6	75.9	56.9	170.6	7.2	4.5	6.1
21 (21-27 May)	32.3	21.1	73.4	53.6	205.6	8.4	5.9	6.0
DURGAPURA	**Latitude 26^{0}51' N**			**Longitude 75^{0}47' E**			**Height above MSL 390 m**	
40 (01-07Oct)	36.1	20.0	53.0	18.0	0.0		5.3	

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
41 (08-14Oct)	35.7	20.1	51.0	19.0	0.0		4.2	
42 (15-21Oct)	33.8	22.9	35.0	24.0	0.0		4.9	
43 (22-28Oct)	33.1	18.5	38.0	17.0	1.0		4.2	
44 (29-04Nov.)	30.6	13.2	40.0	12.0	0.0		3.3	
45 (05-11Nov.)	30.7	13.5	57.0	19.0	0.0		2.6	
46 (12-18Nov.)	28.0	14.4	69.0	25.0	11.0		4.4	
47 (19-25Nov.)	27.3	14.1	55.0	16.0	0.0		4.9	
48 (26-02Dec.)	26.0	11.7	79.0	31.0	3.2		3.4	
49 (03-09Dec.)	29.6	12.4	78.0	24.0	0.0		2.1	
50 (10-16Dec.)	25.2	13.0	69.0	48.0	0.0		4.7	
51 (17-23Dec.)	23.1	7.5	72.0	26.0	0.0		2.9	
52 (24-31Dec.)	21.9	6.0	75.0	27.0	0.0		3.6	
1 (01-07 Jan)	20.9	13.0	78.0	59.0	6.8		8.0	
2 (08-14 Jan)	20.4	8.3	83.0	44.0	0.0		3.9	
3 (15-21 Jan)	24.0	8.4	85.0	32.0	0.0		4.0	
4 (22-28 Jan)	23.0	6.9	85.0	33.0	0.0		4.5	
5 (29-04 Feb.)	24.8	8.2	79.0	24.0	0.0		26.0	
6 (05-11 Feb.)	26.3	9.0	83.0	24.0	0.0		3.3	
7 (12-18 Feb.)	28.6	12.9	74.0	33.0	0.0		3.6	
8 (19-25 Feb.)	30.5	12.6	64.0	19.0	0.0		2.9	
9 (26-04 Mar.)	32.2	14.8	58.0	15.0	0.0		5.0	
10(05-11 Mar.)	34.2	16.6	58.0	19.0	0.0		4.7	
11(12-18 Mar.)	33.7	18.9	58.0	22.0	0.0		5.6	
12(19-25 Mar.)	35.0	19.2	56.0	24.0	4.6		6.5	
13(26-01 Apr)	36.9	19.3	41.0	11.0	0.0		6.9	
14(02-08 Apr)	36.9	22.1	24.0	8.0	0.0		6.4	
15(09-15 Apr)	37.9	21.0	28.0	9.0	0.0		4.4	
16(16-22 Apr)	36.9	21.2	39.0	15.0	0.0		7.1	
17(23-29 Apr)	38.2	21.0	27.0	7.0	0.0		6.2	
18(30-06 May)	39.1	25.4	34.0	15.0	0.0		6.2	
19 (7-13 May)	39.1	24.4	40.0	23.0	0.4		7.2	
20 (14-20 May)	34.5	23.3	59.0	48.0	81.0		8.7	
Gurdaspur	**Latitude 32º3'5.85" N**		**Longitude 75º25'27.10" E**			**Height Above MSL 878 m**		
40 (01-07 Oct)	33.9	18.5	91.0	44.0	0.0	23.8	2.0	7.1
41 (08-14 Oct)	33.9	18.6	88.0	42.0	0.0	24.9	1.8	6.3
42 (15-21 Oct)	32.7	15.6	91.0	31.0	0.0	21.5	2.0	8.0
43 (22-28 Oct)	30.8	13.9	88.0	32.0	0.0	25.1	1.5	6.9
44 (29-04 Nov)	29.3	11.8	88.0	31.0	0.0	24.7	1.7	6.2
45 (05-11 Nov)	28.7	11.7	91.0	33.0	0.0	22.1	1.3	5.1
46 (12-18 Nov)	23.9	10.6	92.0	50.0	26.6	14.7	2.6	2.7
47 (19-25 Nov)	21.2	8.4	90.0	53.0	1.3	16.3	2.3	3.1
48 (26-02 Dec)	22.9	9.6	87.0	52.0	0.0	10.1	1.5	3.9
49 (03-09 Dec)	21.6	9.7	90.0	58.0	0.0	15.6	1.5	1.5
50 (10-16 Dec)	18.8	9.2	90.0	73.0	11.3	12.2	3.2	1.1
51 (17-23 Dec)	16.8	5.7	96.0	67.0	0.0	12.5	2.3	3.6
52 (24-31 Dec)	16.2	4.7	98.0	67.0	4.5	17.1	2.2	2.6
1 (01-07 Jan)	17.3	7.0	93.0	69.0	17.9	5.0	2.8	2.1
2 (08-14 Jan)	14.5	8.3	91.0	75.0	0.0	8.3	2.5	1.1
3 (15-21 Jan)	18.1	8.4	87.0	69.0	0.0	17.7	2.7	4.0
4 (22-28 Jan)	17.4	8.2	93.0	60.0	4.8	15.6	2.6	4.0
5 (29-04 Feb)	19.0	5.9	92.0	64.0	0.6	15.6	2.7	4.7
6 (05-11 Feb)	21.7	7.6	89.0	57.0	3.1	19.8	2.1	5.9
7 (12-18 Feb)	21.6	9.7	85.0	63.0	0.0	15.9	2.8	3.6
8 (19-25 Feb)	25.4	12.8	82.0	57.0	0.0	22.1	2.1	5.4
9 (26-04 Mar)	24.1	12.5	84.0	47.0	0.0	27.8	3.3	7.6
10 (05-11 Mar)	22.9	12.9	80.0	50.0	0.0	26.3	3.2	4.1
11 (12-18 Mar)	24.3	14.0	81.0	62.0	3.3	21.8	4.1	3.1
12 (19-25 Mar)	25.6	13.4	79.0	52.0	9.8	20.9	4.0	4.4
13 (26-01 Apr)	29.3	14.1	73.0	42.0	0.0	34.2	4.5	6.7

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
14 (02-08 Apr)	30.4	14.4	75.0	52.0	4.4	28.2	4.0	5.1
15 (09-15 Apr)	34.5	16.5	62.0	39.0	0.0	34.2	3.3	7.3
16 (16-22 Apr)	33.1	16.2	69.0	45.0	15.0	23.0	5.4	2.5
17 (23-29 Apr)	33.9	16.3	76.0	26.0	43.5	31.3	3.6	7.0
18 (30-06 May)	36.2	21.2	64.0	33.0	0.0	32.1	3.6	2.4
19 (7-13 May)	35.2	19.6	74.0	39.0	12.2	20.5	5.6	2.4
20 (14-20 May)	36.4	19.8	67.0	31.0	3.7	25.5	4.7	4.9
HISAR	**Latitude 29º10'N**			**Longitude 75º 46'E**			**Height above MSL 215.2 m**	
40 (01-07 Oct)	36.6	18.2	78.7	28.7	0.0	4.8	3.4	8.2
41 (08-14 Oct)	35.6	16.3	86.1	28.3	0.0	4.4	2.9	7.9
42 (15-21 Oct)	34.2	13.7	76.4	22.2	0.0	3.7	2.6	7.1
43 (22-28 Oct)	33.0	12.8	79.6	25.7	0.0	3.9	2.8	6.5
44 (29-04 Nov)	30.4	9.8	85.4	24.0	0.0	2.9	2.2	5.6
45 (05-11 Nov)	29.7	10.5	90.9	32.9	0.0	2.3	1.1	3.2
46 (12-18 Nov)	25.6	12.6	89.0	49.8	18.2	1.6	3.6	2.7
47 (19-25 Nov)	23.1	7.7	87.6	43.3	0.0	1.5	1.9	6.5
48 (26-02 Dec)	23.3	8.4	92.0	42.4	1.7	2.2	2.9	6.6
49 (03-09 Dec)	25.5	9.1	90.2	52.7	0.0	1.6	2.7	5.9
50 (10-16 Dec)	20.8	5.0	95.7	62.6	0.0	1.4	3.4	5.3
51 (17-23 Dec)	19.7	3.0	91.9	42.1	0.0	1.3	2.2	6.2
52 (24-31 Dec)	19.5	2.6	95.5	50.7	0.0	1.2	2.6	5.8
1 (01-07 Jan)	17.5	9.6	96.2	82.3	8.9	1.2	6.4	1.8
2 (08-14 Jan)	15.8	4.6	98.0	72.0	0.0	1.0	2.7	2.7
3 (15-21 Jan)	16.4	6.7	98.9	73.6	0.0	1.0	5.1	2.7
4 (22-28 Jan)	18.8	4.9	96.4	59.4	0.0	1.2	4.4	5.2
5 (29-04 Feb)	22.6	5.2	94.0	45.9	8.7	1.8	3.4	7.5
6 (05-11 Feb)	22.6	5.5	98.0	53.2	0.0	1.8	2.5	6.7
7 (12-18 Feb)	25.2	8.4	99.6	51.5	0.0	1.3	1.8	5.6
8 (19-25 Feb)	27.6	9.1	97.1	42.6	0.0	1.8	2.1	7.1
9 (26-04 Mar)	29.3	9.7	93.5	34.4	0.0	3.1	3.0	8.4
10 (05-11 Mar)	30.7	14.1	91.1	43.4	0.0	3.2	4.6	6.8
11 (12-18 Mar)	30.7	13.9	89.3	39.7	1.2	3.1	3.7	6.0
12 (19-25 Mar)	31.4	14.5	87.7	37.4	4.4	3.8	5.1	5.9
13 (26-01 Apr)	33.5	14.3	75.3	25.7	0.0	5.6	4.8	7.7
14 (02-08 Apr)	35.0	13.3	69.1	17.8	0.0	6.3	4.7	8.2
15 (09-15 Apr)	37.2	16.0	54.0	15.4	0.0	6.8	3.3	8.8
16 (16-22 Apr)	35.6	17.2	66.9	26.3	0.5	5.9	5.8	7.7
17 (23-29 Apr)	37.0	17.9	58.1	23.4	0.0	8.0	5.2	9.7
JAMMU	**Latitude 32º44' N**		**Longitude 74º54" E**				**Height Above MSL 356 m**	
40 (01-07 Oct)	33.9	18.2	76.3	39.6	0.0	29.6	1.3	8.7
41 (08-14 Oct)	33.5	18.0	81.4	40.0	0.0	23.8	1.2	8.0
42 (15-21 Oct)	32.4	14.4	90.3	31.9	0.0	22.4	1.0	8.7
43 (22-28 Oct)	30.3	12.4	89.9	34.4	0.0	18.4	1.1	8.4
44 (29-04 Nov)	28.7	10.8	85.7	32.4	0.0	16.3	1.1	7.6
45 (05-11 Nov)	27.9	9.6	88.4	39.6	0.0	15.1	0.8	5.8
46 (12-18 Nov)	23.2	9.8	92.7	58.0	27.8	11.5	2.0	4.3
47 (19-25 Nov)	20.6	8.5	91.9	55.9	0.0	11.2	2.5	3.5
48 (26-02 Dec)	23.7	7.4	92.4	48.3	8.0	14.3	1.7	7.0
49 (03-09 Dec)	23.3	9.8	92.1	57.9	0.8	17.5	1.5	2.0
50 (10-16 Dec)	18.5	8.3	93.7	65.9	27.6	8.3	2.4	2.7
51 (17-23 Dec)	17.6	3.0	93.9	61.7	0.0	6.8	1.6	5.4
52 (24-31 Dec)	15.0	2.9	95.4	73.5	8.8	9.0	2.7	3.1
1 (01-07 Jan)	18.8	8.4	93.3	72.6	88.2	7.7	3.5	3.7
2 (08-14 Jan)	14.9	8.7	93.7	79.7	0.0	8.4	3.1	1.2
3 (15-21 Jan)	17.9	6.0	95.3	72.7	0.0	11.6	2.4	4.8
4 (22-28 Jan)	17.8	5.0	92.4	62.7	3.8	11.8	2.4	5.1
5 (29-04 Feb)	19.8	6.0	89.3	50.1	0.0	19.5	3.1	5.5
6 (05-11 Feb)	21.1	6.9	92.1	52.7	0.0	26.0	1.9	5.9
7 (12-18 Feb)	21.5	10.4	95.9	67.9	0.0	21.2	2.1	4.4

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)	25.9	10.5	92.0	49.6	0.0	26.1	2.3	5.7
9 (26-04 Mar)	26.5	10.4	84.4	50.4	0.0	33.0	3.6	6.8
10 (05-11 Mar)	28.6	11.7	80.1	39.3	0.0	35.5	3.8	5.2
11 (12-18 Mar)	27.1	12.3	86.1	50.7	3.6	30.2	3.8	3.2
12 (19-25 Mar)	26.7	13.4	80.4	47.7	15.2	33.4	4.7	5.3
13 (26-01 Apr)	31.0	13.7	72.9	34.7	0.0	39.2	4.1	8.0
14 (02-08 Apr)	30.8	12.0	62.0	27.3	1.6	38.0	4.3	6.4
15 (09-15 Apr)	33.7	14.3	56.9	20.7	1.6	48.4	4.3	7.5
16 (16-22 Apr)	28.9	15.5	63.0	41.7	11.0	38.8	4.8	3.3
17 (23-29 Apr)	35.6	15.3	59.3	20.0	8.0	44.6	4.3	10.6
KARNAL	**Latitude 29^{0}43'N**		**Longitude 76^{0}58'E**			**Height above MSL 245 m**		
43 (22-28 Oct)	33.9	18.2	76.3	39.6	0.0	29.6	1.3	8.7
44 (29-04 Nov)	33.5	18.0	81.4	40.0	0.0	23.8	1.2	8.0
45 (05-11 Nov)	32.4	14.4	90.3	31.9	0.0	22.4	1.0	8.7
46 (12-18 Nov)	26.7	12.1	98.3	61.0	39.0	2.0	2.5	5.4
47 (19-25 Nov)	22.6	9.1	94.7	66.7	0.0	1.7	1.5	6.8
48 (26-02 Dec)	23.1	9.5	98.4	61.0	4.6	1.7	1.6	6.9
49 (03-09 Dec)	23.7	10.5	98.1	68.9	0.0	1.0	1.9	5.6
50 (10-16 Dec)	20.4	9.8	98.3	78.0	2.4	1.8	1.8	4.4
51 (17-23 Dec)	17.9	4.0	100.0	65.0	0.0	1.2	2.0	6.1
52 (24-31 Dec)	17.6	3.5	94.9	76.4	0.0	1.0	1.9	5.2
1 (01-07 Jan)	17.1	10.2	95.0	90.6	36.4	1.0	3.6	1.3
2 (08-14 Jan)	14.9	7.0	98.7	91.3	0.0	0.9	1.7	2.7
3 (15-21 Jan)	16.7	7.7	99.6	88.1	0.0	0.7	3.5	3.1
4 (22-28 Jan)	17.4	6.2	100.0	92.4	0.0	1.1	2.6	4.5
5 (29-04 Feb)	20.1	6.0	97.4	62.3	14.0	1.4	2.0	6.4
6 (05-11 Feb)	20.7	6.5	100.0	68.0	5.4	2.0	2.2	7.2
7 (12-18 Feb)	22.7	9.1	100.0	69.7	0.0	1.2	0.6	5.5
8 (19-25 Feb)	25.4	10.8	100.0	69.7	0.0	2.1	1.7	6.9
9 (26-04 Mar)	27.7	12.0	95.0	73.4	4.4	3.7	2.5	9.1
10 (05-11 Mar)	29.2	14.0	97.9	64.4	2.0	3.6	1.8	7.7
11 (12-18 Mar)	29.6	13.2	94.6	59.0	1.0	3.8	1.2	6.7
12 (19-25 Mar)	29.3	14.7	89.4	63.3	1.0	3.9	1.2	6.1
13 (26-01 Apr)	32.7	14.3	84.3	35.0	0.0	5.4	1.5	7.9
14 (02-08 Apr)	34.8	14.2	56.7	21.9	0.0	7.0	1.8	7.8
15 (09-15 Apr)	37.8	16.6	50.4	20.7	0.0	8.0	1.1	8.9
16 (16-22 Apr)	35.9	17.1	62.7	29.0	1.0	8.1	2.6	7.3
17 (23-29 Apr)	35.9	17.8	60.4	23.6	1.8	8.0	1.9	9.5
18 (30-06 May)	41.4	20.1	56.0	27.0	0.0	8.5	1.4	7.3
LUDHIANA	**Latitude 30^{0}54' N**		**Longitude 75^{0}52' E**			**Height above MSL 247 m**		
43 (22-28 Oct)	31.1	13.3	85.0	23.0	0.0	19.8	1.9	6.2
44 (29-04 Nov)	29.1	11.2	88.0	23.0	0.0	17.8	1.9	6.0
45 (05-11 Nov)	28.5	10.2	92.0	26.0	0.0	13.0	1.3	6.0
46 (12-18 Nov)	24.8	10.9	88.0	43.0	14.6	10.2	2.9	4.4
47 (19-25 Nov)	21.5	7.9	89.0	39.0	1.0	12.2	2.4	5.2
48 (26-02 Dec)	24.2	8.8	93.0	34.0	0.0	10.8	2.2	8.3
49 (03-09 Dec)	24.6	11.4	89.0	47.0	0.0	10.6	3.5	4.6
50 (10-16 Dec)	17.4	9.3	90.0	64.0	4.2	9.2	4.7	3.8
51 (17-23 Dec)	18.6	3.5	91.0	39.0	0.0	7.2	2.3	7.2
52 (24-31 Dec)	15.8	4.2	96.0	63.0	18.0	8.2	2.9	4.1
1 (01-07 Jan)	17.6	10.0	91.0	75.0	11.0	7.4	3.2	0.5
2 (08-14 Jan)	14.0	6.8	93.0	71.0	0.0	6.4	3.5	1.8
3 (15-21 Jan)	16.6	6.9	96.0	70.0	0.0	4.4	3.8	3.0
4 (22-28 Jan)	17.9	6.4	93.0	55.0	0.0	8.4	4.1	4.6
5 (29-04 Feb)	20.6	6.3	89.0	39.0	17.0	12.4	3.6	6.5
6 (05-11 Feb)	21.3	7.3	95.0	58.0	0.0	11.4	2.3	7.4
7 (12-18 Feb)	22.5	10.8	96.0	69.0	0.0	7.2	1.6	5.4
8 (19-25 Feb)	26.8	11.6	96.0	47.0	0.0	14.8	1.8	14.8
9 (26-04 Mar)	27.8	11.9	90.0	38.0	0.0	24.3	3.3	9.8

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)	29.7	15.3	80.0	42.0	0.0	25.4	5.5	7.5
11 (12-18 Mar)	28.6	15.2	81.0	39.0	0	23.0	3.4	4.2
12 (19-25 Mar)	29.1	15.2	84.0	35.0	5.0	28.6	5.9	6.1
13 (26-01 Apr)	32.2	15.6	73.0	25.0	0.0	34.6	5.1	9.7
14 (02-08 Apr)	32.2	14.6	55.0	16.0	3.0	41.6	5.0	8.1
15 (09-15 Apr)	36.0	17.5	49.0	11.0	0.0	50.8	4.6	9.5
16 (16-22 Apr)	32.0	12.9	64.0	31.0	6.0	41.4	5.4	5.7
PANTNAGAR	**Latitude 29^0 N**		**Longitude 79^0 30´E**			**Height above MSL 243.84 m**		
40 (01-07 Oct)	34.2	21.3	89.0	53.0	0.0	4.5	0.7	8.9
41 (08-14 Oct)	34.0	19.2	83.0	48.0	0.0	4.1	0.7	9.1
42 (15-21 Oct)	33.0	17.4	88.0	47.0	0.0	3.7	1.1	7.9
43 (22-28 Oct)	31.0	13.1	85.0	40.0	0.0	3.7	1.8	7.0
44 (29-04 Nov)	30.4	12.4	92.0	37.0	0.0	3.4	1.4	4.3
45 (05-11 Nov)	28.5	12.3	89.0	37.0	0.0	3.5	1.3	6.3
46 (12-18 Nov)	28.5	11.3	92.0	36.0	0.0	3.0	1.9	8.1
47 (19-25 Nov)	25.1	8.7	93.0	43.0	0.0	2.9	2.2	7.5
48 (26-02 Dec)	25.0	8.6	94.0	42.0	0.0	2.2	1.0	6.1
49 (03-09 Dec)	25.7	10.1	94.0	50.0	0.0	2.7	1.3	6.4
50 (10-16 Dec)	20.8	9.7	93.0	67.0	2.5	1.7	3.4	3.3
51 (17-23 Dec)	16.0	4.1	95.0	65.0	0.0	1.0	2.5	3.1
52 (24-31 Dec)	20.8	4.1	96.0	55.0	0.0	1.5	1.9	5.4
1 (01-07 Jan)	20.3	9.2	94.0	62.0	18.6	2.1	2.8	3.1
2 (08-14 Jan)	18.7	8.7	97.0	72.0	0.0	2.0	5.6	3.9
3 (15-21 Jan)	18.2	7.5	96.0	69.0	0.0	1.7	2.7	3.7
4 (22-28 Jan)	16.6	8.8	96.0	75.0	0.0	1.5	2.8	1.6
5 (29-04 Feb)	18.8	6.1	96.0	61.0	0.0	1.8	1.1	4.5
6 (05-11 Feb)	23.7	7.8	94.0	53.0	4.6	2.7	2.8	6.7
7 (12-18 Feb)	25.7	9.0	91.0	45.0	0.0	2.5	1.4	7.1
8 (19-25 Feb)	26.9	9.9	89.0	48.0	0.0	2.9	1.8	6.7
9 (26-04 Mar)	29.3	11.2	90.0	37.0	0.0	4.2	5.8	9.2
10 (05-11 Mar)	29.6	14.2	83.0	46.0	0.0	4.2	3.8	7.6
11 (12-18 Mar)	30.3	13.6	86.0	36.0	0.0	3.9	2.5	7.0
12 (19-25 Mar)	32.6	14.1	82.0	27.0	0.0	6.1	4.2	8.0
13 (26-01 Apr)	33.4	14.6	84.0	23.0	0.0	6.0	4.3	7.9
14 (02-08 Apr)	34.4	13.9	59.0	14.0	0.0	7.2	4.9	6.5
15 (09-15 Apr)	37.5	14.1	59.0	11.0	0.0	7.7	3.8	10.0
16 (16-22 Apr)	36.8	17.8	57.0	17.0	0.7	8.3	5.2	8.4
17 (23-29 Apr)	36.7	17.1	52.0	16.0	0.0	7.6	3.0	10.3
SRIGANGANAGAR		**Latitude 29^0 66' N**			**Longitude 75^0 53'E**		**Height Above MSL 175 m**	
40(01-07 Oct)	37.7	18.0	77.7	40.6	0.0			9.0
41(08-14 Oct)	37.3	15.8	82.7	38.6	0.0			9.2
42(15-21 Oct)	35.1	13.1	80.9	40.6	0.0			8.2
43(22-28 Oct)	32.3	11.7	81.1	33.1	0.0			6.0
44(29-04 Nov)	31.4	9.7	84.7	44.9	0.0			4.9
45(05-11 Nov)	31.4	9.0	82.0	57.7	0.0			5.8
46(12-18 Nov)	26.4	10.2	79.9	61.9	1.0			4.2
47(19-25 Nov)	24.4	7.3	80.0	48.7	0.0			5.7
48(26-02 Dec)	25.2	7.0	79.7	57.4	0.0			7.0
49(03-09 Dec)	25.8	7.7	87.0	72.3	0.0			4.8
50(10-16 Dec)	17.5	6.9	87.0	59.4	2.8			3.5
51(17-23 Dec)	21.2	1.7	89.0	73.4	0.0			6.2
52(24-31 Dec)	19.8	2.7	88.9	81.9	0.0			5.8
1(01-07 Jan)	16.7	6.5	88.0	70.3	8.9			0.9
2(08-14 Jan)	16.5	3.6	90.6	72.4	0.0			3.1
3(15-21 Jan)	17.6	4.3	89.0	50.0	0.0			3.1
4(22-28 Jan)	21.6	3.8	83.1	48.0	0.0			6.9
5(29-04 Feb)	22.5	3.9	80.6	57.0	0.0			6.7
6(05-11 Feb)	24.2	4.5	84.1	61.6	0.0			7.6

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
7(12-18 Feb)	27.3	8.3	87.6	49.9	0.0			7.1
8(19-25 Feb)	29.7	8.3	81.9	43.7	0.0			7.1
9(26-04 Mar)	29.9	9.8	78.4	40.4	0.0			7.6
10(05-11 Mar)	31.1	12.3	81.4	38.4	0.0			6.6
11(12-18 Mar)	30.8	13.6	81.0	45.3	0.0			6.3
12(19-25 Mar)	30.4	14.3	80.0	31.7	6.8			6.8
13(26-01 Apr)	33.3	14.7	80.1	16.1	0.0			8.0
14(02-08 Apr)	34.0	13.3	71.7	21.7	0.0			7.6
15(09-15 Apr)	37.6	14.7	55.7	38.4	0.0			8.0
16 (16-22 Apr)	33.4	17.2	62.1	20.6	4.8			6.0
17 (23-29 Apr)	38.6	16.1	63.1	40.6	0.0			8.3

NORTH EASTERN PLAINS ZONE

Ayodhya	**Latitude 26.470 N**			**Longitude 82.120**			**Height above MSL 113 m**	
40(01-07 Oct)	34.4	23.0	94.1	53.1				6.3
41(08-14 Oct)	34.3	21.4	90.2	50.4				5.6
42(15-21 Oct)	34.2	21.8	92.2	44.1				3.5
43(22-28 Oct)	32.9	16.4	91.0	36.2				6.3
44(29-04 Nov)	31.3	13.5	89.5	32.0				4.6
45(05-11 Nov)	30.0	11.7	92.0	33.2				6.3
46(12-18 Nov)	28.1	14.8	92.8	49.5				7.8
47(19-25 Nov)	25.9	10.2	92.0	36.0				7.0
48(26-02 Dec)	26.8	8.8	91.5	36.7				7.6
49(03-09 Dec)	27.3	10.2	93.7	47.1				7.7
50(10-16 Dec)	22.7	11.0	90.7	57.7				5.1
51(17-23 Dec)	20.5	5.1	91.5	45.2				6.7
52(24-31 Dec)	23.0	5.1	91.5	42.1				7.1
1(01-07 Jan)	24.2	9.5	87.4	45.4				7.4
2(08-14 Jan)	21.3	8.8	89.2	59.1				5.2
3(15-21 Jan)	18.5	7.4	86.0	64.4				1.8
4(22-28 Jan)	16.8	7.0	96.7	72.2				6.0
5(29-04 Feb)	21.1	5.5	93.5	48.8				7.0
6(05-11 Feb)	25.5	9.0	88.7	45.5				4.9
7(12-18 Feb)	27.2	9.5	93.1	43.1				5.8
8(19-25 Feb)	28.2	11.7	88.5	44.1				2.8
9(26-04 Mar)	30.2	13.2	75.4	42.2				3.7
10(05-11 Mar)	31.8	14.2	77.2	51.4				4.5
11(12-18 Mar)	32.2	15.2	85.7	47.2				6.3
12(19-25 Mar)	34.6	16.5	75.7	38.4				6.8
13(26-01 Apr)	35.6	16.4	77.0	35.7				7.6
14(02-08 Apr)	37.6	17.0	64.2	24.4				7.0
15(09-15 Apr)	33.3	18.8	47.2	27.8				6.6
16 (16-22 Apr)	37.9	20.1	56.1	35.2				6.2
17 (23-29 Apr)	38.0	18.0	82.0	38.0				6.8
BURDWAN	**Latitude 23^{0}15' N**			**Longitude 87^{0}52'E**			**Height above MSL 32 m**	
40 (01-07 Oct)	32.6	25.4			88.1			
41 (08-14 Oct)	33.1	26.2			0			
42 (15-21 Oct)	33.9	25.5			0			
43 (22-28 Oct)	31.1	22.4			0			
44 (29-04 Nov)	31.5	21.8			6.4			
45 (05-11 Nov)	30	17			0			
46 (12-18 Nov)	31.4	17.6			0			
47 (19-25 Nov)	28.4	16.1			4.6			
48 (26-02 Dec)	28.4	14.9			0			
49 (03-09 Dec)	28.7	14			0			
50 (10-16 Dec)	25.7	15.2			0			
51 (17-23 Dec)	24.2	12.1			0			
52 (24-31 Dec)	25.3	10			0			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
1 (01-07 Jan)	26.9	11.4			0			
2 (08-14 Jan)	27.6	15.7			0			
3 (15-21 Jan)	23.7	10.9			0			
4 (22-28 Jan)	23.7	11.2			0			
5 (29-04 Feb)	22.7	8.2			0			
6 (05-11 Feb)	26.7	13			2.2			
7 (12-18 Feb)	28	14.5			0			
8 (19-25 Feb)	29.5	17.1			0			
9 (26-04 Mar)	34.6	19.1			0			
10 (05-11 Mar)	33.5	20.5			4.6			
11 (12-18 Mar)	31.9	20.2			0			
12 (19-25 Mar)	32.6	25.4			88.1			
COOCHBEHAR	**Latitude 26^{0}19'86" N**			**Longitude 89^{0}23'53" E**			**Height above MSL 43 m**	
45 (05-11 Nov)	30.5	14.0	64.0	45.6	0			
46 (12-18 Nov)	31.1	13.6	63.9	43.1	0			
47 (19-25 Nov)	27.2	12.7	80.9	52.6	0			
48 (26-02 Dec)	28.3	11.1	67.9	49.9	0			
49 (03-09 Dec)	29.0	11.7	74.7	53.4	0			
50 (10-16 Dec)	24.3	12.9	89.1	68.1	0			
51 (17-23 Dec)	24.2	8.3	81.9	55.1	0			
52 (24-31 Dec)	25.6	8.2	82.9	48.9	0			
1 (01-07 Jan)	26.2	8.3	67.7	46.7	0			
2 (08-14 Jan)	21.9	10.1	92.9	75.3	0			
3 (15-21 Jan)	22.5	8.0	89.6	74.6	0			
4 (22-28 Jan)	22.6	7.8	90.4	64.3	0			
5 (29-04 Feb)	23.6	6.1	91.1	55.0	0			
6 (05-11 Feb)	27.3	7.5	76.0	40.4	0			
7 (12-18 Feb)	28.0	9.9	81.3	43.6	0			
8 (19-25 Feb)	29.3	10.5	76.0	41.6	0			
9 (26-04 Mar)	28.7	13.1	76.7	51.4	0			
10 (05-11 Mar)	29.2	13.7	69.1	51.6	4.7			
11 (12-18 Mar)	30.7	16.0	71.0	47.6	9			
12 (19-25 Mar)	33.1	15.8	65.4	41.9	0			
13 (26-01 Apr)	30.6	14.5	66.0	49.0	0			
14 (02-08 Apr)	32.8	14.6	58.6	45.7	0			
IARI PUSA BIHAR	**Latitude 25^{0}98' N**			**Longitude 85^{0}67' E**			**Height above MSL 52.1 m**	
40 (01-07 Oct)	32.8	26.5	89	80	0.0	2.4		4.4
41 (08-14 Oct)	33.8	25.8	86	77	0.0	3.4		7.3
42 (15-21 Oct)	34.0	25.0	88	69	0.0	3.0		7.0
43 (22-28 Oct)	32.0	22.2	91	66	0.0	2.4		8.1
44 (29-04 Nov)	31.3	18.9	85	47	0.0	3.0		8.5
45 (05-11 Nov)	29.9	15.5	85	55	0.0	2.5		8.3
46 (12-18 Nov)	30.0	18.6	82	51	0.0	3.0		8.8
47 (19-25 Nov)	26.6	14.4	86	62	0.0	1.4		6.8
48 (26-02 Dec)	26.8	13.0	92	59	0.0	1.5		6.5
49 (03-09 Dec)	23.1	12.1	96	79	0.0	0.7		0.0
50 (10-16 Dec)	22.7	12.0	95	72	0.0	0.6		0.9
51 (17-23 Dec)	19.8	8.4	96	71	0.0	0.7		3.8
52 (24-31 Dec)	22.9	8.0	94	65	0.0	1.2		6.8
1 (01-07 Jan)	24.5	11.2	95	66	0.0	1.7		6.4
2 (08-14 Jan)	21.7	11.0	95	68	0.0	1.7		4.9
3 (15-21 Jan)	15.6	8.2	94	77	0.0	0.7		0.2
4 (22-28 Jan)	16.9	8.3	95	82	0.0	0.7		2.0
5 (29-04 Feb)	19.4	7.2	94	74	0.0	1.2		3.2
6 (05-11 Feb)	24.6	10.7	90	63	0.0	2.0		7.5
7 (12-18 Feb)	26.0	12.2	93	71	0.0	1.7		6.1
8 (19-25 Feb)	28.1	14.0	90	59	0.0	2.4		9.0
9 (26-04 Mar)	29.2	15.5	84	55	0.0	3.2		9.6
10 (05-11 Mar)	30.3	16.9	93	64	0.0	3.1		8.8

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
11 (12-18 Mar)	30.1	17.6	89	57	0.0	2.8		7.2
12 (19-25 Mar)	33.9	19.0	82	42	0.0	3.6		7.7
13 (26-01 Apr)	34.3	17.0	86	48	0.0	4.1		8.6
KALYANI	**Latitude 22^{0}57'N**		**Longitude 88^{0}20'E**			**Height above MSL 9.75 m**		
40 (01-07 Oct)	34.01	25.92	94.86	71.57	13.44	2.27	0.9	7.16
41 (08-14 Oct)	34.4	26.2	-	62.57	0	2.77	0.71	7.96
42 (15-21 Oct)	30.27	23.81	94.71	73.86	2.07	1.93	1.78	5.34
43 (22-28 Oct)	32.14	22.5	91.0	63.28	0	2.23	1.06	7.91
44 (29-04 Nov)	31.03	16.91	89.43	42.57	0	2.4	0.18	8.86
45 (05-11 Nov)	31.66	17.86	87	44.86	0	2.71	1.43	9.47
46 (12-18 Nov)	28.7	17.48	88.14	53	0.43	1.8	0.8	5.23
47 (19-25 Nov)	27.17	14.5	88.71	48		1.67	1.28	6.1
48 (26-02 Dec)	28.46	14.5	89.86	53.14	0	1.38	0.27	4.64
49 (03-09 Dec)	24.9	14.56	97.0	65.28	0	0.84	0	2.43
50 (10-16 Dec)	23.93	11.21	90.86	45.28	0	1.6	0	5.67
51 (17-23 Dec)	24.92	9.14	89.43	43.71	0	1.32	0	6.96
52 (24-31 Dec)	25.66	9.83	89.71	73.54		1.44	1.23	738
1 (01-07 Jan)	28.43	15.17	89.43	50.28	0	1.77	0.87	5.54
2 (08-14 Jan)	22.93	11.33	92.43	55.86	0	1.34	1.37	0.2
3 (15-21 Jan)	24.28	12.56	94.28	-		1.33	1.07	3.57
4 (22-28 Jan)	23.3	8.63	88.86	-	0	1.67	1.53	6.26
5 (29-04 Feb)	27.06	11.1	88.43	-	0.16	2.1	1.37	7.66
6 (05-11 Feb)	29.6	13.98	89.86	41.0	0	2.3	0.93	6.11
7 (12-18 Feb)	29.53	15.08	89.57	43.86	0	2.13	0.88	4.7
8 (19-25 Feb)	35	19.11	89.71	28.57	0	3.56	1.03	8.18
9 (26-04 Mar)	34.36	19.21	88.28	36	0	3.76	1.24	7.04
10 (05-11 Mar)	33.18	20.76	91.14	46.71	0	3.23	1.53	4.97
11 (12-18 Mar)	37.21	20.33	84.71	27.86	0	4.57	0.97	7.77
12 (19-25 Mar)	37.46	22.66	87.0	32.46	0	4.18	1.31	6.77
13 (26-01 Apr)	36.54	23.77	88.57	37.28	1.51	4.77	1.95	7.97
14 (02-08 Apr)	36.64	25.25	85.85	44.57	0	4.61	3.12	7.04
15 (09-15 Apr)	36.85	24.6	82.0	41.14	2.14	4.82	2.91	8.05
16 (16-22 Apr)	37.83	24.78	82.43	45.0	0.043	4.94	2.31	7.88
17 (23-29 Apr)	34.01	25.92	94.86	71.57	13.44	2.27	0.9	7.16
RANCHI	**Latitude 23^{0}21'N**		**Longitude 85^{0}20'E**			**Height above MSL 629 m**		
40 (01-07 Oct)	28.9	21.7	85	69	12.2	22.6	2.6	48.5
41 (08-14 Oct)	28.3	21.2	84	69	2	22.9	2.5	39
42 (15-21 Oct)	29.1	20.7	87	69	0	24.9	3.1	51.6
43 (22-28 Oct)	26.2	17.8	83	70	0	20.9	3.5	22.7
44 (29-04 Nov)	26.3	14.3	86	68	0	21.9	2.6	57.9
45 (05-11 Nov)	27.0	14.5	84	68	0	21.8	2.2	43.3
46 (12-18 Nov)	27.3	12.9	86	69	0	24.3	2.2	59.3
47 (19-25 Nov)	27.3	10.6	84	68	10	17.9	2.5	61.9
48 (26-02 Dec)	26.6	11.3	86	68	0	19.2	2.7	56
49 (03-09 Dec)	23.3	6.9	84	69	0	0.0	2.7	62.9
50 (10-16 Dec)	25.9	10.9	86	68	0	0.0	3.6	29.9
51 (17-23 Dec)	22.1	6.5	86	69	0	0.0	3.4	53.3
52 (24-31 Dec)	22.1	4.3	84	69	0	0.0	3.5	44.7
1 (01-07 Jan)	25.1	9.1	86	68	0	0.0	2.6	58.8
2 (08-14 Jan)	27.3	12.3	86	69	0	0.0	2.5	55.4
3 (15-21 Jan)	23.4	4.2	85	68	0	0.0	3.1	63.7
4 (22-28 Jan)	24.6	5.2	87	69	0	0.0	2.7	66.7
5 (29-04 Feb)	22.6	4.0	85	68	0	0.0	3.7	57.3
6 (05-11 Feb)	26.6	6.2	87	69	4	0.0	2.5	64.2
7 (12-18 Feb)	26.7	9.6	86	69	0	0.0	2.5	56.9
8 (19-25 Feb)	27.3	11.9	88	69	0	17.8	2.7	52
9 (26-04 Mar)	34.0	13.8	86	70	0	22.2	3.2	64.2
10 (05-11 Mar)	35.0	15.5	88	70	18.4	24.8	2.7	63.8
11 (12-18 Mar)	32.4	14.0	85	69	0	20.8	2.6	47.2

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
12 (19-25 Mar)	34.8	17.5	86	70	0	20.4	2.0	57.2
13 (26-01 Apr)	35.6	16.8	87	69	0	23.8	2.7	67.2
14 (02-08 Apr)	38.8	17.7	83	68	0	23.8	2.8	65.0
15 (09-15 Apr)	38.2	17.8	86	68	2	22.4	2.5	62.2
16 (16-22 Apr)	35.3	18.0	83	68	0	21.4	2.8	54.4
17 (23-29 Apr)	35.8	21.5	85	68	0	22	2.5	59.3
18 (30-06 May)	32.8	21.4	86	70	0	22.7	2.9	0.0
RAU PUSA BIHAR	**Latitude 25.98^0 N**			**Longitude 85.67^0 E**			**Height above MSL 52.0 m**	
40 (01-07 Oct)	32.8	26.5	89	80	0	2.4		4.4
41 (08-14 Oct)	33.8	25.8	86	77	0	3.4		7.3
42 (15-21 Oct)	34	25	88	69	0	3		7
43 (22-28 Oct)	32	22.2	91	66	0	2.4		8.1
44 (29-04 Nov)	31.3	18.9	85	47	0	3		8.5
45 (05-11 Nov)	29.9	15.5	85	55	0	2.5		8.3
46 (12-18 Nov)	30	18.6	82	51	0	3		8.8
47 (19-25 Nov)	26.6	14.4	86	62	0	1.4		6.8
48 (26-02 Dec)	26.8	13	92	59	0	1.5		6.5
49 (03-09 Dec)	23.1	12.1	96	79	0	0.7		0
50 (10-16 Dec)	22.7	12	95	72	0	0.6		0.9
51 (17-23 Dec)	19.8	8.4	96	71	0	0.7		3.8
52 (24-31 Dec)	22.9	8	94	65	0	1.2		6.8
1 (01-07 Jan)	24.46	11.24	94.71	65.71	0.00	1.69		6.40
2 (08-14 Jan)	21.67	10.96	95.29	68.43	0.00	1.74		4.93
3 (15-21 Jan)	15.60	8.23	93.71	77.43	0.00	0.69		0.17
4 (22-28 Jan)	16.94	8.27	94.71	82.14	0.00	0.69		2.03
5 (29-04 Feb)	19.44	7.20	94.29	74.00	0.00	1.20		3.20
6 (05-11 Feb)	24.61	10.69	90.29	62.86	0.00	2.00		7.49
7 (12-18 Feb)	26.04	12.24	93.14	71.00	0.00	1.69		6.14
8 (19-25 Feb)	28.09	13.99	90.29	58.86	0.00	2.40		9.03
9 (26-04 Mar)	29.24	15.53	84.14	55.14	0.00	3.17		9.56
10 (05-11 Mar)	30.34	16.91	92.86	64.00	0.00	3.11		8.83
11 (12-18 Mar)	30.14	17.60	88.57	56.86	0.00	2.79		7.16
12 (19-25 Mar)	33.91	18.97	82.00	42.00	0.00	3.60		7.72
13 (26-01 Apr)	29.36	14.56	73.29	41.00	0.00	3.49		7.36
SABOUR	**Latitude 25^0 23' N**			**Longitude 87^0 07' E**			**Height above MSL 37.1m**	
40 (01-07 Oct)	34.2	24.7	85.6	75.9	19.0			
41 (08-14 Oct)	34.9	23.5	87.0	76.1	0.0			
42 (15-21 Oct)	33.0	21.1	86.6	76.9	0.0			
43 (22-28 Oct)	31.6	16.9	85.4	80.9	0.0			
44 (29-04 Nov)	30.5	15.8	86.6	74.9	0.0			
45 (05-11 Nov)	32.1	17.7	86.1	72.1	0.0			
46 (12-18 Nov)	30.1	13.8	83.4	74.4	0.0			
47 (19-25 Nov)	28.3	12.3	86.9	76.9	0.0			
48 (26-02 Dec)	27.0	11.7	86.0	76.7	0.0			
49 (03-09 Dec)	22.0	12.9	87.3	73.0	0.0			
50 (10-16 Dec)	22.3	10.3	90.0	79.6	0.0			
51 (17-23 Dec)	22.8	8.8	93.0	76.0	0.0			
52 (24-31 Dec)	11.6	9.1	76.3	0.0	0.0			
1 (01-07 Jan)	12.8	9.1	77.0	0.0	0.0			
2 (08-14 Jan)	10.3	9.4	80.3	0.0	0.0			
3 (15-21 Jan)	10.4	9.9	80.7	0.0	0.0			
4 (22-28 Jan)	7.7	9.9	73.6	0.0	0.0			
5 (29-04 Feb)	11.6	8.6	59.9	0.0	0.0			
6 (05-11 Feb)	13.5	8.8	68.9	0.0	0.0			
7 (12-18 Feb)	14.7	8.9	65.4	0.0	0.0			
8 (19-25 Feb)	16.1	8.2	63.6	0.0	0.0			
9 (26-04 Mar)	17.6	9.2	67.0	0.0	0.0			
10 (05-11 Mar)	18.5	8.8	62.4	0.4	0.0			
11 (12-18 Mar)	20.7	8.3	46.7	0.0	0.4			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
12 (19-25 Mar)	21.9	8.0	38.3	0.0	0.0			
13 (26-01 Apr)	23.0	8.5	55.1	0.0	0.0			
14 (02-08 Apr)	24.8	7.9	65.7	0.0	0.0			
SHILLONGANI	**Latitude 26^0 21' N**		**Longitude 90^{0}45' E**			**Height above MSL 50.2 m**		
40 (01-07 Oct)	32.6	21.4	90.6	83.7	147.8	18.3	1.7	
41 (08-14 Oct)	33.6	22.0	91.1	72.4	0	20.8	1.1	
42 (15-21 Oct)	34.0	22.1	91.0	75.3	42	22	1.1	
43 (22-28 Oct)	29.9	19.4	92.3	86.6	76.4	17	1.4	
44 (29-04 Nov)	31.4	20.2	91.7	73.1	0	19.9	1.0	
45 (05-11 Nov)	29.2	16.2	90.9	66.6	0	20	1.0	
46 (12-18 Nov)	29.9	14.7	91.1	71.7	0	18.7	1.1	
47 (19-25 Nov)	25.7	13.3	90.7	74.7	0	18.9	1.2	
48 (26-02 Dec)	27.3	10.9	88.0	64.7	0	21	1.0	
49 (03-09 Dec)	26.0	11.8	88.6	71.4	18	20.8	1.3	
50 (10-16 Dec)	25.1	11.9	88.4	73.3	0	20.4	1.1	
51 (17-23 Dec)	23.8	10.3	87.9	70.1	4.4	19.4	1.1	
52 (24-31 Dec)	23.9	8.4	87.6	64.9	0	22.7	1.2	
1 (01-07 Jan)	24.4	8.1	88.7	58.6	0.0	21.4	-0.3	
2 (08-14 Jan)	23.7	11.4	90.0	72.9	0.0	21.0	0.1	
3 (15-21 Jan)	21.4	9.2	92.1	75.0	15.2	18.6	-0.2	
4 (22-28 Jan)	22.9	9.4	90.6	68.4	0.0	18.6	0.6	
5 (29-04 Feb)	24.2	9.0	90.0	60.6	0.0	21.5	1.7	
6 (05-11 Feb)	26.4	9.5	91.1	51.6	0.0	22.1	1.5	
7 (12-18 Feb)	26.6	10.2	90.7	52.1	0.0	21.0	1.4	
8 (19-25 Feb)	27.9	11.0	87.0	51.6	0.0	22.0	1.5	
9 (26-04 Mar)	26.7	13.5	89.9	60.8	4.4	22.2	2.1	
10 (05-11 Mar)	26.9	13.1	90.7	61.3	9.4	19.6	2.0	
11 (12-18 Mar)	30.3	15.1	88.9	56.1	0.0	22.2	1.3	
12 (19-25 Mar)	31.9	16.1	86.9	48.9	0.0	22.9	1.3	
13 (26-01 Apr)	30.5	13.9	89.3	60.1	16.1	22.3	1.6	
14 (02-08 Apr)	31.6	15.7	90.7	51.3	21.2	20.2	1.9	
15 (09-15 Apr)	32.4	16.9	82.1	58.1	6.0	20.6	2.0	
16 (16-22 Apr)	31.0	16.2	86.3	62.3	33.6	20.4	2.2	
17 (23-29 Apr)	34.6	18.1	83.6	49.4	1.5	21.7	2.2	
VARANASI	**Latitude 25^0 20' N**		**Longitude 83^0 03' E**			**Height above MSL 128.93 m**		
40 (01-07 Oct)	32.2	23.7	91	73	26	3.2	1.9	6.2
41 (08-14 Oct)	33.6	24.5	88	65	0	3.5	1.9	8.2
42 (15-21 Oct)	34.1	24.4	90	59	0	3	1.7	7.6
43 (22-28 Oct)	32.4	21.1	90	62	32.4	2.2	1.7	5.9
44 (29-04 Nov)	30.3	16.6	78	40	0	2.3	1.2	7.1
45 (05-11 Nov)	29.6	13.9	90	48	0	2.1	1.9	5.6
46 (12-18 Nov)	25	18.1	89	54	0	2.2	1.8	5.6
47 (19-25 Nov)	26.3	12.5	91	48	13.2	1.9	1.2	4.5
48 (26-02 Dec)	26.3	11.1	92	43	0	1.6	0.9	5.8
49 (03-09 Dec)	27.7	12	93	53	0	1.2	1.8	3.5
50 (10-16 Dec)	23.9	14.8	93	64	3.6	1.4	NR	2.1
51 (17-23 Dec)	20.5	7.5	91	59	0	1.3	NR	5.6
52 (24-31 Dec)	22.3	7.8	94	49	0	1.2	NR	5.2
1 (01-07 Jan)	25.4	12.3	90	54	0	1.1	NR	3.3
2 (08-14 Jan)	21.7	13	92	59	0	1.6	NR	2.3
3 (15-21 Jan)	19.4	8.1	95	65	0	1	NR	0.2
4 (22-28 Jan)	17.5	9.2	95	71	0	1	NR	2.2
5 (29-04 Feb)	22.3	7.3	96	46	0	1.25	NR	4.5
6 (05-11 Feb)	24.6	10.8	91	50	0.6	1.7	NR	6.5
7 (12-18 Feb)	28.4	12.4	90	37	0	1.9	NR	7.6
8 (19-25 Feb)	29	13.7	85	41	0	2.6	NR	7.3
9 (26-04 Mar)	30.7	15.4	79	34	0	3.8	NR	9.1
10 (05-11 Mar)	32.7	17	88	36	0	4.5	NR	6.5
11 (12-18 Mar)	32.3	17.7	87	39	0	6.3	NR	4.7

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
12 (19-25 Mar)	34.5	20.7	64	40	0	5.1	NR	4.4
13 (26-01 Apr)	36	17.8	73	23	0	5.6	NR	5.6
14 (02-08 Apr)	38.8	18.9	74	20	0	6.3	NR	6.5
15 (09-15 Apr)	35.3	20.2	60	25	0	6.9	NR	2.9
16 (16-22 Apr)	37.3	22.1	58	38	0	6.4	NR	6

CENTRAL ZONE

Bilaspur	Latitude 22^{0}9' N		Longitude 82^{0}12'E			Height above MSL 292.3 m		
40 (01-07 Oct)	32.0	23.1	92.4	73.7	7.5	2.3	0.6	3.1
41 (08-14 Oct)	31.8	23.8	94.9	74.4	6.1	2.5	2.1	5.8
42 (15-21 Oct)	32.0	22.5	89.6	69.3	0.0	3.0	1.3	5.8
43 (22-28 Oct)	32.1	18.7	90.4	52.6	0.0	3.0	0.2	6.2
44 (29-04 Nov)	31.6	16.1	75.5	45.8	0.0	3.2	1.7	9.1
45 (05-11 Nov)	30.2	12.3	87.4	49.1	0.0	2.8	0.9	8.3
46 (12-18 Nov)	31.9	18.0	93.3	55.9	0.0	2.4	0.8	8.3
47 (19-25 Nov)	29.9	14.5	85.7	65.3	0.0	2.6	1.1	8.0
48 (26-02 Dec)	27.8	13.3	91.7	56.7	1.1		0.8	6.7
49 (03-09 Dec)	30.3	11.2	95.4	48.0	0.0	2.7	0.2	9.0
50 (10-16 Dec)	28.1	15.6	91.6	60.3	0.5	1.7	0.5	3.9
51 (17-23 Dec)	26.5	9.2	91.0	43.1	0.0	1.9	0.7	8.1
52 (24-31 Dec)	27.4	9.9	90.9	47.1	0.0	2.3	0.4	7.5
1 (01-07 Jan)	28.6	13.9	93.7	52.7	0.0	2.0	0.4	5.1
2 (08-14 Jan)	30.1	15.8	77.4	51.1	0.0	2.6	0.3	7.1
3 (15-21 Jan)	28.2	9.4	93.7	40.9	0.0	2.6	0.4	8.3
4 (22-28 Jan)	28.7	12.5	86.6	53.0	0.0	2.7	0.6	6.3
5 (29-04 Feb)	27.0	8.9	87.7	45.9	1.3	2.4	0.4	8.5
6 (05-11 Feb)	28.8	10.2	89.9	44.0	0.0	2.9	0.4	9.3
7 (12-18 Feb)	29.1	13.9	89.9	62.6	3.2	2.7	1.0	5.7
8 (19-25 Feb)	29.9	13.7	88.1	49.3	0.0	2.9	0.1	8.9
9 (26-04 Mar)	34.7	14.1	79.4	40.4	0.0	4.3	0.8	9.8
10 (05-11 Mar)	35.6	15.5	82.9	40.4	0.0	4.2	1.0	8.7
11 (12-18 Mar)	34.1	17.4	75.7	44.6	0.8	4.6	1.2	7.1
12 (19-25 Mar)	34.4	18.2	76.4	46.3	0.0	4.3	0.7	5.8
13 (26-01 Apr)	38.1	18.3	62.7	35.8	0.0	5.6	1.3	8.9

Dhanduka	Latitude 22.5N/S		Longitude 72.5 E/W			Height above MSL 39.78 m		
40 (01-07 Oct)	32.2	19.2	72.5	50.7	0		2.3	4.9
41 (08-14 Oct)	36.2	17.4	59.4	29.2	0		2.2	6.1
42 (15-21 Oct)	36.6	22.1	75.5	57.5	0		3.4	5.6
43 (22-28 Oct)	34.4	15.3	56.2	26.2	0		1.7	6.5
44 (29-04 Nov)	34.4	16.2	50.2	25.6	0		1.8	7.8
45 (05-11 Nov)	33.5	15.9	56.1	27.6	0		2.1	8.1
46 (12-18 Nov)	33.1	18.3	53.5	28.8	0		2.2	8.1
47 (19-25 Nov)	31.1	15.8	49.1	29.2	0		1.6	8.3
48 (26-02 Dec)	30.4	17.5	50.4	30.2	0		2.8	8.2
49 (03-09 Dec)	32.8	15.1	52.4	33.8	0		1.4	8.1
50 (10-16 Dec)	28.7	17.4	69.1	48.7	0		1.9	7.9
51 (17-23 Dec)	26.8	12.7	53.1	35.1	0		1.9	7.4
52 (24-31 Dec)	27.3	12.4	51.2	29.8	0		2.8	8.2
1 (01-07 Jan)	25.8	14.9	50.7	37.8	0		2.1	8.1
2 (08-14 Jan)	28.1	16.3	62.1	49.2	0		2.6	8.3
3 (15-21 Jan)	30.8	13.2	52.8	38.7	0		1.4	7.9
4 (22-28 Jan)	27.5	11.2	51.4	35.2	0		2.8	8.1
5 (29-04 Feb)	29.6	11.4	49.2	27.1	0		2.1	8.3
6 (05-11 Feb)	31	13.4	45.7	25.6	0		1.8	7.7

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
7 (12-18 Feb)	32.9	13.2	50.5	28.5	0		3.1	8.5
8 (19-25 Feb)	34.6	14.2	44.1	14.2	0		2.7	8.6
9 (26-04 Mar)	37.6	15.7	47.4	25.7	0		2.6	9.1
10 (05-11 Mar)	37.5	17.5	42.7	22.5	0		3.2	8.9
11 (12-18 Mar)	38.1	19.1	47.5	24.1	0		3.4	9.5
12 (19-25 Mar)	37.8	20.6	44.4	22.2	0		3.1	9.6
13 (26-01 Apr)	39.2	21.4	42.2	21.2	0		4.5	9.5
14 (02-08 Apr)	40.4	21.5	42.8	30.4	0		3.9	9.7
15 (09-15 Apr)	41.2	21.8	41.1	23.1	0		5.2	9.5
16 (16-22 Apr)	41.2	22.3	42.3	22.7	0		5.5	9.8
17 (23-29 Apr)	42.0	21.8	44.5	22.9	0		4.9	9.5
18 (30-06 May)	42.1	20.6	39.6	20.7	0		3.9	9.6
Gwalior	**Latitude 26.13^0 N**		**Longitude 78.14^0 E**			**Height above MSL 211.52 m**		
40 (01-07 Oct)	37.0	16.4	84.3	31.0	0.0	6.0		
41 (08-14 Oct)	36.6	17.6	85.9	34.6	0.0	5.7		
42 (15-21 Oct)	35.6	18.4	76.1	33.6	0.0	4.7		
43 (22-28 Oct)	34.8	14.9	83.4	29.1	0.0	4.9		
44 (29-04 Nov)	31.8	9.9	78.4	35.3	0.0	4.5		
45 (05-11 Nov)	31.1	9.3	90.1	34.9	0.0	3.6		
46 (12-18 Nov)	28.0	12.5	94.0	58.7	0.0	1.9		
47 (19-25 Nov)	24.9	8.6	89.8	50.1	50.0	3.4		
48 (26-02 Dec)	26.1	7.9	90.4	48.1	0.0	2.7		
49 (03-09 Dec)	29.4	9.7	94.3	43.1	0.0	3.7		
50 (10-16 Dec)	29.4	9.7	92.7	63.4	0.0	2.8		
51 (17-23 Dec)	25.3	11.7	90.7	58.9	0.0	3.0		
52 (24-31 Dec)	22.5	5.1	93.9	73.1	0.0	2.4		
1 (01-07 Jan)	22.5	10.1	93.1	75.7	0.0	1.7		
2 (08-14 Jan)	20.8	8.2	90.3	78.4	5.0	2.0		
3 (15-21 Jan)	22.9	5.9	94.1	78.7	0.0	2.3		
4 (22-28 Jan)	21.3	5.5	96.5	75.1	0.0	2.1		
5 (29-04 Feb)	25.3	5.0	96.5	75.1	0.0	2.8		
6 (05-11 Feb)	25.5	8.3	89.6	63.8	0.0	3.2		
7 (12-18 Feb)	28.6	9.2	89.4	64.5	0.0	3.2		
8 (19-25 Feb)	30.2	9.9	93.2	55.5	0.0	4.0		
9 (26-04 Mar)	32.6	12.8	89.1	42.0	0.0	6.6		
10 (05-11 Mar)	34.6	14.6	75.7	38.7	0.0	6.0		
11 (12-18 Mar)	32.9	15.4	75.9	36.0	0.0	15.5		
12 (19-25 Mar)	36.3	17.2	79.0	47.1	7.0	37.1		
13 (26-01 Apr)	37.7	18.3	72.3	47.7	0.0	19.3		
14 (02-08 Apr)	39.3	17.9	72.7	41.1	0.0	11.1		
15 (09-15 Apr)	40.0	18.7	61.8	39.1	0.0	49.9		
16 (16-22 Apr)	39.8	20.7	49.5	36.1	0.0	11.4		
Indore	**Latitude 22^{0}37' N**		**Longitude 75^{0}50', E**			**Height above MSL 557 m**		
40 (01-07 Oct)	32.2	21.6	86.3	79.9	0.3	0	0.3	0
41 (08-14 Oct)	33	17.7	85.7	77.7	0	0	0.2	0
42 (15-21 Oct)	31.9	16.4	87.4	74.3	4	0	0.2	0
43 (22-28 Oct)	30.3	12.6	81.5	72.6	19	0	0.1	0
44 (29-04 Nov)	29.4	10	78.1	77.2	0	0	0.3	0
45 (05-11 Nov)	29.6	13.4	79.3	78.8	0	0	0.2	0
46 (12-18 Nov)	27.9	12.9	88.4	83.1	0	0	0.3	0
47 (19-25 Nov)	27.4	11.7	84.8	83.3	0	0	0.6	0
48 (26-02 Dec)	29.1	10.1	83.8	73.5	0	0	0.2	0
49 (03-09 Dec)	24	15.6	90.3	89.6	0	0	0.2	0

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
50 (10-16 Dec)	22.3	9.1	86.2	79.2	11.4	0	0.3	0
51 (17-23 Dec)	24.6	8.2	74.8	70.7	0	0	0.6	0
52 (24-31 Dec)	22	11.1	75.9	74.9	0	0	0.8	0
1 (01-07 Jan)	26.6	15.9	90.4	87.7	0	0	0.34	0
2 (08-14 Jan)	27	11.4	85.6	83	0	0	0.31	0
3 (15-21 Jan)	26.4	8.4	85.2	83.2	0	0	0.25	0
4 (22-28 Jan)	23	6.2	81.6	79.7	0	0	0.12	0
5 (29-04 Feb)	25.3	8.4	85.6	77.9	0	0	0.26	0
6 (05-11 Feb)	29.3	10.6	81.8	73.7	0	0	0.16	0
7 (12-18 Feb)	28	11.1	80.8	77.6	0	0	0.21	0
8 (19-25 Feb)	33.3	14.1	78.3	74.6	0	0	0.66	0
9 (26-04 Mar)	34.7	14.1	83.1	60	0	0	0.32	0
10 (05-11 Mar)	33.9	17	87.8	76.5	0	0	0.45	0
11 (12-18 Mar)	35	19.7	82.9	76.5	0	0	0.92	0
12 (19-25 Mar)	36.1	17.6	72.9	66.7	5.3	0	0.51	0
13 (26-01 Apr)	38.4	20	81.3	78.5	0	0	1.21	0
14 (02-08 Apr)	38.6	21.7	81.9	72.2	0	0	0.75	0
15 (09-15 Apr)	38	22.1	79.1	73.7	0	0	1.04	0
16 (16-22 Apr)	38.6	21.9	78	76.4	0	0	1.38	0
17 (23-29 Apr)	39.9	22.1	83.6	69	0	0	0.65	0
Jabalpur	**Latitude 23^{0}09'N**		**Longitude 79^{0}58'E**					**Height above MSL 411 m**
40 (01-07 Oct)	32.1	20.9	85	52	0	3.6	1.2	6.6
41 (08-14 Oct)	32.3	22.8	91	58	0	3.0	2.0	5.7
42 (15-21 Oct)	33.0	21.2	89	49	0	3.6	3.0	4.5
43 (22-28 Oct)	32.7	16.7	85	33	0	3.3	2.1	4.5
44 (29-04 Nov)	30.8	12.7	80	25	0	3.1	2.1	7.4
45 (05-11 Nov)	29.6	8.3	81	22	0	2.7	1.8	5.7
46 (12-18 Nov)	31.2	15.5	86	41	5.2	2.4	2.1	8.2
47 (19-25 Nov)	28.0	10.7	82	37	1.4	2.6	2.9	8.7
48 (26-02 Dec)	27.6	9.1	83	33	0.0	2.4	1.9	8.3
49 (03-09 Dec)	29.3	9.1	81	29	0.0	2.4	1.3	7.9
50 (10-16 Dec)	26.4	14.7	88	57	2.3	1.7	2.4	8.2
51 (17-23 Dec)	23.2	5.5	74	31	0.0	2.1	1.6	6.9
52 (24-31 Dec)	23.8	7.2	83	43	0.0	1.8	2.2	8.1
1 (01-07 Jan)	26.5	12.4	87	50	0.5	1.6	2.1	4.5
2 (08-14 Jan)	25.0	11.8	86	49	0.4	2.1	3.2	5.7
3 (15-21 Jan)	25.4	8.0	75	31	0.0	2.5	2.6	8.2
4 (22-28 Jan)	24.6	8.6	86	49	0.0	2.1	3.2	7.4
5 (29-04 Feb)	21.4	4.8	73	31	0.0	2.6	3.7	6.0
6 (05-11 Feb)	26.4	8.9	72	34	0.0	3.0	3.2	9.1
7 (12-18 Feb)	27.7	11.8	83	42	12.6	2.7	2.7	7.7
8 (19-25 Feb)	28.6	10.6	79	28	0.0	3.1	1.9	9.3
9 (26-04 Mar)	32.7	12.4	74	25	0.0	4.4	2.9	9.8
10 (05-11 Mar)	34.8	13.0	74	20	0.0	4.6	2.8	8.9
11 (12-18 Mar)	32.3	15.3	78	29	6.2	4.4	3.6	7.0
12 (19-25 Mar)	33.9	16.7	67	27	0.0	4.6	3.4	5.0
13 (26-01 Apr)	36.8	16.7	57	13	0.0	6.7	2.8	8.5
14 (02-08 Apr)	38.3	14.8	64	11	0.0	6.7	0.9	8.6
15 (09-15 Apr)	37.7	18.6	61	22	0.6	6.4	2.8	8.0
16 (16-22 Apr)	37.0	18.0	53	19	0.0	6.0	3.0	7.2
17 (23-29 Apr)	38.2	17.5	52	13	0.0	7.6	2.1	9.9
18 (30-06May)	38.8	23.2	47	24	2.6	5.8	2.4	7.8
19 (7-13 May)	38.0	23.3	71	35	39.0	7.9	5.5	9.6

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
Junagadh	**Latitude 21^{0}31'N**			**Longitude 70^{0}33'E**			**Height above MSL 83 m**	
40 (01-07 Oct)	34	24.2	84	51	19.1	4.5	3	9
41 (08-14 Oct)	36.7	25.2	73	35	0	5.4	4	8.3
42 (15-21 Oct)	35.8	26	78	55	29.8	4.3	3.8	5.5
43 (22-28 Oct)	35.6	21.7	69	36	0	4.5	2.5	9.1
44 (29-04 Nov)	35.1	18.3	68	28	0	4.9	2.4	8.7
45 (05-11 Nov)	34.8	17.1	71	27	0	4.5	1.9	8.6
46 (12-18 Nov)	33.9	17.5	64	31	0	4.6	3.5	8.6
47 (19-25 Nov)	30.8	14.9	66	33	0	4.6	3.8	7.7
48 (26-02 Dec)	32.4	18.7	64	32	0	4.8	4.7	8.2
49 (03-09 Dec)	34.1	15.2	74	32	0	3.4	2.2	8.5
50 (10-16 Dec)	29.3	17.8	67	44	1.2	3.8	4.4	3.4
51 (17-23 Dec)	29.3	11.9	74	34	0	3.9	3.8	4.6
52 (24-31 Dec)	27.9	11	58	25	0	4.8	5.3	5.8
1 (01-07 Jan)	25.3	12	64	33	0	4.2	6.3	3.9
2 (08-14 Jan)	28.3	13.2	70	38	0	4.9	7.3	4.4
3 (15-21 Jan)	29	10.8	70	31	0	4.2	3.9	6.5
4 (22-28 Jan)	28.3	9.5	72	24	0	4.6	4.3	5.9
5 (29-04 Feb)	30.5	10.2	71	22	0	4.9	3.7	6.6
6 (05-11 Feb)	31.1	10.9	64	19	0	5	3.7	8
7 (12-18 Feb)	31.5	13.7	71	28	0	4.6	3.4	8.5
8 (19-25 Feb)	34.6	16.8	63	23	0	6.3	3.7	10.2
9 (26-04 Mar)	35.2	17.2	60	18	0	7	5.2	10.3
10 (05-11 Mar)	37.6	17.6	80	17	0	7.6	4.1	9.8
11 (12-18 Mar)	37.5	20.3	60	15	0	7.7	4.8	10.1
12 (19-25 Mar)	37.4	21	60	17	0	8.2	4.9	9.5
Powarkheda	**Latitude 22^{0}44'N**			**Longitude 77^{0}42'E**			**Height above MSL 299 m**	
40 (01-07 Oct)	34.50	18.00			0.0	3.97		
41 (08-14 Oct)	34.00	20.00			0.0	4.34		
42 (15-21 Oct)	35.20	21.50			15.6	3.66		
43 (22-28 Oct)	34.20	15.00			0.0	4.53		
44 (29-04 Nov)	34.50	12.00			0.0	4.34		
45 (05-11 Nov)	31.50	11.00			0.0	3.97		
46 (12-18 Nov)	34.00	13.00			0.0	3.84		
47 (19-25 Nov)	33.50	11.50			0.0	4.15		
48 (26-02 Dec)	30.50	11.00			0.0	3.84		
49 (03-09 Dec)	31.50	10.50			0.0	4.59		
50 (10-16 Dec)	28.50	16.50			7.2	2.23		
51 (17-23 Dec)	25.50	8.50			0.0	2.79		
52 (24-31 Dec)	26.00	9.00			0.0	2.66		
1 (01-07 Jan)	26.00	13.50			1.5	2.05		
2 (08-14 Jan)	27.00	7.00			0.0	2.67		
3 (15-21 Jan)	28.50	6.00			0.0	2.60		
4 (22-28 Jan)	27.50	7.00			0.0	2.29		
5 (29-04 Feb)	29.00	5.50			0.0	2.85		
6 (05-11 Feb)	28.00	5.50			0.0	2.73		
7 (12-18 Feb)	28.00	6.00			1.0	2.17		
8 (19-25 Feb)	32.00	11.00			0.0	3.41		
9 (26-04 Mar)	35.00	11.00			0.0	3.26		
10 (05-11 Mar)	35.50	11.50			0.0	3.97		
11 (12-18 Mar)	37.00	14.00			1.8	4.46		
12 (19-25 Mar)	36.00	14.00			0.0	5.58		
13 (26-01 Apr)	40.20	0.00			0.0	5.26		

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
14 (02-08 Apr)	40.50	20.00			0.0	4.14		
15 (09-15 Apr)	39.86	21.00			0.0	4.27		
16 (16-22 Apr)	39.31	20.64			0.0	4.44		
17 (23-29 Apr)	40.24	19.61			0.0	4.47		
Udaipur	**Latitude 24.35' N**		**Longitude 73^o.42' E**			**Height above MSL 582 m**		
40 (01-07 Oct)	33.3	17.1	75.9	36.0	3.5	8.2	10.8	5.8
41 (08-14 Oct)	33.3	15.8	64.7	28.0	2.9	9.2	0.0	5.9
42 (15-21 Oct)	32.5	21.5	77.1	57.2	11.1	5.0	10.6	5.0
43 (22-28 Oct)	32.1	13.4	63.7	22.7	2.6	9.1	0.0	4.8
44 (29-04 Nov)	30.1	10.3	67.0	21.4	2.6	8.6	0.0	4.6
45 (05-11 Nov)	30.2	9.6	68.9	24.4	2.2	8.7	0.0	3.1
46 (12-18 Nov)	28.9	11.6	79.7	42.9	2.3	6.8	0.0	3.8
47 (19-25 Nov)	26.2	9.4	73.1	34.3	2.4	7.1	0.0	3.4
48 (26-02 Dec)	27.1	9.7	83.0	34.0	2.9	8.0	0.0	3.1
49 (03-09 Dec)	30.4	10.2	76.1	27.3	1.8	8.8	0.0	3.7
50 (10-16 Dec)	24.5	12.1	85.4	52.1	2.9	4.1	0.0	2.8
51 (17-23 Dec)	23.3	4.3	80.9	26.7	2.0	7.9	0.0	3.1
52 (24-31 Dec)	22.5	3.8	81.9	27.8	2.4	8.3	0.0	3.1
1 (01-07 Jan)	24.0	8.7	85.7	46.7	2.3	3.4	12.6	4.0
2 (08-14 Jan)	22.8	9.7	90.6	51.4	2.4	4.3	0.0	2.6
3 (15-21 Jan)	27.3	7.5	87.9	32.9	1.8	8.3	0.0	4.0
4 (22-28 Jan)	24.5	4.1	83.1	28.1	2.3	8.8	0.0	3.9
5 (29-04 Feb)	26.1	4.4	76.1	23.1	2.2	8.6	0.0	4.1
6 (05-11 Feb)	26.6	5.9	75.6	22.3	2.6	8.7	0.0	4.0
7 (12-18 Feb)	29.0	8.0	74.4	23.1	2.6	8.3	0.0	4.4
8 (19-25 Feb)	29.6	8.9	65.4	18.3	2.4	9.3	0.0	4.1
9 (26-04 Mar)	32.3	11.4	64.9	23.1	3.2	9.6	0.0	6.8
10 (05-11 Mar)	33.1	13.1	54.4	26.5	4.4	9.5	0.0	6.8
11 (12-18 Mar)	33.3	14.7	57.4	27.1	2.7	8.5	0.0	7.9
12 (19-25 Mar)	33.2	15.3	61.7	20.7	3.5	7.3	0.0	6.4
13 (26-01 Apr)	33.6	15.4	58.3	15.6	3.9	8.0	0.0	8.5
14 (02-08 Apr)	36.1	17.0	39.7	15.8	3.9	9.8	0.0	10.8
15 (09-15 Apr)	36.4	17.8	38.7	17.9	3.2	7.4	0.0	10.8
16 (16-22 Apr)	37.0	20.3	46.7	20.7	3.7	9.5	0.0	11.5
17 (23-29 Apr)	37.5	19.5	34.6	18.1	4.0	9.9	0.0	11.9
18 (30-06May)	37.2	20.1	43.3	25.0	3.8	7.8	0.4	11.7
19 (7-13 May)	38.1	22.9	42.3	26.3	5.3	9.8	0.0	13.4
Vijapur	**Latitude 23^0 15' N**			**Longitude 72^0 55' E**			**Height above MSL 126 m**	
40 (01-07 Oct)	35.9	25.1	74.9	67.8	0			
41 (08-14 Oct)	37.7	23.6	68.5	63.3	0			
42 (15-21 Oct)	36.0	29.0	70.3	62.9	0			
43 (22-28 Oct)	36.0	20.7	65.9	56.2	0			
44 (29-04 Nov)	34.3	17.9	72.6	63.6	0			
45 (05-11 Nov)	33.6	17.0	69.8	61.6	0			
46 (12-18 Nov)	33.3	18.4	66.2	59.3	0			
47 (19-25 Nov)	30.9	15.1	58.5	48.4	0			
48 (26-02 Dec)	32.0	17.7	61.0	50.2	0			
49 (03-09 Dec)	34.0	16.0	70.8	52.5	0			
50 (10-16 Dec)	28.0	17.7	75.3	61.0	0			
51 (17-23 Dec)	28.0	13.3	79.1	63.0	0			
52 (24-31 Dec)	26.6	12.4	75.9	66.3	0			
1 (01-07 Jan)	27.4	13.6	71.6	62.2	0			
2 (08-14 Jan)	27.6	15.1	70.7	58.7	0			
3 (15-21 Jan)	30.4	14.0	74.5	44.9	0			
4 (22-28 Jan)	27.4	11.4	65.1	53.6	0			
5 (29-04 Feb)	30.4	11.9	66.3	54.3	0			
6 (05-11 Feb)	30.6	13.6	61.0	54.3	0			

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
7 (12-18 Feb)	329.0	14.0	56.6	47.7	0			
8 (19-25 Feb)	34.0	14.3	58.1	44.8	0			
9 (26-04 Mar)	34.7	15.4	55.2	43.9	0			
10 (05-11 Mar)	34.7	16.6	52.3	44.7	0			
11 (12-18 Mar)	37.1	18.1	55.6	44.5	0			
12 (19-25 Mar)	39.3	22.1	59.2	39.0	0			
13 (26-01 Apr)	39.6	23.9	50.8	35.9	0			
14 (02-08 Apr)	40.9	26.4	48.6	32.8	0			
15 (09-15 Apr)	40.7	27.6	49.1	30.7	0			
16 (16-22 Apr)	41.9	27.7	51.3	36.7	0			
17 (23-29 Apr)	41.4	27.7	45.0	35.7	0			
PENINSULAR ZONE								
DHARWAD	**Latitude 15^0 26'N**		**Longitude 75^0 07' E**			**Height above MSL 678 m**		
40 (01-07 Oct)	29.7	20.1	85.3	80.0	71.6			
41 (08-14 Oct)	29.1	20.6	92.6	78.9	53.4			
42 (15-21 Oct)	27.8	20.0	90.3	85.6	58.0			
43 (22-28 Oct)	29.6	19.9	89.4	70.9	19.0			
44 (29-04 Nov)	30.3	18.1	72.6	50.0	0.0			
45 (05-11 Nov)	30.2	15.8	69.1	42.7	0.0			
46 (12-18 Nov)	29.4	18.4	79.0	55.1	0.0			
47 (19-25 Nov)	30.5	16.2	71.0	40.0	0.0			
48 (26-02 Dec)	26.8	16.7	85.6	63.0	0.6			
49 (03-09 Dec)	29.2	16.2	78.7	47.4	0.0			
50 (10-16 Dec)	29.5	15.4	71.1	47.0	0.0			
51 (17-23 Dec)	28.1	13.2	79.7	43.6	0.0			
52 (24-31 Dec)	28.8	13.9	70.9	44.6	0.0			
1 (01-07 Jan)	28.0	17.2	85.0	58.3	10.8			
2 (08-14 Jan)	28.5	16.5	80.1	62.0	16.4			
3 (15-21 Jan)	29.7	15.5	70.6	46.6	0.0			
4 (22-28 Jan)	31.4	15.0	77.7	35.3	0.0			
5 (29-04 Feb)	29.5	14.3	66.9	43.1	0.0			
6 (05-11 Feb)	30.3	12.8	57.7	33.1	0.0			
7 (12-18 Feb)	30.6	14.7	70.1	32.0	0.0			
8 (19-25 Feb)	28.9	16.7	78.6	45.3	10.0			
9 (26-04 Mar)	34.3	19.5	54.8	25.8	0.0			
10 (05-11 Mar)	34.3	17.2	74.4	24.6	0.0			
11 (12-18 Mar)	34.5	17.9	60.1	24.3	0.0			
12 (19-25 Mar)	35.4	19.8	52.9	28.3	0.4			
13 (26-01 Apr)	36.0	19.3	69.4	36.0	0.0			
NIPHAD	**Latitude 20.6^0 N**		**Longitude 74.6^0 E**			**Height above MSL 548.6 m**		
40 (01-07 Oct)	31.8	23.6	91.0	63.3	8.2	5.4	4.8	6.0
41 (08-14 Oct)	31.9	24.1	86.0	59.9	10.9	6.1	3.2	3.0
42 (15-21 Oct)	31.0	22.5	90.3	61.1	23.1	4.9	3.8	4.9
43 (22-28 Oct)	31.2	21.2	92.1	61.4	21.1	5.0	1.7	8.3
44 (29-04 Nov)	31.3	17.0	86	37	0.0	5.6	0.8	8.0
45 (05-11 Nov)	30.5	11.4	85	41	0.0	5.3	1.4	8.9
46 (12-18 Nov)	31.0	15.9	86	41	0.0	5.4	2.1	7.8
47 (19-25 Nov)	31.0	16.9	90	57	0.6	5.5	1.3	7.3
48 (26-02 Dec)	28.8	15.4	84	46	0.0	5.5	4.3	8.3
49 (03-09 Dec)	29.5	10.6	87	44	0.0	5.7	2.4	9.3
50 (10-16 Dec)	26.8	17.1	89	48	1.2	5.4	2.0	8.3
51 (17-23 Dec)	27.7	11.6	91	44	0.0	5.5	2.3	7.9
52 (24-31 Dec)	28.5	10.0	90	38	0.0	5.5	1.8	7.7
1 (01-07 Jan)	29.1	16.1	89	51	0.0	5.6	3.5	5.1
2 (08-14 Jan)	29.7	16.1	89	51	15.0	2.6	2.0	7.4
3 (15-21 Jan)	30.7	13.7	92	46	0.0	4.7	2.0	8.5
4 (22-28 Jan)	30.6	9.7	86	41	0.0	4.8	1.4	9.4
5 (29-04 Feb)	29.1	8.9	86	39	0.0	5.5	1.8	9.1

Julian weeks	Temperature^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm		Max
6 (05-11 Feb)	29.2	7.6	86	38	0.0	5.2	1.3	9.4
7 (12-18 Feb)	30.1	9.7	88	43	0.0	5.5	1.7	9.5
8 (19-25 Feb)	29.9	11.9	88	40	16.5	4.7	3.2	9.4
9 (26-04 Mar)	34.4	11.8	89.6	30.6	0.0	5.4	0.7	9.4
10 (05-11 Mar)	34.7	12.3	90.6	34.9	0.0	5.5	1.2	9.0
11 (12-18 Mar)	34.9	14.0	87.6	29.4	0.0	5.6	2.4	9.3
12 (19-25 Mar)	34.8	15.5	88.7	33.9	2.4	5.2	2.6	8.3
13 (26-01 Apr)	37.1	13.6	83.0	28.1	0.0	5.5	3.1	9.6
14 (02-08 Apr)	37.3	16.8	85.1	26.3	0.0	5.8	3.1	9.1
15 (09-15 Apr)	35.4	15.8	81.9	26.1	0.3	6.4	1.7	9.7
16 (16-22 Apr)	36.1	16.5	83.7	33.0	0.0	6.6	5.6	9.7
17 (23-29 Apr)	35.9	16.0	88.0	30.0	0.0	6.0	4.2	9.8
18 (30-06 May)	37.6	19.9	89.1	31.6	8.5	6.2	4.8	9.7
19 (7-13 May)	37.9	20.2	86.5	31.3	6.5	5.8	4.7	9.6
PUNE	**Latitude 18.04° N**		**Longitude 74.21° E**		**Height above MSL 548.6 m**			
40 (01-07 Oct)	32.4	22.4	86.6	54.3	8.0			
41 (08-14 Oct)	32.0	21.6	90.0	56.8	90.6			
42 (15-21 Oct)	29.1	22.1	91.1	80.4	139.7			
43 (22-28 Oct)	30.5	21.2	92.8	66.6	73.0			
44 (29-04 Nov)	31.4	18.2	90.0	44.7	0.0			
45 (05-11 Nov)	30.5	15.2	82.4	36.8	0.0			
46 (12-18 Nov)	31.0	16.0	82.6	43.4	0.0			
47 (19-25 Nov)	32.3	19.9	72.2	54.7	0.0			
48 (26-02 Dec)	29.2	17.1	82.0	55.2	0.0			
49 (03-09 Dec)	30.2	12.2	85.8	40.8	0.0			
50 (10-16 Dec)	30.6	17.8	88.4	48.5	0.0			
51 (17-23 Dec)	28.4	13.4	91.6	46.1	0.0			
52 (24-31 Dec)	30.0	12.8	88.7	45.3	0.0			
1 (01-07 Jan)	28.5	11.9	96.5	51.7	0.0			
2 (08-14 Jan)	28.4	15.0	94.3	60.6	0.0			
3 (15-21 Jan)	28.8	12.3	94.8	47.6	0.0			
4 (22-28 Jan)	31.4	14.2	94.1	49.2	0.0			
5 (29-04 Feb)	30.5	14.0	91.7	40.8	0.0			
6 (05-11 Feb)	30.2	11.0	89.0	35.1	0.0			
7 (12-18 Feb)	31.9	12.2	87.1	35.7	0.0			
8 (19-25 Feb)	29.6	15.3	88.6	46.4	0.0			
9 (26-04 Mar)	34.9	17.0	77.9	30.1	0.0			
10 (05-11 Mar)	35.8	14.8	74.6	24.7	0.0			
11 (12-18 Mar)	36.4	16.7	68.3	26.4	0.0			
12 (19-25 Mar)	34.9	17.5	78.1	31.4	0.0			
13 (26-01 Apr)	37.2	17.8	78.2	26.2	0.0			
14 (02-08 Apr)	38.5	17.4	64.5	17.5	0.0			
15 (09-15 Apr)	36.4	20.7	71.1	30.0	13.2			
16 (16-22 Apr)	36.7	19.2	80.4	28.0	0.0			
17 (23-29 Apr)	37.4	19.5	72.3	25.7	0.0			

SOIL PHYSICO-CHEMICAL PROPERTIES

Name of 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													
Bajaura	Silty Loam	28.2	53.4	18.4	1.57	NA	NA	0.63	377.3	54.0	175.3	6.27	0.63
Khudwani	Alluvial	41.00	37.00	22.00	1.25	NA	NA	1.15	255.00	14.20	295.00	6.92	0.14
Malan	Silty Clay Loam	20.8	52.1	27.1	1.54	31.67	13.77	0.77	326.67	41.37	245.00	5.27	1.65
NORTH WESTERN PLAINS ZONE													
Agra	Sandy Loam	60.71	20.36	18.54		18.60	9.37	0.39	178.65	27.88	279.37	8.30	1.76
Delhi		60.25	15.11	23.05	1.23	23.21	9.24	0.48	256	9.34	295	7.4	1.26
Durgapura	Loamy sand	80.77	10.4	7.82	1.53	10.4	3.15	0.28	123.64	48.4	189.2	8.04	0.14
Gurdaspur	Loam							0.40		22.6	136.3	7.3	0.23
Hisar	Sandy loam	72	18.5	9.5	1.4			0.34	147	16.9	270	7.7	0.22
Jammu	Clay Loam	40.47	31.80	27.73	1.46	21.94		0.44	176.60	14.00	139.40	7.56	0.23
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	83.5	7.9	8.5	1.48			0.285	-	45	201.6	6.8	0.16
Pantnagar	Loam	36	47.6	16.4	1.368	22.6	8.4	0.7	228	41.8	145.4	7.3	0.4
Sriganganagar	Sandy Loam								Low	Medium	High	7.6	
NORTH EASTERN PLAINS ZONE													
Burdwan					-	-	-	0.63		211	230	5.37	0.226
Coochbehar	Sandy Loam	59	27	14	1.38			0.84	198.8	38.5	135.6	5.83	-
IARI Pusa	Sandy Loam	34	58.5	8.8				0.45		12.5	143	8.54	0.26
Kalyani	Loamy	45.23	31.16	23.61	1.7	33	14	0.53	292.53	20.92	266.87	7.1	0.35
Ranchi	clay loam	35	31	34	1.42	25.6	13.4	0.51	225	14.6	205.8	6.1	-
CAU Pusa	Clay loam	23.86	48.95	27.19	1.43	22.13	7.82	0.43	195.9	20.95	125.5	8.3	0.24
Sabour	Loamy clay	25	43	32	1.48	23	12	0.54	210	24.35	193	7.2	0.14
Shillongani	Sandy Clay Loam	51.8	21.8	26.4	1.34	42.13	6.97	1.17	266.98	17.59	265.46	5.49	0.278
Varanasi	Sandy Clay Loam	60.02	21.47	19.48	1.41	19.56	4.32	0.35	205.14	17.46	237.4	7.3	0.143
CENTRAL ZONE													
Bilaspur	Sandy clay loam	42.35	22.79	35.52	1.31	21.24	8.6	0.39	276	12.4	293	7.4	0.18
Dhanduka	Black cotton	28.2	37.3	34.5				0.45	221	5.46	475	8.7	0.15
Gwalior	Sandy clay loam	0.56	0.172	0.2	-	-	-	0.46	180	12.5	200	7.4	-
Indore	Vertisols	16.2	27.3	56.5	1.46	38	16	0.51	262.5	14.8	440	8.1	0.3
Jabalpur	Vertisolos	25.15	18.52	55.67	1.33	39-42	28.3	0.62	288	16.66	302	7.2	0.33
Junagadh	Medium Black	35.83	31.38	32.79	1.35	-	-	0.96	547	77.97	404	8.05	0.3
Powarkheda	-	26	24.5	47.5	1.53	-	-	0.48	285	32.15	351	7.5	0.39
Udaipur	Clay - loam	38.75	26.78	34.47	1.46			0.54	278.1	23.34	363.2	7.89	0.9
Vijapur-I	Sandy Loam	80	6	5.8	1.57	9.76	3.75	0.37	171.4	40.89	281	7.59	0.32
Vijapur-II	Sandy Loam	81	6	5.7	1.54	9.71	3.58	0.33	167	39.79	284	7.51	0.33
PENINSULAR ZONE													
Dharwad	Clay	20	26	50	1.2-1.3	32-35	16-18	0.3-0.5	230-272	29-42.8	378-418	7.2-7.8	0.2-0.3
Niphad	Clay	20.4	34.2	45.4	1.29	-	-	0.6	184.21	20.8	327.45	8.14	0.29
Pune	Clay	5.7-9.6	48.8-63.4	12.8-24.2	1.28-1.38	-	-	0.37-1.05	89-253	6.20-24.27	61.3-370	7.93-8.15	0.32-0.65

LIST OF CENTRES AND COOPERATING SCIENTISTS WORKING UNDER RESOURCE MANAGEMENT PROGRAMME OF THE AICW&BIP (2020-21)

NORTHERN HILLS ZONE

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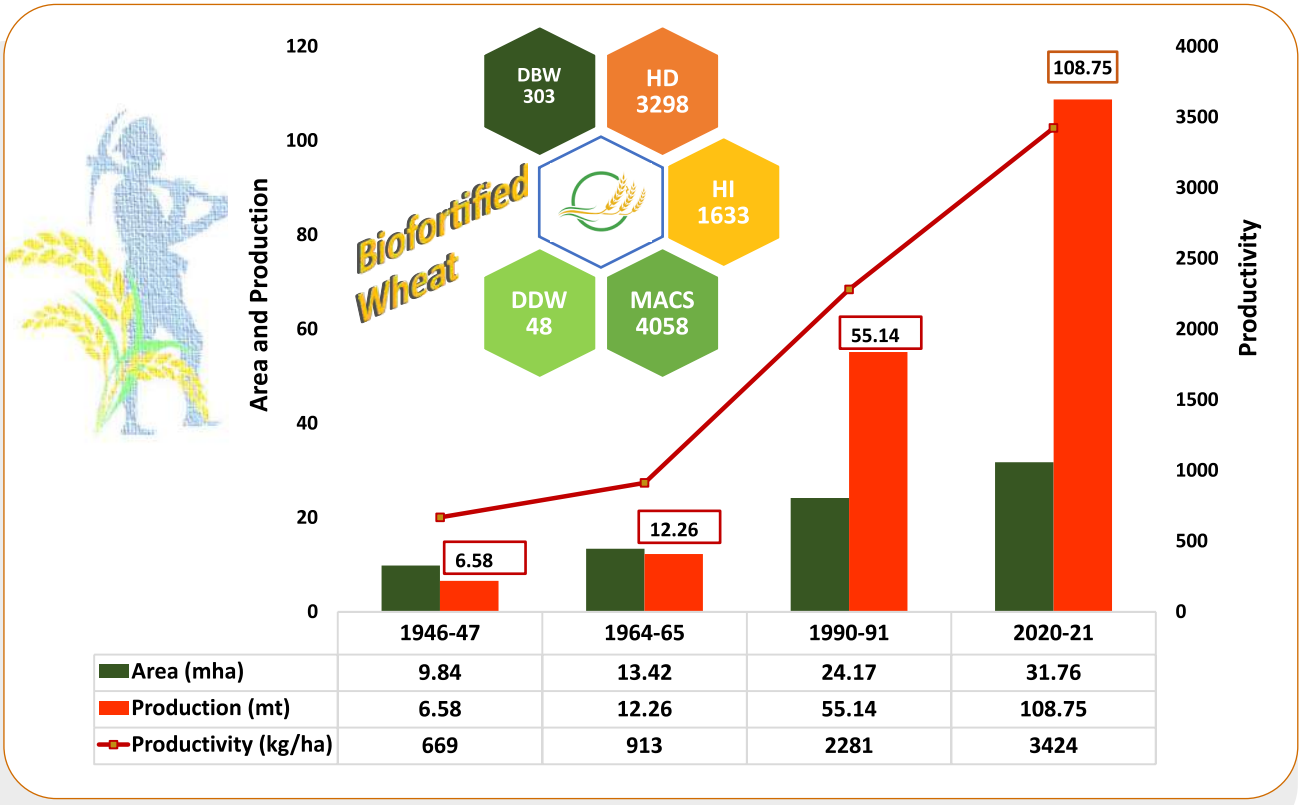
****Funded Centres***

SOWING DATES FOR DIFFERENT ZONES UNDER IRRIGATED CONDITIONS

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



	1946-47	1964-65	1990-91	2020-21
Area (mha)	9.84	13.42	24.17	31.76
Production (mt)	6.58	12.26	55.14	108.75
Productivity (kg/ha)	669	913	2281	3424

60th All India Wheat & Barley Research Workers' Meet
(August 23-24, 2021)

60वीं अखिल भारतीय गेहूँ एवं जौ अनुसंधान कार्यशाला
में आयोजित गोष्ठी के दौरान जारी किया गया