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All India Coordinated Wheat & Barley Improvement Project

PROGRESS REPORT
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RESOURCE MANAGEMENT

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

CONTENTS

SUMMARY

The fourth advance estimate for wheat production in India for crop year 2013-14 is 95.91 million tonnes despite shrinking land and water resources, climate abrasions and little genetic gain. This has been made possible by Indian farmers and scientists through efficient management of natural resources and various external inputs like chemical fertilizers and pesticides for achieving the food security in addition to the increased coverage under disease resistant varieties. The imbalanced fertilisation and intensive tillage are still matters of concern leading to the degradation of natural resources. The multiple nutrient deficiencies are being reported from various parts of the Indo-Gangetic plains, the food basket of the country which is a result continuous mining of the soil coupled with imbalanced fertilisation. Nitrogen is generally applied in excess and potash and micronutrients are rarely applied. The situation is further worsened by crop residues burning, which besides causing losses of precious organic source and essential nutrients also leads to environmental pollution causing health hazards. In order to provide food security and reverse the trend in natural resource degradation, technological advancements including developing better varieties suited to different cropping systems and growing conditions in various agro-ecological zones is a must. The higher agricultural productivity has to be achieved along with the improvement or at least without further detrimental effect to the environment and natural resources for long-term sustainability. Research efforts are focussed, in addition to varietal improvement, on the refinement of the technologies, diversification/intensification by including leguminous crops, integrated nutrient and weed management, to make food production cost and energy efficient in order to increase the profit margins to the farmers.

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

In six wheat growing zones, fourteen 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 undertaken 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, 111 trials were proposed of which 107 were conducted. Out of the conducted trials, 01 trial was rejected due to higher coefficient of variation. The overall conduct of trial was 96.4 percent with a success and rejection rate of 99.1 percent and 0.9 percent, respectively.

In NHZ, out of the 18 proposed trials 17 were conducted with conduct per cent of 94.4 and there was no rejection. In NWPZ, out of 33 proposed trials, 31 were conducted and the remaining 02 trials were not conducted by Delhi centre only. The corresponding figures for NEPZ were 22, 21, 01; for CZ 26, 26, 00; for PZ 11, 11, 00; and for SHZ 01, 01, 00. The centres where the trials were not conducted have been listed in the Table 1. The trial rejection was 9.1 percent in PZ only.

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

Trial Series	Locations	Trials conducted	Trials not conducted		Rejected	
			Number	Centres	Number	Centres
Northern Hills Zone						
IR-TS-TAS-DOS	06	06	-	-	-	-
RF-ES-TAS-LON	06	05	01	Imphal	-	-
RF-TS-TAS-LON	06	06	-	-	-	-
Total	**18**	**17**	**01**		**-**	
North Western Plains Zone						
IR-TS-TAS-DOS	11	10	01	Delhi	-	-
IR-LS-TAS-DOS	11	11	-	-	-	-
RIR-TS-TAS	11	10	01	Delhi	-	-
Total	**33**	**31**	**02**	-	-	-
North Eastern Plains Zone						
IR-LS-TAS-DOS	11	11	-	-	-	-
RF-TAS-LON	11	10	01	Burdwan	-	-
Total	**22**	**21**	**01**		-	
Central Zone						
IR-TS-TAD-DOS	09	09	-	-	-	-
RIR-TS-TAS	09	09	-	-	-	-
RF-TAS-LON	08	08	-	-	-	-
Total	**26**	**26**	-	-	-	-
Peninsular Zone						
IR-TS-DIC-DOS	05	05	-	-	01	Akola
RF-TAS-LON	06	06	-	-	-	-
Total	**11**	**11**	**-**		**01**	
Southern Hills Zone						
IR-TS-DIC-DOS	01	01	-	-	-	-
Total	**01**	**01**	**-**	**-**	**-**	
Total Trials	**111**	**107**	**04**		**01**	

The performance of test entries presented in the Table 2 showed that out of 22 test entries in the AVT-II year, eight genotypes namely, VL 967 (irrigated timely sown) in NHZ, WH 1142 (restricted irrigation) in NWPZ and rainfed in CZ, HI 8736 and HI 8737 (irrigated timely sown), DBW 110 (restricted irrigation) in CZ, UAS 347 and UAS 446 (d) under rainfed condition in PZ and MACS 5022 (irrigated timely sown diccocum) in PZ and SHZ were superior to their respective best checks. The yield gain was, 3.75 percent for VL 967, 5.72 percent for WH 1142 in NWPZ and 3.3 percent in CZ, 6.69 percent for HI 8736, 3.37 percent for HI 8737, 4.3 percent for DBW 110, 5.11 percent for UAS 347, 13.66 percent for UAS 446, 3.46 and 7.26 percent, respectively in PZ and SHZ for MACS 5022, for different growing conditions.

In addition, two genotypes found numerically better were BRW 3723 for rainfed conditions of NEPZ and NIAW 1885 for rainfed conditions of CZ.

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			
Northern Hills Zone						
IR-TS-TAS-DOS	VL 967	VL 967	-	VL 907	3.75	06
RF-ES-TAS-LON	HPW 376	-	-	HS 542	-	05
RF-TS-TAS-LON	VL 967	-	-	VL 907	-	06
North Western Plains Zone						
IR-TS-TAS-DOS	HUW 666, PBW 681, WH 1138	-	-	WH 1105	-	10
IR-LS-TAS-DOS	WH 1129	-	-	DBW 90	-	11
RIR-TS-TAS	WH 1142	-	WH 1142	HD 3043	5.72	10
North Eastern Plains Zone						
IR-LS-TAS-DOS	DBW 107, HD 3118, K 1114	-	-	DBW 14	-	11
RF-TAS-LON	BRW 3723	BRW 3723	-	K 8027	1.32	10
Central Zone						
IR-TS-TAD-DOS	HI 8736 (d)	-	HI 8736 (d)	MPO 1215	6.69	09
	HI 8737 (d)	-	HI 8737 (d)	MPO 1215	3.37	
	MP 3382	-	-	GW 322	-	
RIR-TS-TAS	DBW 110	-	DBW 110	MP 3288	4.30	09
RF-TAS-LON	NIAW 1885	NIAW 1885	-	MP3288	1.20	08
	WH 1142	-	WH 1142		3.30	
	PBW 689	-	-			
Peninsular Zone						
RF-TAS-LON	UAS 347	-	UAS 347	NIAW 1415	5.11	06
	NIAW 1994	-	-	-	-	
	UAS 446 (d)		UAS 446 (d)	AKDW 2997-16	13.66	
IR-TS-DIC-DOS	MACS 5022	-	MACS 5022	MACS 2496	3.46	04
	DDK 1042					
Southern Hills Zone						
IR-TS-DIC-DOS	MACS 5022	-	MACS 5022	MACS 2971	7.26	01
	DDK 1042					

The details of the special trials conducted in different zones are presented in Table 3. In all, 48 trials were proposed, out of which 39 were conducted and the conduct percentage was 81.3. The maximum numbers of special trials were conducted in NWPZ followed by NHZ, PZ, NEPZ, and CZ, respectively. Nine centres, Shimla in NHZ, Delhi, Durgapura, Jammu, Nagina and Sriganganagar in NWPZ; Kota in CZ; Pune and Washim in PZ did not conduct the proposed special trials.

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: Precision nutrient management	02	02	-	-
SPL-2: Rice seeding methods	01	01	-	-
SPL-4: Dates of sowing	06	05	01	Shimla
Total	**09**	**08**	**01**	
North Western Plains Zone				
SPL-1: Precision nutrient management	04	04	-	-
SPL-2: Rice seeding methods	04	03	01	Jammu
SPL-4: Dates of sowing	11	07	04	Delhi, Durgapura, Nagina, Sriganganagar
SPL-5: Micro-Irrigation	02	02	-	-
SPL-6: Cotton-Wheat relay cropping	02	02	-	-
SPL-7: Wheat productivity maximization	03	03	-	-
Total	**26**	**21**	**05**	
North Eastern Plains Zone				
SPL-1: Precision nutrient management	03	03	-	-
SPL-2: Rice seeding methods	01	01	-	-
Total	**04**	**04**	**-**	
Central Zone				
SPL-1: Precision nutrient management	01	01	-	-
SPL-5: Micro-Irrigation	01	01	-	-
SPL-7: Wheat productivity maximization	01	-	01	Kota
Total	**03**	**02**	**01**	
Peninsular Zone				
SPL-3: Dates of sowing	05	03	02	Pune, Washim
SPL-5: Micro-Irrigation	01	01	-	-
Total	**06**	**04**	**02**	
Total Trials	**48**	**39**	**09**	

NORTHERN HILLS ZONE

In this zone, three trials on evaluation of *aestivum* genotypes under irrigated timely, rainfed early and timely sown conditions were conducted and the results are summarised hereunder.

Irrigated timely sown

One test entry (VL 967) was evaluated against four checks (VL 804, VL 907, HPW 349 and HS 507) at two dates of sowing (normal and late) under irrigated conditions. The trial was conducted at six locations namely Almora, Bajaura, Imphal, Khudwani, Malan and Shimla. The pooled analysis revealed significant differences in yield and yield attributes for sowing time and genotypes except sowing time for effective tiller per unit area and the interaction effects were non-significant. All the genotypes produced significantly higher grain yield, grain s number and 1000 grains weight under timely compared to late sown condition. On mean basis, the test entry VL 967 was the highest yielder (Figure 1) and was significantly better than all the checks except the best check VL 907 with which it was statistically at par but produced 3.75% higher grain yield.

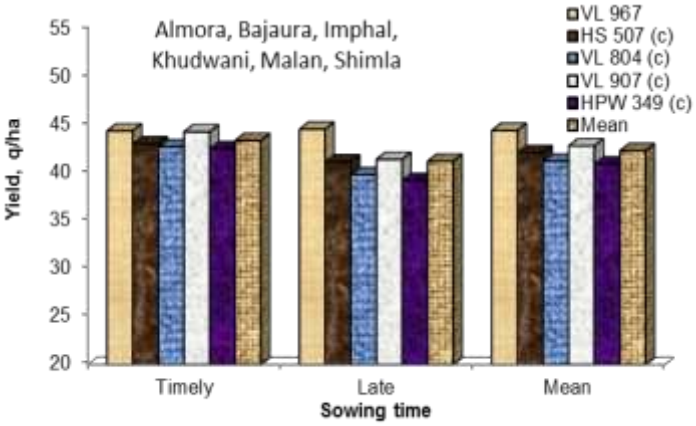

Figure 1. Genotypes under timely and late sown in NHZ

Rainfed conditions

Two trials, one for early and the other for timely sown rainfed conditions were conducted. In early sown, one test entry, HBW 376, was evaluated against four checks (VL 829, HS 277, HS 542 and HPW 251). The trial was conducted at five locations (Almora, Bajaura, Khudwani, Malan and Shimla). The test entry HBW 376 was not better the recently relaesed best check HS 542. The response to nitrogen was osberved up to 80 kg/ha. In rainfed timely sown conditions, the same set of entries as for irrigated timely sown condition was evaluated at six locations namely Almora, Bajaura, Imphal, Khudwani, Malan and Shimla. There were significant differences in yield among nitrogen levels and genotypes whereas the interaction effects were not significant for grain numbers and thousand grain weight. Response was significant only up to 80 kg N/ha. The test entry VL 967 was inferior to the best check VL 907.

NORTH WESTERN PLAINS ZONE

In North Western Plains, three varietal evaluation trials (irrigated timely sown aestivum, irrigated late sown aestivum and restricted irrigation conditions) were conducted to evaluate the performance of new genotypes ca compared the checks for the respective conditions.

Irrigated timely sown- aestivum

The performance of three *aestivum* test entries, HUW 666, PBW 681 and WH 1138 was evaluated against six checks (DBW 88, HD 3086 DPW 621-50, HD 2967, PBW 550 and WH 1105) at ten centres *i.e.* Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar under timely and late sown conditions. None of the test entres was better than the best checks WH 1105 and HD 3086.

Irrigated Late Sown

One test entry, WH 1129 was evaluated against six checks *viz*. DBW 90, WH 1024, HD 3059, PBW 550, PBW 590 and WH 1021 at eleven locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar) under late and very late sown conditions. The test entry WH 1129 was significantly inferior to the check genotypes DBW 90, WH 1124 and HD 3059.

Restricted Irrigation

The restricted irrigation trial was conducted with the objective to evaluate the one *aestivum* test entry, WH 1142 against four checks (C 306, HD 3043, PBW 644 and WH 1080) at ten locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar). There was a significant improvement in yield from 36.78 q/ha to 43.29 q/ha (Figure 2) when number of irrigation increased from no irrigation to two irrigations because of significant increase in number of earheads/m^2 and 1000 grain weight. On an average, the test entry WH 1142 produced significantly higher yield (43.82 q/ha) compared to other checks.

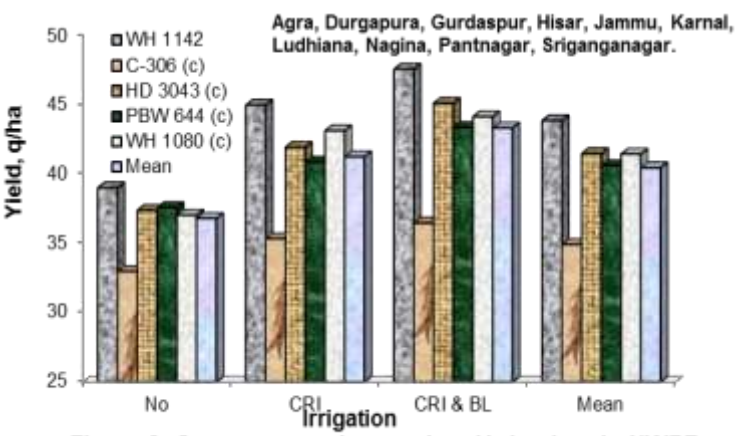

Figure 2. Genotypes under restricted irrigation in NWPZ

NORTH EASTERN PLAINS ZONE

In this zone, two trials were conducted to evaluate the performance of genotypes for sowing time under irrigated conditions and nitrogen levels under rainfed conditions.

Irrigated Late Sown

In this trial, three test entries (DBD 107, HD 3118 and K 1114) and five checks (DBW 14, HD 2733, HD 2985, HI 1563 and NW 2036) were evaluated under late and very late sown conditions. None of the test entries was better than the check genotypes HI 1563 and DBW 14.

Rainfed Conditions

In this trial, one test entry (BRW 3723) and three checks (C 306, HD 2888 and K8027) were evaluated at three nitrogen levels (40, 60 and 80 kg/ha). The trial was conducted at ten locations (Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, RAU Pusa, Ranchi, Sabour, Shillongani and Varanasi) across north eastern plains. The test entry BRW 3723 ranked first (Figure 3) but the grain yield (31.99 q/ha) was comparable to the yield of best check genotype K 8027 (31.56 q/ha), which were statistically at par with each other.

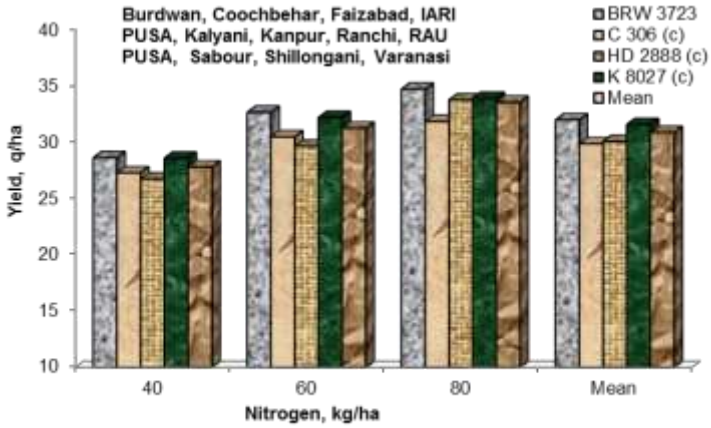

Figure 3. Genotypes under rainfed sown conditions in NEPZ

CENTRAL ZONE

Three coordinated trials for evaluation of new genotypes for various growing conditions (irrigated timely sown, restricted irrigation and rainfed conditions) were conducted in this zone.

Irrigated Timely Sown

In this trial, three test entries, one of *aestivum* (MP 3382) and two of *durum* (HI 8736 and HI 8737) were evaluated against four checks {GW 322, HI 1544, HI 8498 (d) and MPO 1215(d)} at two dates of sowing (timely and late) under irrigated conditions. The trial was conducted at nine centres (Bilaspur, Gwalior, Indore, Junagarh, Powarkheda, Sagar, Kota, Udaipur and Vijapur). On an average basis none of the test entry was superior to best check GW 322 (49.64 q/ha). Among durum entries, test entries HD 8736 and HI 8737 produced the significantly higher yield (Figure 4) compared to the best durum check MPO 1215.

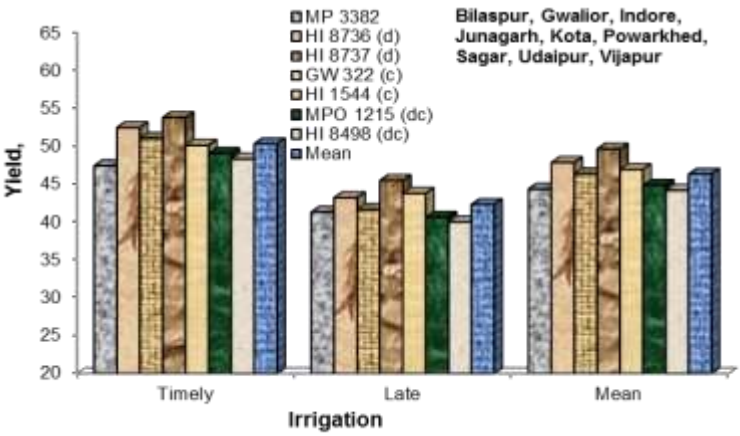

Figure 4. Genotypes under timely and late sown in CZ

Restricted irrigation

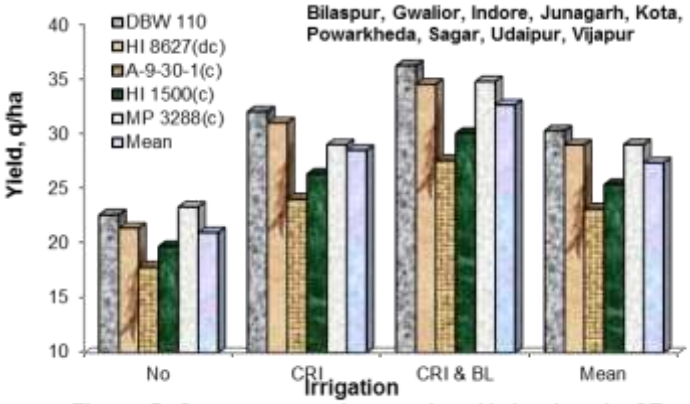

Figure 5. Genotypes under restricted irrigation in CZ

One test entry DBW 110 was evaluated at three irrigation schedules (no irrigation, one irrigation at CRI, two irrigation at CRI & Boot leaf stage) against four checks [(HI 8627(dc), DBW 110, A-9-30-1(c), HI 1500(c), MP 3288(c)] at nine locations (Bilaspur, Gwalior, Indore, Junagarh, Powarkheda, Sagar, Kota, Udaipur and Vijapur). Irrigation and genotype had significant effect on yield and yield attributes. The interaction effects were also significant except for 1000 grains weight. The application of two irrigations increased the yield by 55.6% and 14.2% over no and one irrigation treatments. Among genotypes, the test entry DBW 110 was significantly better (Figure 5) than all the check genotypes on mean basis.

Rainfed Conditions

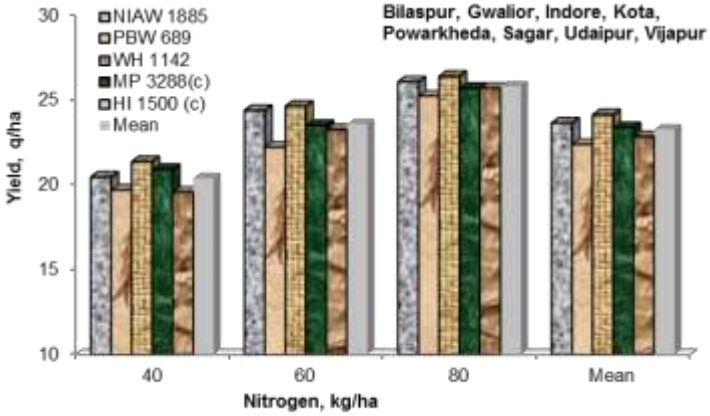

Figure 6. Genotypes under rainfed sown conditions in CZ

In this trial, three new genotypes, NIAW 1885, PBW 689 and WH 1142 were evaluated against two checks (HI 1500 and MP 3288) at three nitrogen levels (40, 60 and 80 kg/ha) in split plot design under rainfed conditions (Figure 6). This trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Powarkheda, Sagar, Kota, Udaipur and Vijapur). The test entry WH 1142 was significantly superior compared to both the check genotypes and test entries except NIAW 1885, which was at par. Application of nitrogen brought about significant increase in yield up to 80 kg N/ha and the highest mean yield (25.81q/ha) was recorded at 80 kg N/ha. The interaction between nitrogen and genotypes was found non-significant for grain yield.

PENINSULAR ZONE

In this zone, two coordinated trials for evaluation of new genotypes for various growing conditions (irrigated timely sown diccocum and rainfed conditions) were conducted.

Rainfed Conditions

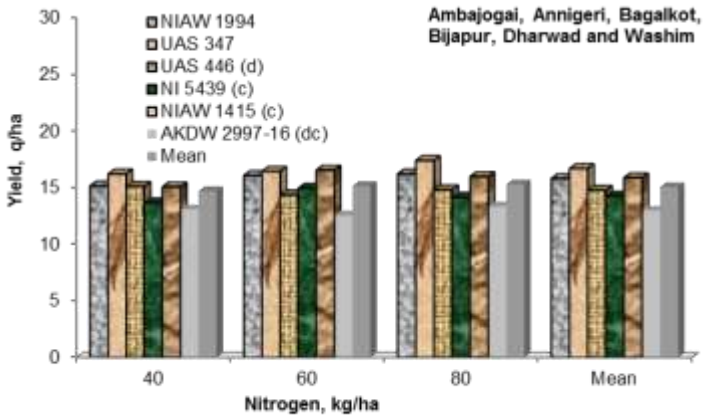

Figure 7. Genotypes under rainfed sown conditions in PZ

In this trial, three new genotypes (UAS 347 NIAW 1994 and UAS 446(d)) were evaluated against three checks (NI 5439, AKDW 2997-16 and NIAW 1415), at three nitrogen levels (40, 60 and 80 kg/ha) at six locations (Ambajogai, Annigeri, Bagalkot, Bijapur, Dharwad and Washim). The test entry UAS 347 gave

significantly higher yield (16.65 q/ha) as compared to the other test entries (Figure 7) as well as checks. Comparing durum test entry with durum check AKDW 2997-16, it was found that test entry UAS 446 was significantly superior with a yield gain of 13.66 percent.

Irrigated Timely Sown-*diccocum*

In this trial, two test entries (MACS 5022 and DDK 1 042) were evaluated, at two dates of sowing *i.e.* timely and late sown conditions, against four check genotypes (DDK 1009, MACS 2971, HW 1098 and MACS 2496) at five locations (Akola, Dharwad, Niphad, Pune, Washim). The test entry MACS 5022 produced maximum (Figure 8) and significantly higher grain yield (45.20 q/ha) as compared to other entries and checks with a yield gain of 3.46 percent.

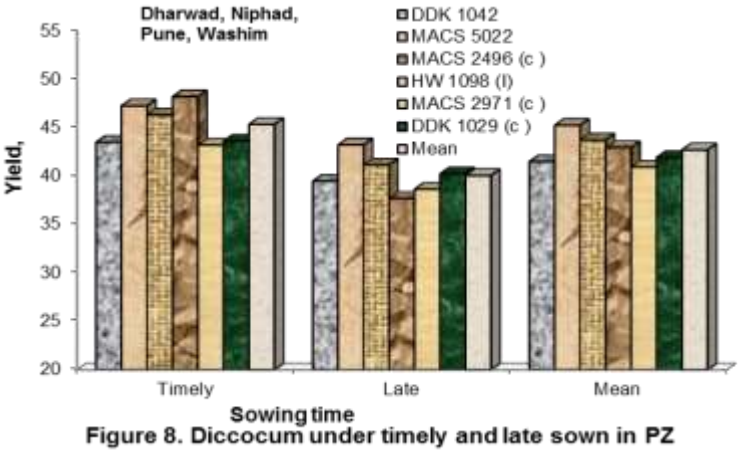

Figure 8. Diccocum under timely and late sown in PZ

SOUTHERN HILLS ZONE

During the Rabi season 2013-14, one trial for evaluation of new wheat genotypes under timely sown restricted irrigation condition was conducted in this zone only at one location *i.e.* Wellington.

Irrigated Timely Sown-*diccocum*

Two test entries MACS 5022 and DDK 1042 were evaluated at two dates of sowing *i.e.* timely (5th to 11th November) and late (26th November to 2nd December) sown conditions against four checks (MACS 2496, HW 1098, MACS 2971 and DDK 1029) at Wellington centre only in Southern Hills Zone. On an average basis, the test entry MACS 5022 produced the maximum and significantly higher grain yield (40.47 q/ha) as compared to other genotypes and checks (Figure 9). The better yield of MACS 5022 was due to significantly higher grains/earhead as compared to other genotypes.

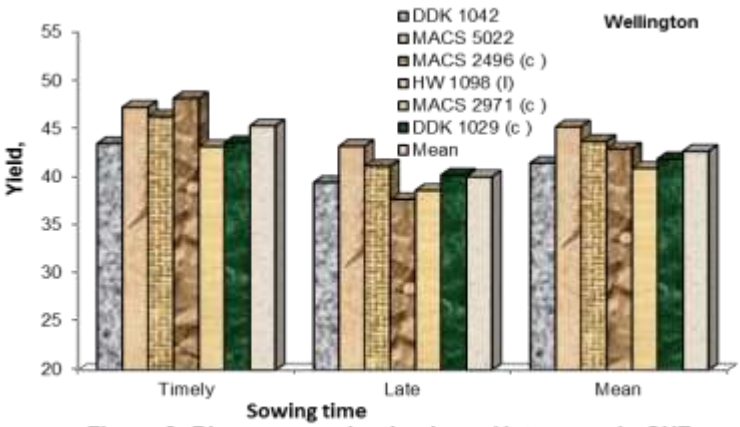

Figure 9. Diccocum under timely and late sown in SHZ

PRODUCTION TECHNOLOGIES

Various special coordinated trials on site specific nutrient management, sowing time, spacing and tillage options and efficient water management were conducted to address various issues in different wheat growing zones. The results of various experiments on updating package of practices are summarised in this section.

SPL-1: Precision nutrient management in wheat

To optimize nutrient usage and maximize wheat yield, an experiment was conducted in four wheat growing zones namely NHZ, NWPZ, NEPZ and CZ. The experiment was conductedn with two tillage options *i.e.* conventional tillage (CT) and zero tillage (ZT) and four nutrient

management options. Four nutrient management treatments were NPK @150:60:40 kg/ha, where full P&K applied using NPK mixture as basal and remaining N top dressed in two equal splits after first and second irrigation; NPK @150:60:40 kg/ha, where full P&K applied using NPK mixture as basal and remaining N top dressed in two equal splits just before first and second irrigation; SSNM based on Wheat Nutrient Expert; SSNM based on Wheat Nutrient Expert (Full PK + micronutrient, if any and 70% N) + remaining N as guided by GreenSeeker.

In NHZ, the trial was conducted at two centres namely Bajaura and Malan. The yield obtained with application of NPK @150:60:40 kg/ha, where N was top dressed after first and second irrigation was statistically similar to the treatment where nitrogen was top dressed just before first and second irrigation (Figure 10). These two treatments were significantly superior to other two nutrient management options using SSNM and SSNM and GreenSeeker, which were statistically at par.

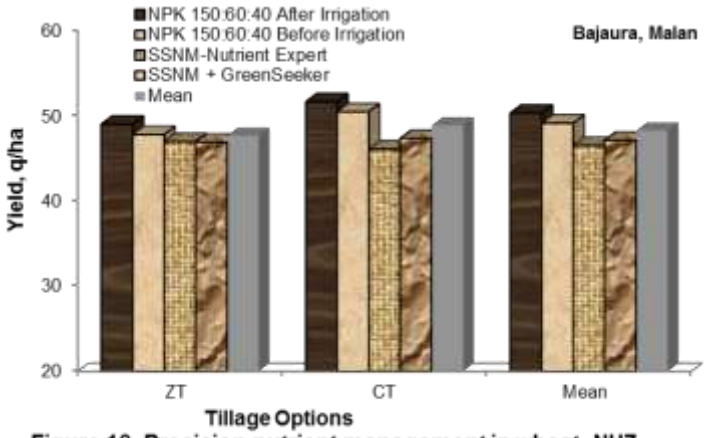

Figure 10. Precicion nutrient management in wheat- NHZ

In NWPZ, the trial was conducted at four locations namely Durgapura, Karnal, Ludhiana and Pantnagar. The effect of tillage was significant and the yield recorded was higher in conventional tillage as compared to zero tillage (Figure 11). The effect of nutrient management was significant for earhead density only. The highest yield was obtained with application of NPK @150:60:40 kg/ha, where N top dressed just before first and second irrigation was numerically superior to other three nutrient management options.

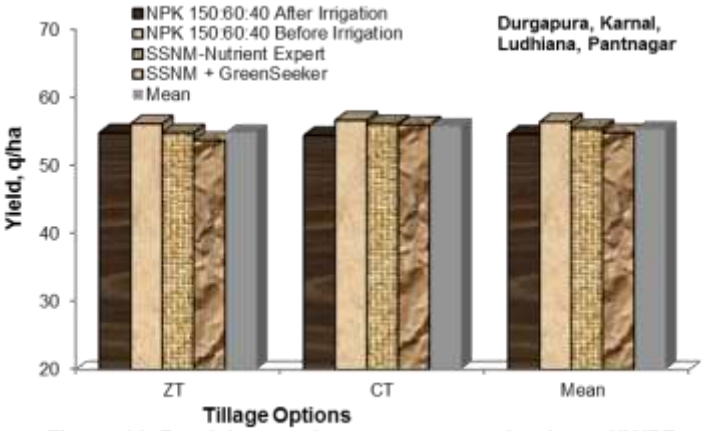

Figure 11. Precicion nutrient management in wheat- NWPZ

In Northern Eastern Plains Zone also this trial was conducted at four locations namely IARI Pusa, Sabour, Ranchi, and Varanasi. On mean basis, the yield recorded was significantly higher (Figure 12) under conventional tillage (43.55 q/ha) as compared to zero tillage (42.32 q/ha). Among nutrient management options, the SSNM treatment in which nutrients were applied based on Nutrient Expert recorded maximum grain yield (45.24 q/ha) followed by SSNM + GreenSeeker treatment in which 70 % N and full PK + micro-nutrient, if any based on Nutrient Expert + remaining N as guided by Green Seeker (43.95 q/ha) which were statistically at par. The yield recorded in other two nutrient

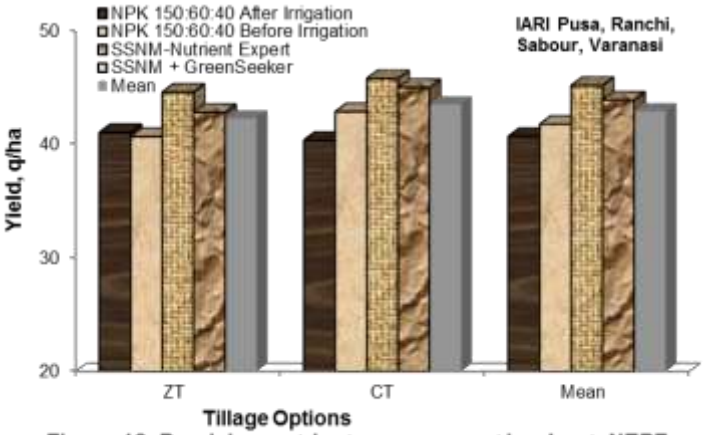

Figure 12. Precicion nutrient management in wheat- NEPZ

application treatments was significantly lower compared to SSNM and SSNM + GreenSeeker treatments.

In Central Zone, this experiment was conducted at only one location *i.e.* Udaipur. The effect of tillage and nutrient management was non-significant on wheat yield whereas the nutrient management options had significant effect on all the yield attributes. Between tillage options, conventional tillage recorded higher average yield compared to zero tillage (Figure 13). Among four nutrient management options, SSNM based on Nutrient Expert (Full PK + micronutrient, if any and 70% N) + remaining N as guided by GreenSeeker recorded numerically the highest yield (54.43 q/ha). The GreenSeeker based nitrogen application recorded the higher grain weight and earhead density.

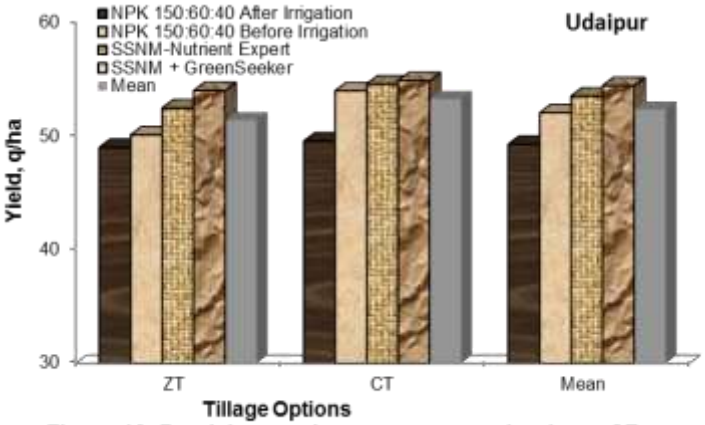

Figure 13. Precicion nutrient management in wheat- CZ

Based on the nitrogen applied in various nutrient management options and the grain yield obtained, the agronomic nitrogen use efficiency was worked out for various locations. It was observed that the nitrogen use efficiency was higher in the treatment in which 70% of nitrogen and full P and K as well as micronutrient, if any, as recommended by Nutrient Expert for Wheat was applied and the rest, if required, was applied using GreenSeeker technology. Since the nitrogen applied using GreenSeeker was the lowest with comparable yields at most of the locations, the agronomic nitrogen use efficiency was highest in this treatment. In general, across all the four wheat growing zones, the trend was similar except few exceptions. The first year results indicate that Nutrient Expert for Wheat and GreenSeeker combination may be best option for higher productivity at lower costs leading to more profitability.

SPL-2: Effect of different rice seeding methods on wheat productivity under ZT at different nitrogen levels.

In order to evaluate the effect of different rice seeding methods on wheat productivity under Zero Tillage (ZT) at different nitrogen levels, an experiment involving three rice establishment methods (Puddle Transplanting, ZT transplanted and Dry direct seeded after conventional tillage) and four nitrogen treatments in wheat (No nitrogen control, 75 kg N/ha, 150 kg N/ha and LCC based nitrogen application) was conducted across three zones (NHZ, NWPZ, and NEPZ).

In Northern Hills Zone, this trial was conducted at only one location (Malan). The rice establishment options had non-significant effect on wheat productivity and only the nitrogen effect was significant with highest yield (55.37 q/ha) recorded when N was applied @ 150 kg/ha followed by using leaf colour chart guided nitrogen application (53.66 q/ha), which were statistically at par (Figure 14). In case of rice, only the rice establishment options had significant effect on rice yield and yield

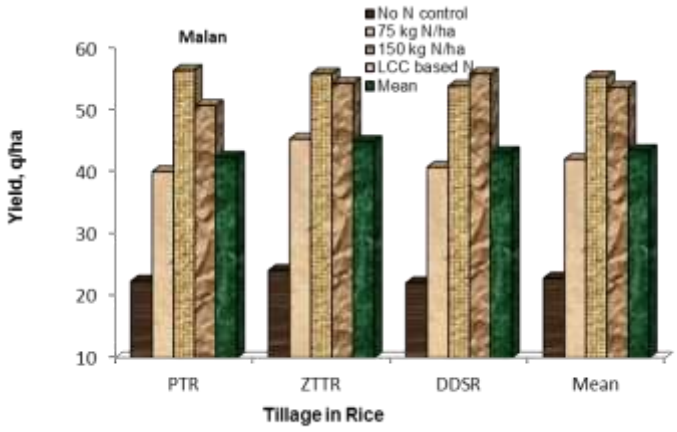

Figure 14. Tillage in rice and nitrogen on wheat productivity in NHZ

attributes but the N applied in wheat had no residual effect on rice yield. The yield obtained in puddle transplanted rice was significantly superior to other two crop establishment methods (ZTTR and DDSR). The DDSR system had the lowest rice yield (36.22 q/ha) and was significantly inferior to even zero till transplanted rice.

In Northern Western Plains Zone, this trial was conducted at three locations (Gurdaspur, Karnal and Pantnagar). The tillage options in rice had significant effect on wheat productivity and wheat after puddle transplanted rice gave the highest yield (45.08 q/ha), which was significantly higher than the wheat after zero tillage transplanted rice and dry direct seeded rice (Figure 15). The nitrogen effect was also significant on yield and yield attributes, with highest yield (54.70 q/ha) recorded when N was applied using leaf colour chart followed by N application @ 150 kg/ha (53.61 q/ha) which were significantly higher than lower dose of nitrogen (75 kg/ha) and control. In case of rice, the yield in puddle transplanting (66.19 q/ha) was significantly superior to other two crop establishment methods (ZTTR and DDSR). The direct dry seeded rice system had the lowest yield (51.36 q/ha) which was significantly inferior to even zero tillage transplanted rice.

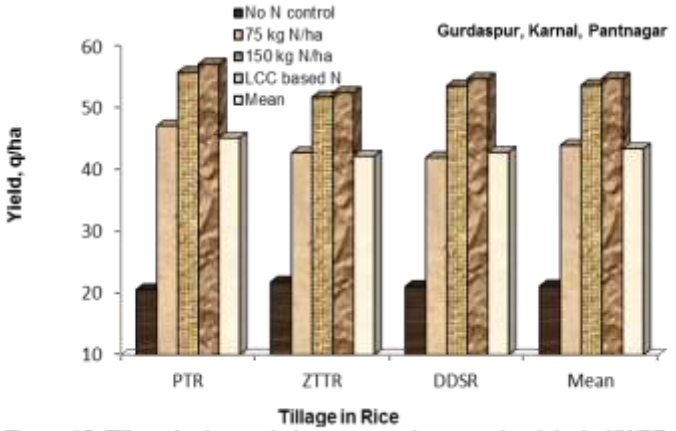

Figure 15. Tillage in rice and nitrogen on wheat productivity in NWPZ

In Northern Eastern Plains Zone, this trial was conducted at Kalyani centre. On mean basis the highest yield of wheat was obtained after puddle transplanting of rice (27.78 q/ha) followed by dry seeded after conventional tillage (26.34 q/ha) and zero tillage transplanting (25.29 q/ha) which were statistically at par (Figure 16). On average basis application of 150 kg N/ha produced maximum grain yield (36.58 q/ha) followed by LCC based (33.58 q/ha) which were statistically at par.

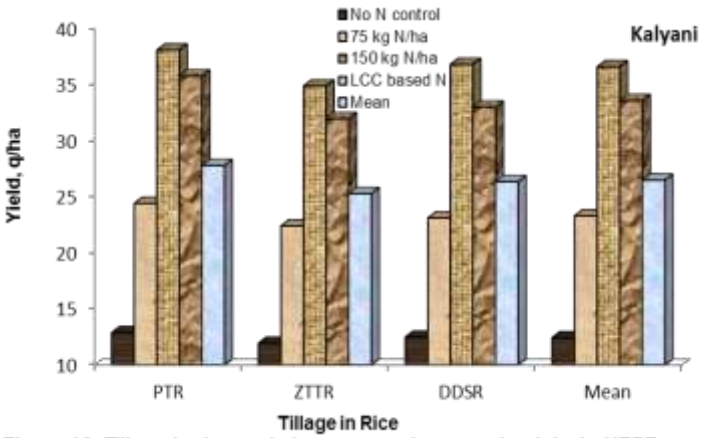

Figure 16. Tillage in rice and nitrogen on wheat productivity in NEPZ

SPL-3 Sowing time effect on wheat productivity in Peninsular Zone

In view of the changing climate, the optimum sowing time has been a matter of debate for quite some time. To optimize the sowing time for yield maximisation in wheat, a special coordinated trial was planned and conducted in peninsular zones under irrigated conditions.

The trial was conducted at two locations (Dharwad and Niphad) with three sowing dates and four recommended varieties of the zone (Figure 17). The grain yield recorded

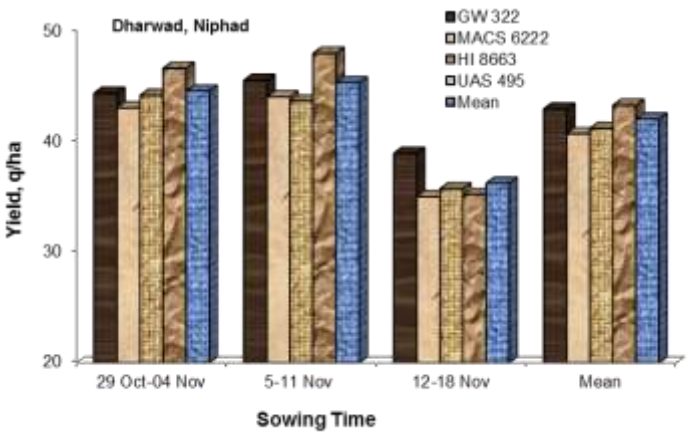

Figure 17. Performane of varieties under sowing dates in PZ

in the first two sowing periods was at par. Further delay in wheat sowing drastically reduced the grain yield (36.21 q/ha). Decrease in yield due to delayed sowing was mainly due to significantly lower number of grains per earhead and thousand grain weight as compared to earlier sowing periods. Among varieties, UAS 415 recorded maximum grain yield (43.26 q/ha) followed by GW 322 (42.93 q/ha). The variety GW 322 gave higher yield for third period of seeding whereas for the first two sowing periods UAS 415 recorded the highest grain yield.

SPL-4: Performance of wheat varieties at different dates of sowing under irrigated conditions

The sowing time needs to be adjusted under the changing climate and a special coordinated trial was planned and conducted in Northern Hill Zone and Northern West Plain Zone under irrigated conditions.

In Northern Hills Zone, four high yielding varieties (VL804, VL 907, HS 507 and HS 240) were evaluated at four dates of sowing (25th October, 05th November, 15th November and 25th November). The trial was conducted at five locations (Almora, Bajaura, Imphal, Khudwani and Malan). The wheat grain yield was at par when sown from 25th October to 5th November with an average yield of 45.91 to 44.85 q/ha, respectively (Figure 18). The sowing after first week of November caused significant yield reductions and yield recorded was 41.16 and 39.99 q/ha, when sown on 15th and 25th November, respectively. Among varieties, HS 240 produced significantly lower grain yield (37.64 q/ha) than other varieties. The data suggests that the wheat should be sown in northern hills from 25th October to 5th November for optimum productivity.

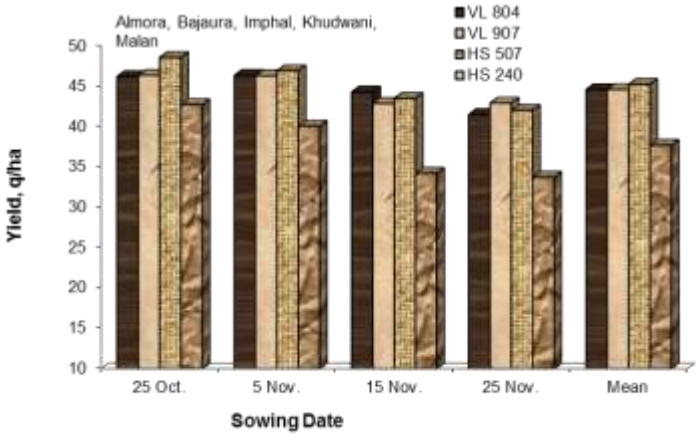

Figure 18. Performane of varieties under sowing dates in NHZ

In North Western Plain Zone also four high yielding varieties evaluated were DPW 621-50, PBW 550, HD 2967 and WH 1105 at four dates of sowing (25th October, 05th November, 15th November and 25th November) and at seven locations (Agra, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar). The wheat grain yield was the highest when sown on 25th October (53.69 q/ha) followed by 5th November sown with an average yield of 52.55 q/ha (Figure 19). The sowing after first week of November caused significant yield reductions and yield recorded was 51.05 and 50.01 q/ha, when sown on 15th and 25th November, respectively. Among varieties, WH 1105 produced significantly higher grain yield (53.30 q/ha) than other varieties. The data suggests that the wheat should be sown in NWPZ from 25th October to 5th November for optimum productivity.

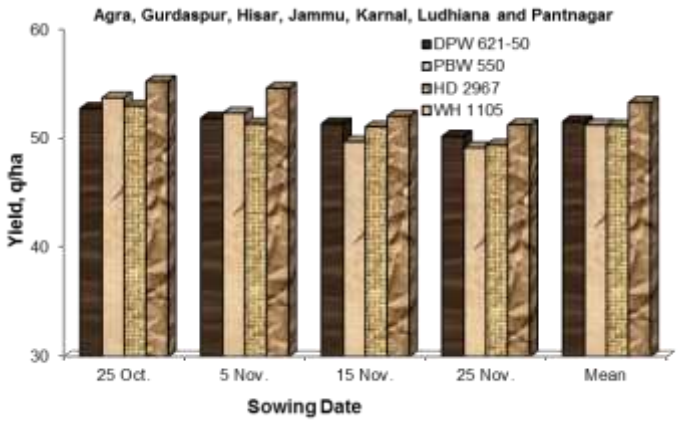

Figure 19. Performance of varieties under sowing dates in NWPZ

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

To improve the water use efficiency and wheat productivity, an experiment was initiated at four locations *i.e.* Durgapura and Karnal in NWPZ, Vijapur in CZ and Niphad in PZ. The treatments comprised of three irrigation systems namely conventional flood irrigation; drip irrigation and sprinkler irrigation and four irrigation schedules *viz*. IW/CPE of 1.20, 1.00, 0.80 and 0.60.

In North Western Plains Zone, this trial was conducted at two locations (Durgapura and Karnal). Both irrigation methods and irrigation schedules have significant effect on yield (Figure 20). The highest yield was recorded in drip irrigation (53.35 q/ha) which was significantly higher than other methods of irrigation. Among irrigation schedules the highest yield (53.30 q/ha) was recorded in IW/CPE-1.00 treatment followed by IW/CPE-1.20 treatment (52.24 q/ha) which were at par among themselves and significantly superior to IW/CPE-0.80 and IW/CPE-0.60 treatments. At Durgapura, the water expense in flood and sprinkler irrigation was almost similar having a difference of only 0.3 per cent whereas in drip irrigation a saving of 11.5 per cent was recorded. At Karnal, the respective saving of water was 21.0 and 3.7 percent.

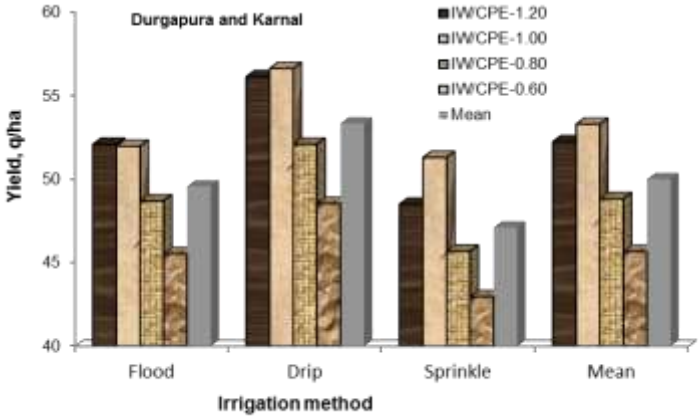

Figure 20. Irrigation scheduling in wheat-NWPZ

In Central Zone, the maximum wheat grain yield was obtained with flood irrigation with a mean yield of 45.06 q/ha (Table 4). Between two drip irrigation schedules, drip-ADFPE (alternate day fraction pan evaporation) base schedule was significantly superior to drip-CPE base schedule except at IW/CPE ratio of 0.6. Among four IW/CPE ratios, the maximum wheat yield was obtained at a ratio of 1.2 and declined as the ratio reduced to 0.6. The different drip irrigation schedules were imposed after applying CRI irrigation. In drip-ADFPE base scheduling, a total of 27 irrigations were applied. In drip-CPE base schedule, total number of irrigations of 40 mm each, given were 6, 5, 4 and 3 under IW/CPE ratios of 1.2, 1.0, 0.8 and 0.6, respectively

Table 4. Irrigation scheduling in wheat-Central Zone **Vijapur**

Irrigation Method	Irrigation Schedule	Yield, q/ha	Water used after CRI irrigation, mm
Conventional Flood	Check	45.06	420.0
Drip- ADFPE base	1.2 IW/CPE	44.25	260.7
	1.0 IW/CPE	41.94	217.3
	0.8 IW/CPE	36.90	173.9
	0.6 IW/CPE	33.96	130.4
Drip- CPE basis	1.2 IW/CPE	44.22	240.0
	1.0 IW/CPE	37.93	200.0
	0.8 IW/CPE	33.20	160.0
	0.6 IW/CPE	33.45	120.0
	CD (0.05)	**1.95**	

In Peninsular Zone, this trial was conducted at one location *i.e.* Niphad with three irrigation options (conventional, drip and sprinkler) and four IW/CPE ratio (1.2, 1.0, 0.8 and 0.6). Drip irrigation produced maximum and significantly higher grain yield (45.4 q/ha) than other methods. Similarly, sprinkler irrigation also produced significantly higher grain yield (42.13 q/ha) than conventional flood irrigation (Figure 21). Application of irrigation at 0.8 IW/CPE ratio produced maximum grain yield (45.06 q/ha) followed by 1.0, 0.6 and 1.2 IW/CPE.

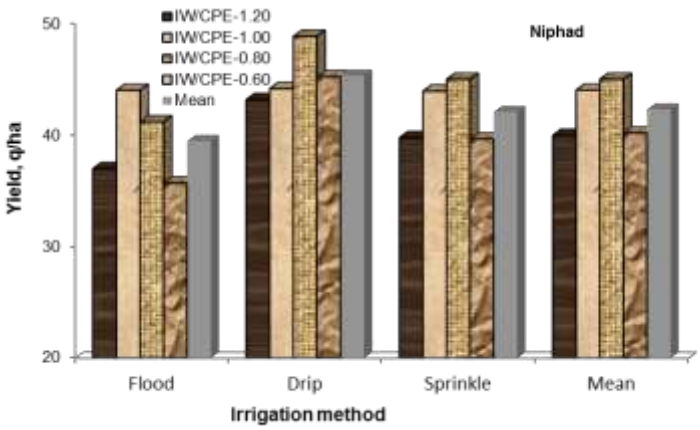

Figure 21. Irrigation scheduling in wheat-PZ

SPL-6: Improving productivity of cotton-wheat system through relay cropping

This trial was conducted at two locations at Sirsa and Hisar to explore the possibility of relay seeding of wheat with cotton for increased productivity of wheat leading to improved productivity and profitability of Cotton-Wheat system.

At Sirsa, the trial was conducted with seven seeding options viz., (i) Wheat seeding after short duration Cotton, (ii) Broadcasting + Power tiller, (iii) Power tiller drilling, (iv) Dry Seed broadcasting, (v) Soaked seed broadcasting, (vi) Sprouted seed broadcasting and (vii) Late sown after long duration cotton. The effect of various seeding options and the variety as well as their interaction effects were statistically significant. The highest mean yield, as expected, was recorded in drill sown wheat after harvest of short duration cotton (Figure 22). As compared to late sown condition, the yield levels in relay cropped wheat were either statistically similar or higher. However, there was a yield gain of 7.35 and 3.38 percent in mixing the seed after broadcasting and drilling using power tiller, respectively. In surface seeding of wheat by broadcasting, the mean yield levels in rest of the treatments were 0.3 to 7.13 percent lower.

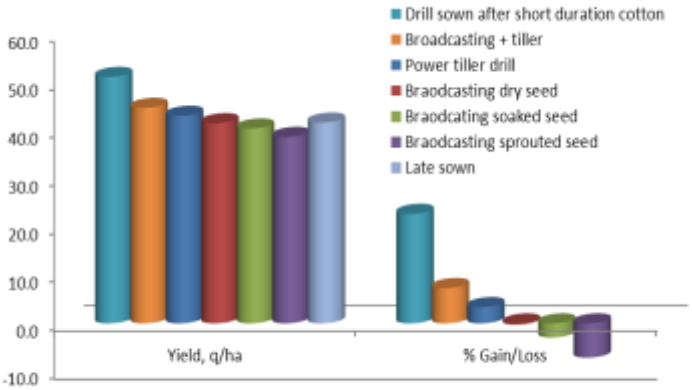

Figure 22. Performance of relay wheat in cotton-wheat cropping system

At Hisar, this trial was conducted with four treatments *i.e.* Cotton-Wheat (Wheat sown after cotton harvest in December), Cotton-Wheat (Wheat relay sown in November), Cotton-Wheat (Wheat relay sown in December) and Cotton-Wheat (Wheat sown after cotton harvest in November) and four varieties (DPW 621-50, PBW 550, HD 2967 and WH 1105). The highest yield (60.21 q/ha) was obtained in Cotton-Wheat (sown after cotton harvest in November) which was significantly superior to other treatments of planting options. Among varieties WH 1105 produced the highest yield (53.59 q/ha) followed by HD 2967 (52.09 q/ha), PBW 550 (50.51 q/ha) and the variety DPW 621-50 produced the lowest yield (48.59 q/ha).

SPL-7: Wheat yield maximization under different tillage options

To identify the effect of different tillage options and row spacing on wheat productivity under different nutrients levels, an experiment involving chiselling followed by two tillage options (Conventional tillage for both rice and wheat and Rotary tillage for both rice and wheat), two row spacing (20 cm and 15 cm), and three nutrients levels in wheat (Recommended NPK, Recommended NPK + FYM @ 15 t/ha and 125% Recommended NPK+FYM @ 15 t/ha) was conducted in NWPZ at three locations (Karnal, Ludhiana and Pantnagar. The effect of tillage options and row spacing was significant and the highest yield (59.02 q/ha) was obtained in conventional tillage at 15 cm spacing which was significantly superior to other treatments of tillage and row spacing. The effect of the nutrients levels was also significant. Application of 125% Recommended NPK + FYM @ 15 t/ha produced significantly higher yield (58.10 q/ha) than recommended NPK treatment and at par with recommended NPK + FYM @ 15 t/ha treatment.

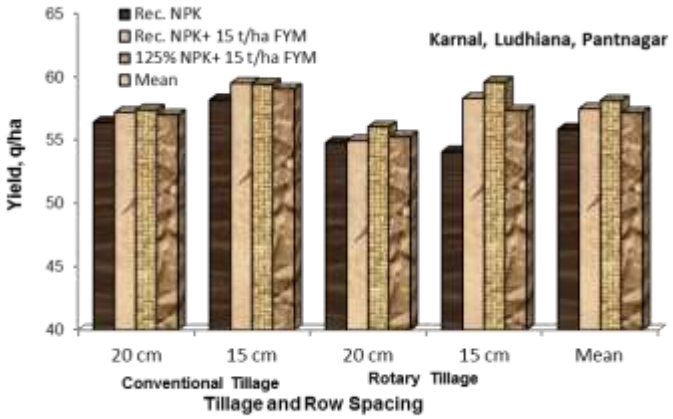

Figure 23. Tillage and Spacing for wheat yield maximisation in NWPZ

Coordinated Trials

Northern Hills Zone

The Northern Hills Zone represents Himachal Pradesh, parts of Jammu & Kashmir, Uttarakhand and North Eastern Hills. The six centres namely Almora, Bajaura, Imphal (Manipur), Khudwani (Anantnag), Malan (Palampur) and Shimla are actively engaged in wheat research under All India Coordinated Wheat and Barley Improvement Project. The soil data was received only from four centres (Bajaura, Imphal, Khudwani and Malan) and are presented in Annexure II. The soil texture at all the four centres varied from silty clay loam to silty clay. Almora and Shimla centres did not report soil data for their centre. The organic carbon content of Bajaura, Imphal, Khudwani and Malan centres was 0.55, 1.27, 0.89 and 0.59 per cent, respectively, with low to high in nitrogen and medium to high in phosphorus and potash contents. The data on meteorological parameters received from various centres has been reported in Annexure III. The rainfall was well distributed at all the locations for which data were received and the highest rainfall of 650.3 mm was recorded at Anantnag during the crop growing period followed by 555.5 mm at Bajaura, 522.9 mm at Malan, 243 mm at Almora, 140 mm at Shimla and 131.5 at Imphal from November, 2013 to May, 2014. The maximum and minimum temperatures were 31.9 and -1.6 ºC at Almora, 25 and -4.0 ºC at Anantnag 30.8 and -1.1 ºC at Bajaura, 33.5 and 1.0 ºC at Imphal, 33.7 and 5.5 ºC at Malan, and 24.1 and 3.1 ºC at Shimla, respectively. Three coordinated trials were conducted in this zone to evaluate the performance of wheat genotypes under different growing conditions *i.e.* time of sowing under irrigated timely sown condition, nitrogen levels under rainfed early and rainfed timely sown conditions.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

In this zone, the performance of genotypes was evaluated for sowing time under irrigated conditions and nitrogen levels under rainfed sown conditions at different locations.

Irrigated Timely Sown- *aestivum*

One test entry i.e. VL 967 was evaluated against four checks (VL 804,VL 907, HPW 349 and HS 507) at two dates of sowing (timely and late) under irrigated conditions in split plot design with date of sowing in main plots and genotypes in sub plots replicated thrice. The trial was conducted at six locations namely Almora, Anantnag, Bajaura, Imphal, Malan, and Shimla. 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 (120 kg/ha) was applied in three splits (1/3 at sowing and remaining 2/3 nitrogen as 1/3 at first irrigation *i.e.* at 20-25 days after sowing and 1/3 at second irrigation *i.e*. 40-45 days after sowing), whereas full phosphorus and potash was applied as basal.

The pooled analysis presented in Table 1.1 revealed significant differences in yield among dates and genotypes, whereas the interaction effects were not significant. Test entry, VL 967 produced significantly higher grain yield (44.3 q/ha) compared to all check except VL 907. The better yield in new test entry was due to boldest grains having a test weight of 47.9 g/1000 grains. The sowing delay from timely to late sown conditions caused a yield reduction of 2.15 q/ha. The centre wise data are given in Annexure-I as Tables 1.1.1 to 1.1.6.

Table 1.1 Northern Hills Zone	IR-TS-TAS-DOS		Pooled			2013-14	
	Sowing time						
Genotype	Timely	Rk	Late	Rk		Mean	Rk
			Yield, q/ha				
VL 967	44.25	1	44.42	1		44.3	1
HS 507 (c)	42.90	3	41.03	3		42.0	3
VL 804 (c)	42.58	4	39.68	4		41.1	4
VL 907 (c)	44.15	2	41.29	2		42.7	2
HPW 349 (c)	42.41	5	39.10	5		40.8	5
Mean	43.26		41.11			42.2	
CD (0.05)	Sowing (A)		Genotype (B)		B within A	A within B	
	0.96		1.66		NS	NS	
			Earhead/sq.m.				
VL 967	305	4	314	3		309	4
HS 507 (c)	303	5	306	4		305	5
VL 804 (c)	331	2	344	1		338	1
VL 907 (c)	333	1	324	2		328	2
HPW 349 (c)	318	3	303	5		311	3
Mean	318		318			318	
CD (0.05)	Sowing (A)		Genotype (B)		B within A	A within B	
	NS		10.60		NS	NS	
			Grains/Earhead				
VL 967	30.68	4	29.98	3		30.3	4
HS 507 (c)	32.82	1	31.90	1		32.4	1
VL 804 (c)	31.85	2	29.38	4		30.6	2
VL 907 (c)	29.57	5	28.85	5		29.2	5
HPW 349 (c)	30.86	3	30.35	2		30.6	3
Mean	31.16		30.09			30.6	
CD (0.05)	Sowing (A)		Genotype (B)		B within A	A within B	
	0.75		1.53		NS	NS	
			1000 Grains weight, g				
VL 967	48.17	1	47.59	1		47.9	1
HS 507 (c)	42.28	4	40.53	4		41.4	4
VL 804 (c)	41.16	5	40.07	5		40.6	5
VL 907 (c)	45.06	2	43.44	2		44.3	2
HPW 349 (c)	42.96	3	42.00	3		42.5	3
Mean	43.93		42.73			43.3	
CD (0.05)	Sowing (A)		Genotype (B)		B within A	A within B	
	1.08		1.09		NS	NS	

Centre: Almora, Bajaura, Imphal, Khudwani, Malan, Shimla.

Rainfed Conditions

Early sown

One test genotype, HPW 376 was evaluated against four checks namely HS 277, VL 829, HPW 251 and HS 542 at three levels of nitrogen (40, 60 and 80 kg/ha) in split plot design under rainfed conditions. This trial was conducted at the five locations namely Almora, Bajaura, Khudwani, Malan and Shimla. The pooled data is presented in Table 1.2 and the centre wise data in Annexure-I as Tables 1.2.1 to 1.2.6. The sowing was done using the normalized seed rate of 125 kg/ha at a row-to-row spacing of 20 cm. Full nitrogen, phosphorus (30 kg P_2O_5/ha) and potash (20 kg K_2O) were applied at the time of sowing. Weed control measures were followed as per the recommended practice.

The pooled analysis revealed significant differences in yield and yield attributes among nitrogen levels and genotypes, whereas the interaction effects were non-significant for grain yield and grains/earhead. The test genotype was inferior to checks HS 542 and HPW 251. Application of nitrogen brought about significant increase in yield up to 80 kg N/ha and the highest mean yield (29.33 q/ha) was recorded at 80 kg N/ha. The check genotype VL 829 had the boldest grains (43.62 g/1000 grains). The performance of genotypes at individual centres is presented in Table 1.2.1 to 1.2.5 in Annexure-I.

Table 1.2 Northern Hills Zone RF-ES-TAS-LON Pooled 2013-14

	Nitrogen level, kg/ha							
Genotype	40	Rk	60	Rk	80	Rk	Mean	RK
			Yield, q/ha					
HPW 376	21.71	4	27.56	2	29.98	2	26.42	3
HS 277 (c)	23.71	1	25.64	4	28.43	5	25.93	4
VL 829 (c)	21.09	5	24.56	5	29.03	3	24.89	5
HPW 251 (c)	22.86	2	27.75	1	28.92	4	26.51	2
HS 542 (I)	22.50	3	27.09	3	30.28	1	26.62	1
Mean	22.37		26.52		29.33		26.07	
CD (.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	1.25		1.14		NS		NS	
			Earhead/sq.m.					
HPW 376	287	4	313	2	327	1	309	2
HS 277 (c)	304	2	299	3	311	3	305	3
VL 829 (c)	263	5	259	5	289	5	270	5
HPW 251 (c)	305	1	327	1	319	2	317	1
HS 542 (I)	303	3	278	4	304	4	295	4
Mean	292		295		310		299	
CD (.05)	Nitrogen (A)		Genotype(B)		B within A		A within B	
	7.67		9.06		15.68		15.77	
			Grains/Earhead					
HPW 376	19.98	3	22.95	4	23.21	5	22.05	5
HS 277 (c)	21.69	1	23.43	1	24.45	2	23.19	1
VL 829 (c)	19.48	5	22.49	5	24.23	3	22.07	4
HPW 251 (c)	20.44	2	23.36	2	25.01	1	22.94	2
HS 542 (I)	19.76	4	22.95	3	23.75	4	22.15	3
Mean	20.27		23.04		24.13		22.48	
CD (.05)	Nitrogen (A)		Genotype(B)		B within A		A within B	
	0.74		0.84		NS		NS	
			1000 Grains weight, g					
HPW 376	40.25	4	41.46	3	42.44	3	41.38	3
HS 277 (c)	39.40	5	40.05	5	40.59	4	40.01	5
VL 829 (c)	42.86	1	44.02	1	44.00	2	43.62	1
HPW 251 (c)	41.18	2	41.41	4	39.86	5	40.82	4
HS 542 (I)	41.04	3	43.88	2	44.32	1	43.08	2
Mean	40.95		42.16		42.24		41.78	
CD (.05)	Nitrogen (A)		Genotype(B)		B within A		A within B	
	0.70		0.75		1.30		1.34	

Centres: Almora, Bajaura, Khudwani, Malan, Shimla.

Timely sown

One test entry i.e. VL 967 was evaluated against four checks (VL 804,VL 907, HPW 349 and HS 507) at three nitrogen levels (40, 60 and 80 kg/ha) under irrigated conditions in split plot design with N levels in main plots and genotypes in sub plots replicated thrice. This trial was also conducted at all the six locations namely Almora, Bajaura, Imphal, Khudwani, Malan and Shimla. The sowing was done using the normalized (adjusted considering 1000 grains

weight as 38 g) seed rate of 125 kg/ha at a row-to-row spacing of 20 cm. Full nitrogen, phosphorus (30 kg P_2O_5/ha) and potash (20 kg K_2O) were applied at the time of sowing. Weed control measures were followed as per the recommended practice.

The pooled data is presented in Table 1.3 and the centre wise data in Annexure-I as Tables 1.3.1 to 1.3.6. The pooled analysis revealed significant differences in yield among nitrogen levels and genotypes, whereas the interaction effects were significant only for grain yield and earhead density. The highest grain yield (32.48 q/ha) was produced at 80 kg N/ha, which was significantly higher than 40 and 60 kg N/ha. The test entry VL 967 was significantly inferior to best check genotype VL 907. Compared to best check test genotype had 2.47 q/ha lesser yield. However, the test genotype (VL 967) had the boldest grains with 1000 grains weight of 47.59 g.

Table 1.3. Northern Hills Zone RF-TS-TAS-LON Pooled 2013-14

	Nitrogen level, kg/ha							
Genotype	40	RK	60	RK	80	RK	Mean	RK
			Yield, q/ha					
VL 967	25.22	4	29.60	3	32.09	4	28.97	3
HS 507 (c)	25.80	2	31.40	1	32.94	2	30.05	2
VL 804 (c)	25.39	3	28.69	5	29.69	5	27.92	5
VL 907 (c)	28.12	1	30.61	2	35.59	1	31.44	1
HPW 349 (c)	25.19	5	28.88	4	32.09	3	28.72	4
Mean	25.94		29.84		32.48		29.42	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	1.10		0.95		1.65		1.81	
			Earhead/sq.m.					
VL 967	255	4	266	5	278	5	266	5
HS 507 (c)	253	5	292	2	301	3	282	2
VL 804 (c)	277	2	281	4	289	4	282	3
VL 907 (c)	286	1	293	1	321	1	300	1
HPW 349 (c)	261	3	281	3	303	2	282	4
Mean	267		282		299		283	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	7.60		7.91		13.70		14.22	
			Grains/Earhead					
VL 967	21.61	5	23.77	5	23.87	5	23.08	5
HS 507 (c)	26.01	1	26.82	1	26.98	1	26.60	1
VL 804 (c)	24.93	2	26.48	2	25.56	3	25.66	2
VL 907 (c)	23.69	4	24.22	4	25.97	2	24.63	4
HPW 349 (c)	24.12	3	24.68	3	25.40	4	24.73	3
Mean	24.07		25.19		25.56		24.94	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.57		0.68		NS		NS	
			1000 Grains weight, g					
VL 967	46.55	1	47.45	1	48.78	1	47.59	1
HS 507 (c)	39.11	4	40.71	4	40.64	5	40.15	4
VL 804 (c)	37.94	5	39.02	5	40.72	4	39.23	5
VL 907 (c)	42.32	2	43.94	2	43.78	2	43.35	2
HPW 349 (c)	40.48	3	41.78	3	42.21	3	41.49	3
Mean	41.28		42.58		43.22		42.36	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.40		0.55		NS		NS	

Centres: Almora, Bajaura, Imphal, Khudwani, Malan, Shimla.

North Western Plains Zone

In the North Western Plains Zone, the areas covered are the states of Haryana, Punjab, Delhi, western UP, part of Rajasthan and Jammu area of J&K. Eleven centres in this zone namely Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, 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 0.19% at Durgapura to 0.80% at Gurdaspur. Soils of this zone are low in available nitrogen, medium to high in available phosphorus and available potash. The maximum rainfall was received at Pantnagar (421.4 mm) followed by Nagina (294.8 mm), Gurdaspur (276.5 mm), Agra (256.5 mm), Jammu (250.9 mm), Ludhiana (229.0 mm), Karnal (199.3 mm), Hisar (109.3 mm) and the lowest amount of rain (84.9 mm) during the wheat crop season 2013-14 was received at Durgapura. The maximum and minimum temperatures at different locations were 40.1 and 5.0 ºC at Agra, 38.2 and 6.4 ºC at Durgapura, 36.5 and 3.2 ºC at Gurdaspur, 37.6 and 2.4ºC at Hisar, 35.8.1 and 1.6 ºC at Jammu, 37.8 and 4.4 ºC at Karnal, 37.2 and 3.8 ºC at Ludhiana, 31.5 and 5.5 ºC at Nagina, and 37.9 and 5.4ºC at Pantnagar, respectively. In this zone three coordinated trials were conducted to evaluate second year genotypes for different growing conditions at various locations.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

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

Irrigated Timely Sown-*aestivum*

The performance of three *aestivum* test entries, HUW 666, PBW 681 and WH 1138 against six checks (DBW 88, HD 3086 DPW 621-50, HD 2967, PBW 550 and WH 1105) was evaluated at ten centres *i.e.* Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar under timely and late sown conditions. For pooled analysis all the ten centres data were considered and there was no rejection. The timely sowing time was from 5th to 11th November and the late sowing was from 10th to 16th December. The trial was laid out in a split plot design with sowing time in main and genotypes in sub plots with three replications. The sowing was done using the normalized (adjusted considering 1000 grains weight of 38 g) seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Nitrogen was applied in three splits (1/3 at sowing and remaining 2/3 nitrogen as 1/3rd at first irrigation *i.e.* at 20-25 days after sowing and 1/3rd at second irrigation *i.e.* 40-45 days after sowing), whereas full phosphorus and potash was applied as basal.

Table 2.1. North Western Plains Zone IR-TS-TAS-DOS Pooled 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
HUW 666	52.50	6	45.73	1	49.12	3
PBW 681	53.59	2	43.61	7	48.60	6
WH 1138	52.34	7	44.70	5	48.52	7
DBW 88 (I)	52.07	8	45.39	4	48.73	4
HD 3086 (I)	53.21	3	45.42	3	49.31	2
DPW 621-50 (c)	52.78	5	43.37	8	48.08	8
HD 2967 (c)	52.88	4	44.46	6	48.67	5
PBW 550 (c)	49.61	9	42.24	9	45.92	9
WH 1105 (c)	54.00	1	45.55	2	49.77	1
Mean	52.55		44.50		48.53	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	0.61	0.89	1.26	1.32		
			Earhead/sq.m.			
HUW 666	390	9	357	7	374	9
PBW 681	406	5	361	5	383	6
WH 1138	416	2	376	2	396	2
DBW 88 (I)	407	4	372	3	389	3
HD 3086 (I)	417	1	381	1	399	1
DPW 621-50 (c)	413	3	360	6	386	4
HD 2967 (c)	400	6	371	4	386	5
PBW 550 (c)	395	8	353	9	374	8
WH 1105 (c)	396	7	354	8	375	7
Mean	404		365		385	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	5.86	8.08	NS	NS		
			Grains/Earhead			
HUW 666	35.36	2	36.03	4	35.70	3
PBW 681	36.60	1	36.09	3	36.34	1
WH 1138	32.14	9	33.56	9	32.85	9
DBW 88 (I)	32.93	7	34.14	5	33.54	7
HD 3086 (I)	32.51	8	33.81	8	33.16	8
DPW 621-50 (c)	33.06	6	34.05	6	33.56	6
HD 2967 (c)	33.61	5	33.82	7	33.72	5
PBW 550 (c)	33.90	4	36.20	2	35.05	4
WH 1105 (c)	35.32	3	36.80	1	36.06	2
Mean	33.94		34.95		34.44	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	0.80	1.03	NS	NS		
			1000 Grains weight, g			
HUW 666	39.16	7	36.94	1	38.05	6
PBW 681	37.52	9	34.95	9	36.23	9
WH 1138	40.31	1	36.89	3	38.60	1
DBW 88 (I)	39.50	5	36.91	2	38.20	4
HD 3086 (I)	40.26	2	36.84	4	38.55	2
DPW 621-50 (c)	39.42	6	36.47	6	37.95	7
HD 2967 (c)	40.04	3	36.70	5	38.37	3
PBW 550 (c)	38.14	8	34.99	8	36.56	8
WH 1105 (c)	39.76	4	36.46	7	38.11	5
Mean	39.34		36.35		37.85	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	0.36	0.63	NS	NS		

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

The perusal of pooled data in Table 2.1 indicates that there was a significant decline in yield from 52.55 q/ha to 44.50 q/ha when sowing was delayed from timely to late sown conditions because of significant reduction in number of earheads/m^2 and 1000 grain weight. The average yield decline due to delayed sowing was 15.3 per cent. On average basis, no test entry was found better than the best check entry WH 1105 and identified entry HD 3086. The check entry WH 1105 ranked the first under timely and second under late sown conditions. It was followed by identified entry HD 3086 with an average yield of 49.31 q/ha. The centre wise data are presented in Tables 2.1.1 to 2.1.10 in Annexure-I.

Irrigated Late Sown

One test entry, WH 1129 was evaluated against six checks *viz*. DBW 90, WH 1024, HD 3059, PBW 550, PBW 590 and WH 1021 at eleven locations (Agra, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar) under late (10^{th} December to 16^{th} December) and very late (1^{st} January to 7^{th} January) sown conditions. For pooled analysis all the eleven centres data were considered since there was no rejection.

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 18 cm. Recommended doses of 120:60:40 kg N, P_2O_5 and K_2O were applied. Nitrogen was applied in three splits (1/3 at sowing and remaining 2/3 nitrogen in two equal splits viz. 1/3^{rd} at first irrigation *i.e.* at 20-25 days after sowing and 1/3^{rd} 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 2.3.11. The significant effect of sowing time and genotypes was observed on yield and yield attributes and interaction effects were non-significant for yield and yield attributes. Late sowing gave higher productivity (mean yield 46.05 q/ha) of all genotypes compared to very late sowing (mean yield 35.55 q/ha) and on an average, yield declined by 22.8% when sowing was delayed from late to very late situations. The yield decline was due to significant reduction in effective tillering, and 1000 grains weight under very late sown conditions as compared to late sown conditions. On an average basis, the test entry viz. WH 1129 was significantly inferior to both the identified check genotypes DBW 90 and WH 1124 and check entry HD 3059. The identified entry DBW 90 produced the highest yield (43.26 q/ha) as well as earhead density (366 per square meter).

Table 2.2. North Western Plains Zone IR-LS-TAS-DOS Pooled 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
			Yield, q/ha			
WH 1129	45.58	4	34.42	4	40.00	4
DBW 90 (I)	48.35	1	38.17	2	43.26	1
WH 1124 (I)	46.99	3	36.72	3	41.85	3
HD 3059 (c)	47.56	2	38.79	1	43.17	2
PBW 550 (c)	45.07	5	33.98	6	39.52	5
PBW 590 (c)	44.93	6	32.46	7	38.69	7
WH 1021 (c)	43.86	7	34.28	5	39.07	6
Mean	46.05		35.55		40.80	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	0.67	0.88	1.25	1.32		
			Earhead/sq.m.			
WH 1129	370	5	321	5	346	5
DBW 90 (I)	395	1	336	1	366	1
WH 1124 (I)	384	2	335	2	359	2
HD 3059 (c)	378	3	321	4	350	3
PBW 550 (c)	366	6	316	7	341	7
PBW 590 (c)	366	7	317	6	342	6
WH 1021 (c)	371	4	324	3	347	4
Mean	376		324		350	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	4.51	7.33	NS	NS		
			Grains/Earhead			
WH 1129	33.44	3	31.97	6	32.71	5
DBW 90 (I)	33.20	4	34.24	2	33.72	2
WH 1124 (I)	33.18	5	33.25	3	33.21	4
HD 3059 (c)	32.67	6	35.99	1	34.33	1
PBW 550 (c)	33.71	2	33.03	4	33.37	3
PBW 590 (c)	33.88	1	30.76	7	32.32	7
WH 1021 (c)	32.24	7	32.99	5	32.61	6
Mean	33.19		33.17		33.18	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	NS	0.96	1.36	1.48		
			1000 Grains weight, g			
WH 1129	38.72	3	34.68	2	36.70	3
DBW 90 (I)	38.41	5	34.36	4	36.39	4
WH 1124 (I)	38.87	2	34.63	3	36.75	2
HD 3059 (c)	40.26	1	35.19	1	37.73	1
PBW 550 (c)	38.64	4	34.03	6	36.34	5
PBW 590 (c)	38.41	6	34.06	5	36.23	6
WH 1021 (c)	38.23	7	34.00	7	36.11	7
Mean	38.79		34.42		36.61	
CD (0.05)	Sowing (A)	Genotype (B)	B within A	A within B		
	0.31	0.42	NS	NS		

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

The highest grains/earhead were observed in check entry HD 3059 (34.33 grains/earhead) followed by identified entry DBW 90 (33.72 grains/earhead). The performance of genotypes at individual centres is presented in Table 2.2.1 to 2.2.11 in Annexure-I. The perusal of centre wise results indicated that the yield decline was the highest at Sriganganagar (47.5%) followed by Durgapura (32.2%), Ludhiana (31.0%), Agra (29.6%), Pantnagar (23.4%), Jammu (21.1%), Nagina (20.2%), Hisar (17.6), Karnal (14.8%) and Delhi (7.3%) and the lowest at Gurdaspur (0.8%) when sowing was delayed from second week of December to first week of January. The test entry WH 1129 was significantly inferior to other identified or checks entries at all the centres of North Western Plain Zone.

Restricted Irrigation

The restricted irrigation trial was conducted with the objective to evaluate the one *aestivum* test entry, WH 1142 against four checks (C 306, HD 3043, PBW 644 and WH 1080) at ten locations (Agra, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Nagina, Pantnagar and Sriganganagar). The trial was laid out in a split plot design with number of irrigations in main and genotypes in sub plots with three replications. The sowing was done using the normalized (adjusted considering 1000 grains weight as 38 g) seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Nitrogen, phosphorus and potash (90:60:40 kg N, P_2O_5 and K_2O) were applied as full basal was applied in I_1 treatment *i.e.* no irrigation, whereas 1/3 N and full phosphorus and potash was applied as basal at sowing and remaining 2/3 nitrogen at first irrigation *i.e.* at 20-25 days after sowing in I_2 (One irrigation at CRI) and I_3 (Two irrigations at CRI and Boot leaf (BL) stages) treatments. The pooled analysis is presented in Table 2.3 and the centre wise data are in Annexure-I in Tables 2.3.1 to 2.3.10.

The perusal of data in Table 2.3 indicates that there was a significant improvement in yield from 36.78 q/ha to 43.29 q/ha when number of irrigation increased from no irrigation to two irrigations because of significant increase in number of earheads/m^2 and 1000 grain weight. The average yield improvement was 12.1 and 17.7 per cent, respectively with one and two irrigations compared to no irrigation. On an average, the test entry WH 1142 produced significantly higher yield (43.82 q/ha) compared to other checks. Based on pooled results, the test entry WH 1142 ranked first in grains/earhead (33.57). The highest tillers (354/sq.m.) were recorded in check entry C 306 and boldest grains (41.22 g/ 1000 grains) were recorded in check entry PBW 644. The interaction of irrigation and genotypes was found significant for grain yield as well as earhead density and number of grains/earhead.

Table 2.3. North Western Plains Zone **RIR-TS-TAS** **Pooled** **2013-14**

Genotype	Number of Irrigations: No	Rk	One at CRI	Rk	Two at CRI&BL	Rk	Mean	Rk
			Yield, q/ha					
WH 1142	38.99	1	44.94	1	47.53	1	43.82	1
C-306 (c)	32.97	5	35.32	5	36.45	5	34.91	5
HD 3043 (c)	37.37	3	41.91	3	45.07	2	41.45	2
PBW 644 (c)	37.55	2	40.82	4	43.32	4	40.57	4
WH 1080 (c)	37.02	4	43.09	2	44.11	3	41.41	3
Mean	36.78		41.22		43.29		40.43	
CD (0.05)	Irrigation		Genotype		B within A		A within B	
	0.68		0.73		1.26		1.31	
			Earhead/sq.m.					
WH 1142	325	2	358	2	367	2	350	2
C-306 (c)	339	1	358	3	366	3	354	1
HD 3043 (c)	304	4	356	4	364	4	341	4
PBW 644 (c)	302	5	343	5	348	5	331	5
WH 1080 (c)	316	3	360	1	370	1	349	3
Mean	317		355		363		345	
CD (0.05)	Irrigation		Genotype		B within A		A within B	
	7.06		6.38		11.05		12.02	
			Grains/Earhead					
WH 1142	32.93	1	32.93	1	34.85	1	33.57	1
C-306 (c)	25.44	5	24.57	5	24.84	5	24.95	5
HD 3043 (c)	32.02	2	30.58	2	31.95	2	31.52	2
PBW 644 (c)	31.33	3	28.72	4	30.27	3	30.10	4
WH 1080 (c)	30.57	4	30.02	3	30.17	4	30.25	3
Mean	30.46		29.36		30.42		30.08	
CD (0.05)	Irrigation		Genotype		B within A		A within B	
	0.79		0.73		1.27		1.37	
			1000 Grains weight, g					
WH 1142	37.87	5	38.68	5	37.78	5	38.11	5
C-306 (c)	39.55	3	41.12	2	40.56	2	40.41	2
HD 3043 (c)	38.99	4	38.97	4	39.36	4	39.11	4
PBW 644 (c)	40.33	1	41.76	1	41.59	1	41.22	1
WH 1080 (c)	40.05	2	40.59	3	40.30	3	40.31	3
Mean	39.36		40.22		39.92		39.83	
CD (0.05)	Irrigation		Genotype		B within A		A within B	
	0.47		0.53		NS		NS	

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

North Eastern Plains Zone

The North Eastern Plains Zone (NEPZ) is the second most important wheat growing zone of the country consisting of Assam, Bihar, Jharkhand, Orissa, eastern parts of UP and West Bengal. All the eleven centres namely Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani and Varanasi are actively involved in coordinated research activities. Soils of this zone are sandy loam to clay loam having organic carbon contents varying from 0.41 per cent at IARI Pusa and Ranchi to 1.24 per cent at Shillongani. The soils of this zone are low to medium in available nitrogen, medium to high in available phosphorus and low to high in available potash. Wheat production and productivity in this zone are more dependent on weather conditions during the crop season. The temperature is an important factor affecting the wheat productivity. Rainfall received varied from 26.2 mm at Kalyani to 381.7 mm at Burdwan during the *rabi* season of 2013-14. The rainfall was the highest at Burdwan (381.7 mm) followed by Sabour (350.2 mm), RAU Pusa (327.2 mm), Kanpur (293.8 mm), Shillongani (288.6 mm), Varanasi (263.5 mm), Faizabad (111.8 mm), Ranchi (89.1 mm), IARI Pusa (87.1 mm) and Kalyani (26.2 mm). The maximum and minimum temperatures at different locations were 35.7 and 10.1ºC at Burdwan, 34.3 and 9.1ºC at Coochbehar, 36.6 and 5.9ºC at Faizabad, 37.8 and 9.0ºC at IARI Pusa, 41.6 and 9.1ºC at Kalyani, 39.8 and 6.9ºC at Kanpur, 37.0 and 5.3ºC at Ranchi, 38.9 and 9.0ºC at RAU Pusa, 39.4 and 8.9ºC at Sabour, 34.9 and 9.8ºC at Shillongani and 36.3 and 9.8ºC at Varanasi, respectively.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

In this zone, the performance of genotypes was evaluated for sowing time under irrigated conditions and nitrogen levels under rainfed conditions and the results are summarized here under;

Irrigated Late Sown

In this trial, three test entries (DBD 107, HD 3118 and K 1114) and five checks (DBW 14, HD 2733, HD 2985, HI 1563 and NW 2036) were evaluated under late and very late sown conditions in split plot design and replicated thrice. Main plots comprised the dates of sowing treatment and the genotypes were in the sub plots. The trial was conducted at eleven locations (Burdwan, Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, Ranchi, RAU Pusa, Sabour, Shillongani and Varanasi). NPK fertilizers were applied @ 120:60:40 kg N, P_2O_5 and K_2O/ha with 1/3 N and full P and K as basal application and the remaining 2/3 nitrogen was applied as 1/3rd at first irrigation *i.e.* at 20-25 days after sowing and 1/3rd at second irrigation *i.e.* 40-45 days after sowing. The normalized seed rate used was 125 kg/ha (considering the 1000 grain weight of 38 g) and sowing was done at a row spacing of 18 cm. Irrigation and weed control measures were followed as per recommended package of practices for the zone. Centre wise data are given in Annexure I as Tables 3.1.1 to 3.1.11.

Table 3.1. North Eastern Plains Zone IR-LS-TAS-DOS Pooled 2013-14

Genotype	Sowing Time: Late	Rk	Very Late	Rk	Mean	Rk
			Yield, q/ha			
DBW 107	39.65	3	30.86	6	35.26	3
HD 3118	38.69	8	31.37	3	35.03	5
K 1114	39.28	5	29.72	8	34.50	8
DBW 14 (c)	40.64	2	33.56	1	37.10	1
HD 2985 (c)	38.74	7	31.30	4	35.02	6
HD 2733 (c)	39.10	6	30.24	7	34.67	7
HI 1563 (c)	40.92	1	31.65	2	36.28	2
NW 2036 (c)	39.42	4	31.07	5	35.24	4
Mean	39.55		31.22		35.39	
CD(0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.45		0.82	1.15	1.16	
			Earhead/sq.m.			
DBW 107	305	4	267	7	286	7
HD 3118	305	5	289	3	297	3
K 1114	300	8	265	8	283	8
DBW 14 (c)	329	1	291	2	310	1
HD 2985 (c)	302	7	281	5	291	5
HD 2733 (c)	323	2	295	1	309	2
HI 1563 (c)	309	3	283	4	296	4
NW 2036 (c)	302	6	277	6	290	6
Mean	309		281		295	
CD(0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	5.25		9.28	NS	NS	
			Grains/Earhead			
DBW 107	33.68	5	34.89	1	34.29	4
HD 3118	33.86	4	33.05	7	33.45	5
K 1114	33.08	6	33.42	6	33.25	6
DBW 14 (c)	32.75	7	33.44	5	33.09	7
HD 2985 (c)	35.46	2	33.92	4	34.69	2
HD 2733 (c)	32.75	8	31.82	8	32.28	8
HI 1563 (c)	34.66	3	34.30	3	34.48	3
NW 2036 (c)	36.11	1	34.47	2	35.29	1
Mean	34.04		33.66		33.85	
CD(0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	NS		1.38	NS	NS	
			1000 Grains weight, g			
DBW 107	40.11	4	34.86	4	37.49	4
HD 3118	39.85	5	34.16	8	37.01	6
K 1114	41.24	1	35.30	3	38.27	2
DBW 14 (c)	40.89	2	36.25	1	38.57	1
HD 2985 (c)	38.09	7	34.51	5	36.30	7
HD 2733 (c)	39.24	6	35.73	2	37.49	3
HI 1563 (c)	40.49	3	34.42	7	37.46	5
NW 2036 (c)	37.88	8	34.45	6	36.16	8
Mean	39.73		34.96		37.34	
CD(0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.52		0.72	1.02	1.08	

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

The pooled analysis of data from eleven locations (Table 3.1) revealed significant effect of sowing time and genotype on yield and yield attributes and their interaction effects were also significant for yield and thousand grains weight. On average basis, the grain yield (39.55 q/ha) under late sown conditions was significantly higher compared to very late sown condition (31.22 q/ha). The higher grain yield was due to significantly higher earhead/m^2, grains/earhead and thousand grains weight under late sown compared to very late sown condition. None of the test entries produced higher grain yield than the best check genotypes (HI 1563 under late sown and DBW 14 under very late sown conditions) under both the conditions. Check genotype HI 1563 produced maximum grain yield (40.90 q/ha) under late sown which was statistically superior to test entries. Under very late sown conditions maximum yield grain yield was produced by check genotype DBW 14 (33.56 q/ha) which was significantly higher than the best entry HD 3118 (31.37 q/ha).

Rainfed Conditions

In this trial, one test entry (BRW 3723) and three checks (C 306, HD 2888 and K8027) were evaluated at three nitrogen levels (40, 60 and 80 kg/ha) in split plot design and replicated thrice. Phosphorus and potash were uniformly applied to all the plots in the experiment. The main plots comprised the nitrogen levels and the genotypes were kept in the sub plots in order to more precisely evaluate the differences among various genotypes.

The trial was conducted at ten locations (Coochbehar, Faizabad, IARI Pusa, Kalyani, Kanpur, RAU Pusa, Ranchi, Sabour, Shillongani and Varanasi) across north eastern plains. Full nitrogen as per treatment, phosphorus (30 kg P_2O_5/ha) and potash (20 kg K_2O/ha) was applied at the time of sowing. Weed control measures were followed as per the recommended practice. The normalized seed rate used was 125 kg/ha (considering the 1000 grain weight of 38 g). Centre wise data are given in Annexure I as Tables 3.2.1 to 3.2.10.

The pooled analysis of data from ten locations (Table 3.2) revealed significant effect of nitrogen levels on yield and yield attributes. The interaction effects were significant only for yield and density of effective tillers. On an average basis, application of 80 kg N/ha produced maximum and significantly higher grain yield (33.55 q/ha) compared to 60 kg N/ha (31.25 q/ha) and 40 kg N/ha (27.80 q/ha) application. The test entry BRW 3723 ranked first but the grain yield (31.99 q/ha) was comparable to the yield of best check genotype K 8027 (31.56 q/ha), which were statistically at par with each other.

Table 3.2. North Eastern Plains Zone RF-TAS-LON Pooled 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
Yield, q/ha								
BRW 3723	28.62	1	32.66	1	34.71	1	31.99	1
C 306 (c)	27.28	3	30.48	3	31.85	4	29.87	4
HD 2888 (c)	26.74	4	29.64	4	33.75	3	30.05	3
K 8027 (c)	28.58	2	32.19	2	33.90	2	31.56	2
Mean	27.80		31.25		33.55		30.87	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.61		0.63		1.09		1.11	
Earheads/sq.m.								
BRW 3723	247	3	253	4	263	2	254	3
C 306 (c)	241	4	255	3	261	3	252	4
HD 2888 (c)	254	1	260	1	283	1	266	1
K 8027 (c)	252	2	259	2	259	4	257	2
Mean	249		257		266		257	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	4.54		4.97		8.61		8.66	
Grains/Earhead								
BRW 3723	27.22	2	30.08	1	31.23	1	29.51	1
C 306 (C)	27.78	1	28.67	2	29.38	3	28.61	2
HD 2888(C)	25.78	4	27.61	4	29.01	4	27.47	4
K 8027 (C)	26.70	3	28.59	3	30.13	2	28.47	3
Mean	27.22	2	30.08	1	31.23	1	29.51	1
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.73		0.74		NS		NS	
1000 Grains weight, g								
BRW 3723	42.66	2	43.16	2	42.75	2	42.85	2
C 306 (c)	41.32	4	42.40	3	42.44	4	42.05	4
HD 2888 (c)	41.50	3	42.16	4	42.54	3	42.07	3
K 8027 (c)	43.05	1	44.07	1	44.21	1	43.78	1
Mean	42.13		42.95		42.98		42.69	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.50		0.54		NS		NS	

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

CENTRAL ZONE

In the Central Zone, nine locations namely Bilaspur, Gwalior, Indore, Junagarh, Kota, Powarkheda, Sagar, Udaipur and Vijapur are actively involved in the coordinated research activities for advancement and improvement of breeding material under irrigated as well as rainfed conditions. The data on soil and climatic parameters at various locations are given in Annexure II and III. The soils in this zone varied from sandy loam to clayey texture, neutral to slightly alkaline in reaction (pH: 7.4 to 8.1). All of the centres were low to medium in organic carbon (0.32-0.79%) status. The available nitrogen status was low to medium (120.2-322 kg/ha), phosphorus medium to high (12.3-48.16 kg/ha) and potassium was in high (240- 660 kg/ha) at most of the locations. The maximum rainfall in this zone during the wheat crop season of 2013-14 was recorded at Kota (334.4 mm) followed by Bilaspur (221.4 mm), Sagar (184.4 mm) Indore (152.0 mm), Gwalior (136.6 mm), Udaipur (97.6 mm), Vijapur (43.5 mm), and Powarkheda (33.4 mm). Junagarh centre did not report rainfall data. The maximum and minimum temperature was 37.5 and 9.1ºC at Bilaspur, 30.2 and 6.1ºC at Gwalior, 37.2 and 6.6ºC at Indore, 36.5 and 9.5ºC at Junagarh, 28.0 and 8.0ºC at Kota, 40.4 and 8.5ºC at Powarkheda, 37.3 and 9.8ºC at Sagar, 35.9 and 6.4ºC at Udaipur, and 37.6 and 11.1ºC at Vijapur, respectively. Three coordinated trials for evaluation of new genotypes for various sowing conditions (irrigated timely sown, restricted irrigation and rainfed conditions) were conducted in this zone.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

Irrigated Timely Sown

In this trial, three test entries, one of *aestivum* (MP 3382) and two of *durum* (HI 8736 and HI 8737) were evaluated against four checks {GW 322, HI 1544, HI 8498 (d) and MPO 1215(d)} at two dates of sowing (timely and late) under irrigated conditions. The trial was conducted at nine centres (Bilaspur, Gwalior, Indore, Junagarh, Powarkheda, Sagar, Kota, Udaipur and Vijapur) in split plot design with date of sowing in main plots and genotypes in sub plots. The sowing was done using the normalized seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Nitrogen (120 kg/ha) was applied in three splits (1/3 as basal at sowing and remaining 2/3 in two equal splits at first and second irrigation), whereas full phosphorus (60 kg P_2O_5/ha) and potash (40 kg K_2O/ha) were applied as basal.

The data presented in Table 4.1 reveal that delayed sowing from timely (50.32 q/ha) to late (42.30 q/ha) sown conditions decreased the grain yield significantly (15.9%). However, the effect of delayed sowing was not observed at Vijapur and yield was similar under timely and late sown conditions. The varietal differences were also significant. On an average basis none of the test entry was superior to best check GW 322 (49.64 q/ha). Among durum entries, test entries HD 8736 and HI 8737 produced the significantly higher yield compared to the best durum check MPO 1215.

Table 4.1. Central Zone	**IR-TS-TAD-DOS**		**Pooled**		**2013-14**	
	Sowing time					
Genotype	Timely	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
MP 3382	47.42	7	41.31	5	44.36	6
HI 8736 (d)	52.47	2	43.22	3	47.85	2
HI 8737 (d)	51.07	3	41.66	4	46.36	4
GW 322 (c)	53.80	1	45.48	1	49.64	1
HI 1544 (c)	50.14	4	43.77	2	46.95	3
MPO 1215 (dc)	49.05	5	40.64	6	44.85	5
HI 8498 (dc)	48.32	6	40.03	7	44.17	7
Mean	50.32		42.30		46.31	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.57		0.86	1.21	1.24	
			Earhead/sq.m.			
MP 3382	380	3	335	4	357	4
HI 8736 (d)	372	4	344	3	358	3
HI 8737 (d)	352	5	322	6	337	5
GW 322 (c)	390	2	354	2	372	2
HI 1544 (c)	400	1	358	1	379	1
MPO 1215 (dc)	348	6	322	5	335	6
HI 8498 (dc)	345	7	312	7	328	7
Mean	370		335		352	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	3.21		5.22	7.38	7.46	
			Grains/Earhead			
MP 3382	27.67	6	28.12	4	27.89	5
HI 8736 (d)	27.83	5	25.97	7	26.90	7
HI 8737 (d)	29.69	3	28.32	3	29.01	2
GW 322 (c)	31.73	1	31.61	1	31.67	1
HI 1544 (c)	28.33	4	28.55	2	28.44	4
MPO 1215 (dc)	29.99	2	27.54	5	28.77	3
HI 8498 (dc)	27.63	7	26.30	6	26.97	6
Mean	28.98		28.06		28.52	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.49		0.71	1.01	1.04	
			1000 Grains weight, g			
MP 3382	45.61	5	44.44	5	45.02	5
HI 8736 (d)	52.09	1	49.54	2	50.82	1
HI 8737 (d)	49.25	3	47.67	3	48.46	3
GW 322 (c)	44.43	7	41.61	7	43.02	7
HI 1544 (c)	45.48	6	44.01	6	44.75	6
MPO 1215 (dc)	49.01	4	47.36	4	48.19	4
HI 8498 (dc)	51.66	2	49.73	1	50.69	2
Mean	48.22		46.34		47.28	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.38		0.58	NS	NS	
Centres: Bilaspur, Gwalior, Indore, Junagarh, Kota, Powarkhed, Sagar, Udaipur, Vijapur.						

The maximum earheads/m^2 was recorded in check genotype HI1544 (379 earhead) followed by GW 322 (372 earhead). The durum test entry HI 8736 had the boldest grains with an average 1000 grain weight of 50.82 g. The numbers of grains per earhead were maximum in check genotype GW 322. The performance of genotypes at different centres is given in Tables 4.1.1 to 4.1.9 in Annexure I.

Restricted Irrigation

One test entry DBW 110 was evaluated at three irrigation schedules (no irrigation, one irrigation at CRI, two irrigation at CRI & Boot leaf stage) against four checks [(HI 8627(dc), DBW 110, A-9-30-1(c), HI 1500(c), MP 3288(c)] at nine locations (Bilaspur, Gwalior, Indore, Junagarh, Powarkheda, Sagar, Kota, Udaipur and Vijapur) in a split plot design with three

replications. The sowing was done using the normalized seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. The nutrients were applied @ 90:60:40 kg N, P_2O_5 and K_2O/ha. Full dose of NPK was applied as basal in no irrigation treatment, whereas in one and two irrigation treatment, N was applied in two splits (1/3rd at sowing and 2/3rd at CRI).

The pooled analysis of the yield and ancillary characters are presented in Table 4.2. Irrigation and genotype had significant effect on yield and yield attributes. The interaction effects were also significant except for 1000 grains weight. The application of two irrigations increased the yield by 55.6% and 14.2% over no and one irrigation treatments. Among genotypes, the test entry DBW 110 was significantly better than all the check genotypes on mean basis. The better yield in test entry DBW 110 was due to its better grains/earhead. The check genotype HI 8627 had the boldest grains (47.16 g/1000 grains) and was followed by the test entry DBW 110 (46.53 g). Without irrigation, the highest yield of 23.32 q/ha followed by 22.60 q/ha was recorded by check genotype MP 3288 and test entry DBW 110, respectively. The centre wise data are given in Annexure-1 from Table 4.2.1 and 4.2.9.

Table 4.2. Central Zone **RIR-TS-TAD** **Pooled** **2013-14**

	Irrigation level							
Genotype	Zero	Rk	One at CRI	Rk	Two at CRI&BL	Rk	Mean	Rk
				Yield, q/ha				
DBW 110	22.60	2	32.03	1	36.23	1	30.29	1
HI 8627(dc)	21.40	3	31.02	2	34.54	3	28.99	3
A-9-30-1(c)	17.84	5	24.07	5	27.59	5	23.17	5
HI 1500(c)	19.72	4	26.33	4	30.05	4	25.37	4
MP 3288(c)	23.32	1	29.02	3	34.78	2	29.04	2
Mean	20.98		28.50		32.64		27.37	
CD (0.05)	Irrigation (A)		Genotype (B)		B within A		A within B	
	0.56		0.56		0.96		1.02	
				Earhead/sq.m.				
DBW 110	213	4	247	5	286	3	249	5
HI 8627(dc)	224	3	273	2	286	2	261	2
A-9-30-1(c)	213	5	265	3	282	5	253	4
HI 1500(c)	227	2	255	4	285	4	255	3
MP 3288(c)	262	1	304	1	319	1	295	1
Mean	228		269		291		263	
CD (0.05)	Irrigation (A)		Genotype (B)		B within A		A within B	
	5.10		5.41		9.37		9.72	
				Grains/Earhead				
DBW 110	26.79	1	29.50	1	26.72	1	27.67	1
HI 8627(dc)	20.41	5	25.11	3	26.10	2	23.88	4
A-9-30-1(c)	21.29	4	22.62	5	22.74	5	22.22	5
HI 1500(c)	22.05	3	25.32	2	24.36	4	23.91	3
MP 3288(c)	23.54	2	24.15	4	24.41	3	24.04	2
Mean	22.82		25.34		24.87		24.34	
CD (0.05)	Irrigation (A)		Genotype (B)		B within A		A within B	
	0.87		1.09		1.89		1.89	
				1000 Grains weight, g				
DBW 110	43.91	2	46.13	2	49.54	1	46.53	2
HI 8627(dc)	45.52	1	47.08	1	48.89	2	47.16	1
A-9-30-1(c)	40.69	5	41.72	5	45.13	4	42.51	4
HI 1500(c)	40.71	4	41.88	3	44.66	5	42.42	5
MP 3288(c)	41.22	3	41.84	4	45.55	3	42.87	3
Mean	42.41		43.73		46.75		44.30	
CD (0.05)	Irrigation (A)		Genotype (B)		B within A		A within B	
	0.65		0.68		NS		NS	

Centres: Bilaspur, Gwalior, Indore, Junagarh, Kota, Powarkheda, Sagar, Udaipur, Vijapur.

Rainfed Conditions

In this trial, three new genotypes, NIAW 1885, PBW 689 and WH 1142 were evaluated against two checks (HI 1500 and MP 3288) at three nitrogen levels (40, 60 and 80 kg/ha) in split plot design under rainfed conditions. This trial was conducted at eight locations (Bilaspur, Gwalior, Indore, Powarkheda, Sagar, Kota, Udaipur and Vijapur). The sowing was done using the normalized seed rate of 125 kg/ha at a row-to-row spacing of 20 cm. Full nitrogen, phosphorus (30 kg P_2O_5/ha) and potash (20 kg K_2O) were applied at sowing. Weed control measures were followed as per the recommended practice. The pooled analysis (Table 4.3) revealed that the test entry WH 1142 was significantly superior compared to both the check genotypes and test entries except NIAW 1885, which was at par. Application of nitrogen brought about significant increase in yield up to 80 kg N/ha and the highest mean yield (25.81q/ha) was recorded at 80 kg N/ha. The interaction between nitrogen and genotypes was found non-significant for grain yield. The test entry PBW 689 had the boldest grains (47.98 g/1000 grains). The performance of genotypes at individual centres is presented in Table 4.3.1 to 4.3.8 in Annexure-I.

Table 4.3.	**Central Zone**		**RF-TAS-LON**		**Pooled**		**2013-14**	
	Nitrogen level, kg/ha							
Genotype	40	Rk	60	Rk	80	Rk	Mean	Rk
			Yield, q/ha					
NIAW 1885	20.46	3	24.38	2	26.07	2	23.64	2
PBW 689	19.69	4	22.21	5	25.23	5	22.38	5
WH 1142	21.37	1	24.63	1	26.39	1	24.13	1
MP 3288(c)	20.90	2	23.49	3	25.68	4	23.36	3
HI 1500 (c)	19.56	5	23.24	4	25.69	3	22.83	4
Mean	20.40		23.59		25.81		23.27	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.56		0.54		NS		NS	
			Earhead/sq.m.					
NIAW 1885	229	4	247	2	264	1	247	1
PBW 689	240	2	236	5	246	5	241	3
WH 1142	224	5	248	1	249	3	240	4
MP 3288(c)	243	1	245	3	252	2	246	2
HI 1500 (c)	230	3	242	4	247	4	240	5
Mean	233		244		251		243	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	9.00		5.87		10.16		12.55	
			Grains/Earhead					
NIAW 1885	21.55	2	22.84	3	22.04	4	22.14	4
PBW 689	17.90	5	20.01	5	21.62	5	19.84	5
WH 1142	23.95	1	23.54	1	24.95	1	24.14	1
MP 3288(c)	21.37	3	22.14	4	23.56	2	22.36	2
HI 1500 (c)	20.17	4	22.98	2	23.47	3	22.21	3
Mean	20.99		22.30		23.13		22.14	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	1.05		0.89		1.54		1.71	
			1000 Grains weight, g					
NIAW 1885	41.78	3	43.56	2	44.43	3	43.26	2
PBW 689	47.06	1	47.98	1	48.90	1	47.98	1
WH 1142	40.26	5	42.22	5	42.87	5	41.78	5
MP 3288(c)	40.76	4	43.17	3	43.29	4	42.41	4
HI 1500 (c)	42.57	2	42.25	4	44.78	2	43.20	3
Mean	42.49		43.84		44.85		43.73	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.50		0.43		0.74		0.82	
Centres: Bilaspur, Gwalior, Indore, Kota, Powarkheda, Sagar, Udaipur, Vijapur.								

Peninsular Zone

In Peninsular zone, five centres (Akola, Dharwad, Niphad, Pune and Washim), are actively engaged in research activities of coordinated wheat agronomy programme. The data of soil and climatic parameters are reported in Annexure II and Annexure III, respectively. The soils of this zone are clayey to deep vertisol with medium to high organic carbon ranging from 0.56 to 0.79 per cent. The available soil nitrogen varied from low to medium (129.0 to 254.0 kg N/ha), phosphorus from medium to high (10.12 to 42.0 kg P/ha) whereas the potash content in soil was very high (269 to 733 kg K/ha). The water is a limiting factor in this zone and productivity is mainly dependent on rainfall and also the temperature during the crop growing cycle (November to April). Majority of rainfall received was in the months of September-November, and some rainfall was received during later stages in the crop season. The maximum rainfall received was 349.6 mm at Bijapur followed by 214.5 mm at Washim, 207.4 mm at Dharwad, 119.6 mm at Niphad and 83.4 mm at Pune. The average maximum and minimum temperatures were 31.4 and 13.6 ºC at Niphad, 29.9 and 16.8 ºC at Dharwad, 31.4 and 17.6 ºC at Bijapur, 31.8 and 15.3 ºC at Pune, and 22.6 and 17.7 ºC at Washim, respectively.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

Rainfed Conditions

In this trial, three new genotypes (UAS 347, NIAW 1994 and UAS 446(d)) were evaluated against three checks (NI 5439, AKDW 2997-16 and NIAW 1415), at three nitrogen levels (40, 60 and 80 kg/ha) in split plot design replicated thrice, under rainfed conditions. The trial was conducted at six locations (Ambajogai, Annigeri, Bagalkot, Bijapur, Dharwad and Washim). Full nitrogen as per treatments, phosphorus (30 kg P_2O_5/ha) and potash (20 kg K_2O/ha) were applied as basal at the time of sowing. The normalised seed rate used was 125 kg/ha (adjusting 1000 grains weight as 38 g). Weed control measures were followed as per the recommended practice for the zone.

The data of all the six locations were pooled for statistically analysis and are presented in Table 5.1. The statistically analysed centre wise data are presented in Annexure-I as Tables 5.1.1 to 5.1.6.

Table 5.1. Peninsular Zone	**RF-TAS-LON**		**Pooled**		**2013-14**			
	Nitrogen level, kg/ha							
Genotype	40	Rk	60	Rk	80	Rk	Average	Rk
			Yield, q/ha					
NIAW 1994	15.12	2	16.04	3	16.18	2	15.78	3
UAS 347	16.18	1	16.41	2	17.36	1	16.65	1
UAS 446 (d)	15.08	3	14.33	5	14.78	4	14.73	4
NI 5439 (c)	13.62	5	14.90	4	14.11	5	14.21	5
NIAW 1415 (c)	15.04	4	16.52	1	15.95	3	15.84	2
AKDW 2997-16 (dc)	13.06	6	12.52	6	13.31	6	12.96	6
Mean	14.68		15.12		15.28		15.03	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	NS		0.54		0.94		0.98	
			Earhead/sqm					
NIAW 1994	181	6	187	5	202	4	190	5
UAS 347	198	2	194	2	209	3	201	2
UAS 446 (d)	204	1	204	1	211	2	206	1
NI 5439 (c)	184	5	191	4	195	5	190	4
NIAW 1415 (c)	187	3	192	3	211	1	197	3
AKDW 2997-16 (dc)	186	4	178	6	185	6	183	6
Mean	190		191		202		194	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	3.85		4.94		8.56		8.64	
			Grains/Earhead					
NIAW 1994	20.85	4	21.94	3	20.56	2	21.11	3
UAS 347	21.35	2	22.94	2	22.92	1	22.41	1
UAS 446 (d)	21.22	3	19.53	5	19.54	4	20.10	4
NI 5439 (c)	18.79	5	20.48	4	18.90	5	19.39	5
NIAW 1415 (c)	21.81	1	23.74	1	20.31	3	21.95	2
AKDW 2997-16 (dc)	16.90	6	17.70	6	17.47	6	17.36	6
Mean	20.15		21.05		19.95		20.38	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	NS		1.05		1.82		2.00	
			1000 Grains Weight, g					
NIAW 1994	40.57	2	40.43	1	40.31	2	40.44	2
UAS 347	39.67	3	38.34	4	38.45	6	38.82	4
UAS 446 (d)	36.82	6	37.44	5	38.75	4	37.67	5
NI 5439 (c)	39.41	4	39.56	3	39.24	3	39.40	3
NIAW 1415 (c)	37.12	5	37.07	6	38.68	5	37.62	6
AKDW 2997-16 (dc)	41.41	1	39.82	2	40.96	1	40.73	1
Mean	39.16		38.78		39.40		39.11	
CD (0.05)	Nitrogen (A)		Genotype (B)		B within A		A within B	
	0.39		0.43		0.75		0.78	

Centers: Ambajogai, Annigeri, Bagalkot, Bijapur, Dharwad and Washim

The pooled analysis revealed that the test entry UAS 347 gave significantly higher yield (16.65 q/ha) as compared to the other test entries as well as checks. The other test entry NIAW 1994 ranked third on over all basis with grain yield of 15.78 q/ha. On mean basis, the effect of nitrogen was non-significant for grain yield and grains per earhead but effective tillers per unit area and thousand grains weight were significantly affected. Effects of genotypes on yield and yield attributes were significant and interaction effects were significant for yield as well as all the yield attributes. The new genotype, UAS 347, produced maximum grain yield mainly due to highest numbers of grains/earhead as compared to other genotypes. Comparing durum test entry with durum check, it was found that test entry UAS 446 was significantly superior with a yield gain of 13.66 percent.

Irrigated Timely Sown-*diccocum*

In this trial, two test entries (MACS 5022 and DDK 1042) were evaluated, at two dates of sowing *i.e.* timely (5th to 11th November) and late (26th November to 2nd December) sown conditions, against four check genotypes (DDK 1009, MACS 2971, HW 1098 and MACS 2496) at five locations (Akola, Dharwad, Niphad, Pune, Washim) in split plot design with three replications. The fertilisers at the rate of 120 kg nitrogen, 60 kg phosphorus and 40 kg potash per hectare were applied. The whole of P_2O_5 and K_2O and 1/3rd nitrogen was applied at the time of sowing. The remaining 2/3rd nitrogen was applied in two equal splits at first and second irrigation. Other recommended package of practices were followed with respect to sowing, weed control and irrigation measures *etc*.

The centre-wise statistical analysis of the data indicated high coefficient of variation (CV) for Akola centre and all other locations data were within the prescribed limit of CV. Hence, the data of Akola centre were not considered for pooled analysis. The pooled analysis of data from other four centres (Dharwad, Niphad, Pune and Washim) are presented in Table 5.2 and the centre wise data for all the five locations are given in Annexure-I as Tables 5.2.1 to 5.2.5. The effect of sowing time and genotypes was significant for yield and yield attributes. The interaction effects were also significant except earhead density. The delay in sowing from timely (45.30 q/ha) to late (40.03 q/ha) reduced the grain yield by 5.27 q/ha indicating an grain yield reduction by 11.63 per cent. On mean basis, test entry MACS 5022 produced maximum and significantly higher grain yield (45.20 q/ha) as compared to other entries and checks. Yield increase in MACS 5022 was mainly contributed by significantly higher grains/earhead (35.20) as compared to other genotypes. The yield gain was 3.46 percent for the new genotype MACS 5022 as compared to the best check MACS 2496 indicating that yield wise this is the best genotype in this trial and can be considered for identification if found good for diseases and quality traits also.

Table 5.2. Peninsular Zone IR-TS-DIC-DOS Pooled 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
			Yield, q/ha			
DDK 1042	43.45	5	39.43	4	41.44	5
MACS 5022	47.22	2	43.19	1	45.20	1
MACS 2496 (c)	46.26	3	41.12	2	43.69	2
HW 1098 (I)	48.15	1	37.67	6	42.91	3
MACS 2971 (c)	43.16	6	38.61	5	40.89	6
DDK 1029 (c)	43.56	4	40.19	3	41.87	4
Mean	45.30		40.03		42.67	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	1.06		1.22	1.73	1.83	
			Earhead/sq.m.			
DDK 1042	374	1	369	3	372	2
MACS 5022	329	6	344	6	336	6
MACS 2496 (c)	373	2	391	1	382	1
HW 1098 (I)	348	5	363	4	355	5
MACS 2971 (c)	358	4	362	5	360	4
DDK 1029 (c)	372	3	371	2	372	2
Mean	359		367		363	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	6.66		18.42	NS	NS	
			Grains/Earhead			
DDK 1042	28.86	4	28.03	3	28.45	4
MACS 5022	36.55	1	33.85	1	35.20	1
MACS 2496 (c)	27.58	5	25.69	5	26.64	6
HW 1098 (I)	34.04	2	25.69	6	29.87	3
MACS 2971 (c)	31.37	3	29.01	2	30.19	2
DDK 1029 (c)	26.67	6	26.80	4	26.73	5
Mean	30.85		28.18		29.51	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	1.15		2.49	3.52	3.36	
			1000 Grains weight, g			
DDK 1042	42.54	4	40.67	4	41.61	4
MACS 5022	41.37	5	38.90	5	40.14	5
MACS 2496 (c)	46.67	1	42.90	1	44.78	1
HW 1098 (I)	44.19	3	41.91	3	43.05	3
MACS 2971 (c)	40.91	6	38.84	6	39.88	6
DDK 1029 (c)	46.38	2	42.16	2	44.27	2
Mean	43.68		40.90		42.29	
CD (0.05)	Sowing (A)		Genotype (B)	B within A	A within B	
	0.32		0.78	1.11	1.05	

Centers: Dharwad, Niphad, Pune, Washim.

Southern Hills Zone

The Southern Hills zone is comprised of Nilgiri hills in the Tamil Nadu state. The agronomic evaluation of second year advanced varietal trial entries is done at only one location and there is a need to have at least a few more locations to draw valid conclusions. The climate of this centre is such that wheat can be grown throughout the year. During the crop cycle (Nov. to April) average maximum temperature was 11.1ºC and minimum was 7.2ºC. A rainfall of about 505.2 mm was received from October to April at Wellington. Soils of this region are acidic in nature, rich in organic carbon (2.4 %) and medium in available nitrogen, phosphorus and potassium. During the Rabi season 2013-14, one trial (at Wellington) for evaluation of diccocum wheat genotypes under timely sown condition was conducted.

EVALUATION UNDER DIFFERENT GROWING CONDITIONS

Irrigated Timely Sown

Two test entries MACS 5022 and DDK 1042 were evaluated at two dates of sowing *i.e.* timely (5th to 11th November) and late (26th November to 2nd December) sown conditions against four checks (MACS 2496, HW 1098, MACS 2971 and DDK 1029) at Wellington centre of Southern Hills Zone in split plot design with three replications. The dates of sowings were kept in main plots and genotypes in sub plots to more precisely evaluate the differences among various diccocum genotypes being evaluated for timely sown irrigated wheat growing conditions. Recommended package of practices were followed with respect to sowing, fertilization and weed control measures.

The data on yield and yield attributes as affected by sowing time and genotypes are presented in Table 6.1. The effect of sowing time and genotypes was significant for yield and yield attributes except number of grains/earhead for sowing time. The interaction effects were not significant for grain yield but for yield attributes, the interaction effects were significant. The delay in sowing from timely (37.96 q/ha) to late (34.44 q/ha) reduced the grain yield by 3.52 q/ha (9.27 per cent). On an average basis, the test entry MACS 5022 produced the maximum and significantly higher grain yield (40.47 q/ha) as compared to other genotypes and checks. The better yield of MACS 5022 was due to significantly higher grains/earhead as compared to other genotypes.

Table 6.1. Southern Hills Zone		Wellington	IR-TS-DIC-DOS		2013-14	
	Sowing time					
Genotype	Timely	Rk	Late	Rk	Mean	Rk
		Yield, q/ha				
DDK 1042	40.30	2	31.90	5	36.10	3
MACS 5022	42.27	1	38.67	1	40.47	1
MACS 2496 (c)	34.70	6	30.87	6	32.78	6
HW 1098 (I)	34.80	5	33.63	4	34.22	5
MACS 2971 (c)	38.13	3	37.33	2	37.73	2
DDK 1029 (c)	37.53	4	34.23	3	35.88	4
Mean	37.96		34.44		36.20	
CD (0.05)	Sowing (A)	Genotype (B)	B within A		A within B	
	1.07	2.92	NS		NS	
		Earhead/sq.m.				
DDK 1042	473	5	443	5	458	4
MACS 5022	540	2	482	2	511	2
MACS 2496 (c)	575	1	450	4	513	1
HW 1098 (I)	480	4	425	6	453	5
MACS 2971 (c)	481	3	494	1	488	3
DDK 1029 (c)	440	6	455	3	448	6
Mean	498		458		478	
CD (0.05)	Sowing (A)	Genotype (B)	B within A		A within B	
	12.16	16.97	24.01		22.69	
		Grains/Earhead				
DDK 1042	16.62	2	13.67	4	15.15	2
MACS 5022	17.43	1	19.76	1	18.59	1
MACS 2496 (c)	8.63	6	11.83	6	10.23	6
HW 1098 (I)	13.79	3	14.37	3	14.08	3
MACS 2971 (c)	12.62	5	12.12	5	12.37	5
DDK 1029 (c)	13.42	4	14.66	2	14.04	4
Mean	13.75		14.40		14.08	
CD (0.05)	Sowing (A)	Genotype (B)	B within A		A within B	
	NS	1.25	1.77		1.64	
		1000 Grains weight, g				
DDK 1042	51.33	5	52.67	4	52.00	5
MACS 5022	45.00	6	40.67	6	42.83	6
MACS 2496 (c)	70.00	1	58.00	2	64.00	1
HW 1098 (I)	52.67	4	55.00	3	53.83	4
MACS 2971 (c)	63.00	3	62.33	1	62.67	2
DDK 1029 (c)	63.67	2	51.33	5	57.50	3
Mean	57.61		53.33		55.47	
CD (0.05)	Sowing (A)	Genotype (B)	B within A		A within B	
	2.28	1.98	2.80		2.79	
Dates of sowing:	14.11.2013	16.12.2013	Dates of Harvesting:		10.04.2014	12.05.2014

Production Technologies

PRODUCTION TECHNOLOGIES

In order to address the zone-wise specific issues in wheat production, a number of special coordinated trials on sowing time, relay cropping of wheat with cotton and integrated nutrient and water management were formulated and conducted across different wheat growing zones. In all seven special coordinated trials were conducted, majority of which were across different wheat growing zones. The results of various experiments on updating the package of practices are summarised in this section.

SPL-1: Precision nutrient management in wheat

To optimize nutrient usage and maximize wheat yield, an experiment was conducted in four wheat growing zones namely NHZ, NWPZ, NEPZ and CZ. The experiment was conducted in strip plot design with two tillage options *i.e.* conventional tillage (CT) and zero tillage (ZT) in main plots and four nutrient management options in sub plots. Four nutrient management treatments were NPK @150:60:40 kg/ha, where full P&K applied using NPK mixture as basal and remaining N top dressed in two equal splits after first and second irrigation; NPK @150:60:40 kg/ha, where full P&K applied using NPK mixture as basal and remaining N top dressed in two equal splits just before first and second irrigation; SSNM based on Wheat Nutrient Expert; SSNM based on Wheat Nutrient Expert (Full PK + micronutrient, if any and 70% N) + remaining N as guided by GreenSeeker. The sowing was done using the normalized seed rate of 100 kg/ha at a row-to-row spacing of 20 cm. Irrigation and weed control measures were followed as per the recommended practice.

In NHZ, the trial was conducted at two centres namely Bajaura and Malan and pooled analysis data are given in Table 7.1. The effect of tillage was non-significant as the yield recorded was similar in both tillage options. The effect of nutrient management was significant for yield and yield attributes except the number of grains per earhead. The yield obtained with application of NPK @150:60:40 kg/ha, where N was top dressed after first and second irrigation was statistically similar to the treatment where nitrogen was top dressed just before first and second irrigation. These two treatments were significantly superior to other two nutrient management options using SSNM and SSNM and GreenSeeker, which were statistically at par. The centre wise data in Tables 7.1.1 and 7.1.2 shows that at Malan the yield was highest in treatment where nitrogen was applied just before irrigation and lowest in SSNM treatment in which fertiliser was applied based on Nutrient Expert for Wheat whereas the reverse trend was observed at Bajaura.

Table 7.1. Northern Hills Zone	**Pooled**				**SPL-1**	
	Tillage Option					
Nutrient Management	ZT	Rk	CT	Rk	Mean	Rk
Yield, q/ha						
NPK 150:60:40 After Irrigation	48.99	1	51.62	1	50.30	1
NPK 150:60:40 Before Irrigation	47.78	2	50.45	2	49.11	2
SSNM-Nutrient Expert	46.94	3	46.06	4	46.50	4
SSNM + GreenSeeker	46.88	4	47.32	3	47.10	3
Mean	47.65		48.86		48.25	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		2.01	NS	NS	
Earhead/sq.m.						
NPK 150:60:40 After Irrigation	382.71	1	382.50	1	382.60	1
NPK 150:60:40 Before Irrigation	357.71	2	373.33	2	365.52	2
SSNM-Nutrient Expert	351.46	3	351.04	3	351.25	3
SSNM + GreenSeeker	347.92	4	332.71	4	340.31	4
Mean	359.95		359.90		359.92	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		22.84	NS	NS	
Grains/Earhead						
NPK 150:60:40 After Irrigation	30.81	4	32.49	2	31.65	3
NPK 150:60:40 Before Irrigation	31.43	1	32.12	3	31.77	2
SSNM-Nutrient Expert	31.10	3	30.53	4	30.82	4
SSNM + GreenSeeker	31.12	2	32.79	1	31.96	1
Mean	31.12		31.98		31.55	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		NS	NS	NS	
1000 Grains weight, g						
NPK 150:60:40 After Irrigation	41.92	4	41.29	4	41.61	4
NPK 150:60:40 Before Irrigation	42.69	3	42.08	3	42.38	3
SSNM-Nutrient Expert	43.15	1	43.06	2	43.10	2
SSNM + GreenSeeker	43.00	2	43.37	1	43.19	1
Mean	42.69		42.45		42.57	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		1.08	NS	NS	
Centres: Bajaura, Malan						

In NWPZ, the trial was conducted at four locations namely Durgapura, Karnal, Ludhiana and Pantnagar and the pooled analysis data is given in Table 7.2. The effect of tillage was significant and the yield recorded was higher in conventional tillage as compared to zero tillage. The effect of nutrient management was significant for earhead density only. The highest yield was obtained with application of NPK @150:60:40 kg/ha, where N top dressed just before first and second irrigation was numerically superior to other three nutrient

management options. The centre wise data are presented in Annexure-I from Table 7.2.1 to Table 7.2.4 and showed variable for different nutrient scheduling.

Table 7.2. North Western Plain Zone	**SPL-1**		**Pooled**		**2013-14**	
	Tillage Options					
Nutrient Management	ZT	Rk	CT	Rk	Mean	Rk
			Yield, q/ha			
NPK 150:60:40 After Irrigation	54.79	3	54.39	4	54.59	4
NPK 150:60:40 Before Irrigation	56.12	1	56.63	1	56.38	1
SSNM-Nutrient Expert	54.80	2	56.10	2	55.45	2
SSNM + GreenSeeker	53.64	4	55.94	3	54.79	3
Mean	54.84		55.76		55.30	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	0.79		NS	NS	NS	
			Earhead/sq.m.			
NPK 150:60:40 After Irrigation	362	4	361	4	361	4
NPK 150:60:40 Before Irrigation	375	1	386	1	381	1
SSNM-Nutrient Expert	370	2	377	2	373	2
SSNM + GreenSeeker	362	3	363	3	362	3
Mean	367		372		369	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		13.3	NS	NS	
Grains/Earhead						
NPK 150:60:40 After Irrigation	39.19	1	38.42	4	38.81	2
NPK 150:60:40 Before Irrigation	37.65	4	38.54	3	38.09	4
SSNM-Nutrient Expert	37.89	3	39.24	2	38.56	3
SSNM + GreenSeeker	38.94	2	41.64	1	40.29	1
Mean	38.42		39.46		38.94	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		NS	NS	NS	
			1000 Grains Weight, g			
NPK 150:60:40 After Irrigation	40.25	3	40.51	2	40.38	3
NPK 150:60:40 Before Irrigation	40.95	2	39.83	3	40.39	2
SSNM-Nutrient Expert	41.09	1	40.59	1	40.84	1
SSNM + GreenSeeker	39.56	4	39.75	4	39.66	4
Mean	40.46		40.17		40.32	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		NS	NS	NS	

Centres: Durgapura, Karnal, Ludhiana, Pantnagar

In Northern Eastern Plains Zone, this trial was conducted at IARI Pusa, Sabour, Ranchi, Varanasi centres and data are presented in Table 7.3. On mean basis, the yield recorded was significantly higher under conventional tillage (43.55 q/ha) as compared to zero tillage (42.32 q/ha). Among nutrient management options, the SSNM treatment in which nutrients were applied based on Nutrient Expert recorded maximum grain yield (45.24 q/ha) followed by SSNM + GreenSeeker treatment in which 70 % N and full PK + micro-nutrient, if any based on Nutrient Expert + remaining N as guided by Green Seeker (43.95 q/ha) which were

found statistically at par. The yield recorded in other two nutrient application treatments was significantly lower compared to SSNM and SSNM + GreenSeeker treatments.

Table 7.3 North Eastern Plain Zone			**SPL-1**		**Pooled**	**2013-14**	
	Tillage Option						
Nutrient Management	ZT	Rk	CT	Rk		Mean	Rk
Yield, q/ha							
NPK 150:60:40 After Irrigation	41.08	3	40.40	4		40.74	4
NPK 150:60:40 Before Irrigation	40.72	4	42.92	3		41.82	3
SSNM-Nutrient Expert	44.64	1	45.84	1		45.24	1
SSNM + GreenSeeker	42.85	2	45.05	2		43.95	2
Mean	42.32		43.55			42.94	
CD (0.05)	Tillage (A)		Nutrient (B)		B within A	A within B	
	0.60		1.46		NS	NS	
Earheads/sq.m.							
NPK 150:60:40 After Irrigation	291	4	302	2		296	4
NPK 150:60:40 Before Irrigation	296	2	300	4		298	2
SSNM-Nutrient Expert	311	1	322	1		316	1
SSNM + GreenSeeker	293	3	301	3		297	3
Mean	298		306			302	
CD (0.05)	Tillage (A)		Nutrient (B)		B within A	A within B	
	NS		10.84		NS	NS	
Grains/Earhead							
NPK 150:60:40 After Irrigation	35.12	4	33.07	4		34.10	4
NPK 150:60:40 Before Irrigation	36.98	1	36.97	1		36.97	1
SSNM-Nutrient Expert	36.52	2	36.06	3		36.29	3
SSNM + GreenSeeker	35.67	3	36.93	2		36.30	2
Mean	36.07		35.76			35.91	
CD (0.05)	Tillage (A)		Nutrient (B)		B within A	A within B	
	NS		1.37		NS	NS	
1000 Grains Weight, g							
NPK 150:60:40 After Irrigation	40.54	2	41.32	2		40.93	2
NPK 150:60:40 Before Irrigation	38.82	4	39.53	4		39.17	4
SSNM-Nutrient Expert	40.06	3	40.54	3		40.30	3
SSNM + GreenSeeker	41.69	1	41.58	1		41.64	1
Mean	40.27		40.74			40.51	
CD (0.05)	Tillage (A)		Nutrient (B)		B within A	A within B	
	0.33		1.18		NS	NS	
Centres: IARI Pusa, Ranchi, Sabour, Varanasi							

In Central Zone, this experiment was conducted at only one location *i.e.* Udaipur. The effect of tillage and nutrient management was non-significant on wheat yield whereas the nutrient management options had significant effect on all the three yield attributes. Between tillage

options, conventional tillage recorded higher average yield compared to zero tillage. Among four nutrient management options, SSNM based on Nutrient Expert (Full PK + micronutrient, if any and 70% N) + remaining N as guided by GreenSeeker recorded numerically the highest yield (54.43 q/ha). The GreenSeeker based nitrogen application recorded the higher grain weight and earhead density.

Table 7.4. Central Zone	**SPL-1**		**Udaipur**		**2013-14**	
	Tillage Option					
Nutrient Management	ZT	Rk	CT	Rk	Mean	Rk
			Yield, q/ha			
NPK 150:60:40 After Irrigation	48.99	4	49.54	4	49.27	4
NPK 150:60:40 Before Irrigation	50.10	3	53.98	3	52.04	3
SSNM-Nutrient Expert	52.46	2	54.57	2	53.52	2
SSNM + GreenSeeker	53.99	1	54.86	1	54.43	1
Mean	51.39		53.24		52.31	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		NS	NS	NS	
			Earhead/sq.m.			
NPK 150:60:40 After Irrigation	363	4	372	4	368	4
NPK 150:60:40 Before Irrigation	373	3	373	3	373	3
SSNM-Nutrient Expert	440	2	450	2	445	2
SSNM + GreenSeeker	447	1	465	1	456	1
Mean	406		415		410	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		29.51	NS	NS	
			Grains/Earhead			
NPK 150:60:40 After Irrigation	29.02	1	28.14	2	28.58	2
NPK 150:60:40 Before Irrigation	28.62	2	29.58	1	29.10	1
SSNM-Nutrient Expert	25.04	3	24.59	3	24.82	3
SSNM + GreenSeeker	24.78	4	23.73	4	24.26	4
Mean	26.87		26.51		26.69	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		2.75	NS	NS	
			1000 Grains Weight, g			
NPK 150:60:40 After Irrigation	46.78	4	47.39	4	47.09	4
NPK 150:60:40 Before Irrigation	46.84	3	48.79	3	47.81	3
SSNM-Nutrient Expert	47.55	2	49.35	2	48.45	2
SSNM + GreenSeeker	48.73	1	49.79	1	49.26	1
Mean	47.48		48.83		48.15	
CD (0.05)	Tillage (A)		Nutrient (B)	B within A	A within B	
	NS		0.97	NS	NS	

Based on the nitrogen applied in various nutrient management options and the grain yield obtained, the agronomic nitrogen use efficiency was worked out for various locations and the data are presented in Table 7.5 for locations in NHZ and NWPZ and Table 7.6 for locations in NEPZ and CZ. It was observed that the nitrogen use efficiency was higher in the treatment in which 70% of nitrogen and full P and K as well as micronutrient, if any, as recommended by Nutrient Expert for Wheat was applied and the rest, if required, was applied using GreenSeeker technology. Since the nitrogen applied using GreenSeeker was the lowest with comparable yields at most of the locations, the agronomic nitrogen use efficiency was highest in this treatment. In general, across all the four wheat growing zones, the trend was

similar except few exceptions. The first year results indicate that Nutrient Expert for Wheat and GreenSeeker combination may be best option for higher productivity at lower costs leading to more profitability.

Table 7.5. NHZ and NWPZ SPL-1 2013-14

		Agronomic NUE kg wheat/ kg N applied					
Tillage options	Nutrient Management	Bajaura	Malan	Durgapura	Karnal	Ludhiana	Pantnagar
Zero Tillage	NPK @ 150:60:40 (AI)	36.79	28.53	33.40	34.87	47.38	30.47
	NPK @ 150:60:40 (BI)	34.43	29.27	35.37	36.93	46.76	30.60
	SSNM-Nutrient Expert	44.49	30.62	37.13	35.56	40.71	44.91
	SSNM + GS	52.99	32.49	46.71	41.92	49.58	45.81
Conventional Tillage	NPK @ 150:60:40 (AI)	40.87	27.95	34.42	33.42	45.52	31.67
	NPK @ 150:60:40 (BI)	37.74	29.52	35.70	35.63	45.52	34.18
	SSNM-Nutrient Expert	42.77	30.92	37.61	35.09	40.51	50.63
	SSNM + GS	52.07	34.30	47.29	45.30	52.04	49.48

Table 7.6. Nitrogen use efficiency in NEPZ and CZ SPL-1 2013-14

		Agronomic NUE, kg wheat/ kg N applied			
Tillage options	Nutrient Management	Ranchi	Sabour	Varanasi	Udaipur
Zero Tillage	NPK @ 150:60:40 (AI)	25.20	27.62	21.20	32.66
	NPK @ 150:60:40 (BI)	24.64	27.01	24.04	33.40
	SSNM-Nutrient Expert	25.62	34.81	29.41	47.69
	SSNM + GS	30.89	39.80	41.35	49.08
Conventional Tillage	NPK @ 150:60:40 (AI)	26.33	28.86	23.33	33.03
	NPK @ 150:60:40 (BI)	25.91	28.40	29.18	35.98
	SSNM-Nutrient Expert	26.30	35.74	35.55	49.61
	SSNM + GS	33.30	47.45	46.05	48.12

SPL-2: Effect of different rice seeding methods on wheat productivity under ZT at different nitrogen levels.

To evaluate the effect of different rice seeding methods on wheat productivity at different nitrogen levels, an experiment involving three rice establishment methods [Puddle Transplanting (PTR), ZT transplanted (ZTTR) and Dry direct seeded after conventional tillage (DDSR)] and four nitrogen treatments in wheat (No nitrogen control, 75 kg N/ha, 150 kg N/ha and LCC based nitrogen application) was conducted across three zones (NHZ, NWPZ, and NEPZ). The experiment was conducted in strip plot design with rice establishment methods in main plots and nitrogen treatments in wheat in sub-plots and each treatment was replicated thrice. Nitrogen was applied as per the treatments and 60 kg P_2O_5/ha, and 40 kg K_2O/ha were applied as basal in all the treatments. The sowing was done using the normalized seed rate @ 100 kg/ha (adjusted considering 1000 grains weight as 38 g).

In Northern Hills Zone, this trial was conducted at only one location (Malan) and the wheat data are presented in Table 7.7. A perusal of data showed that the rice establishment options had non-significant effect on wheat productivity and only the nitrogen effect was

significant with highest yield (55.37 q/ha) recorded when N was applied @ 150 kg/ha followed by using leaf colour chart guided nitrogen application (53.66 q/ha), which were statistically at par as the mean yield difference was only 1.71 q/ha and the CD was 3.88. Although rice establishment options had non-significant effect on wheat yield but wheat followed by zero tillage transplanted rice gave 2.51 q/ha higher grain yield as compared to wheat following puddle transplanted rice and 1.65 q/ha as compared to dry direct seeded rice. The effect of rice establishment options on wheat yield attributes was also not significant but nitrogen treatments significantly influenced the wheat yield attributes except thousand grain weight.

Table 7.7. Northern Hills Zone SPL-2. Wheat Malan 2013-14

N Treatments	Rice Establishment Methods							
in Wheat	PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
			Yield, q/ha					
No N control	22.38	4	24.10	4	22.09	4	22.85	4
75 kg N/ha	40.07	3	45.34	3	40.77	3	42.06	3
150 kg N/ha	56.41	1	55.84	1	53.88	2	55.37	1
LCC based N	50.73	2	54.36	2	55.88	1	53.66	2
Mean	42.40		44.91		43.15		43.49	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		3.88		NS		NS	
			Earhead/sq.m.					
No N control	230	4	234	4	224	4	229	4
75 kg N/ha	253	3	272	3	254	3	260	3
150 kg N/ha	339	1	325	1	314	1	326	1
LCC based N	328	2	312	2	309	2	316	2
Mean	288		286		275		283	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		25.83		NS		NS	
			Grains/Earhead					
No N control	20.76	4	21.87	4	20.96	4	21.20	4
75 kg N/ha	33.01	2	34.72	3	33.91	3	33.88	3
150 kg N/ha	34.50	1	35.94	2	36.55	2	35.66	1
LCC based N	32.33	3	36.17	1	37.86	1	35.45	2
Mean	30.15		32.17		32.32		31.55	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		1.40		NS		NS	
			1000 Grains Weight, g					
No N control	46.82	4	47.13	4	47.09	3	47.01	4
75 kg N/ha	47.93	2	48.13	3	47.42	2	47.83	2
150 kg N/ha	48.06	1	48.25	1	46.83	4	47.71	3
LCC based N	47.91	3	48.25	1	47.78	1	47.98	1
Mean	47.68		47.94		47.28		47.63	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		NS		NS		NS	

In case of rice, for which the data are presented in Table 7.8, only the rice establishment options had significant effect on rice yield and yield attributes but the N applied in wheat had

no residual effect on rice yield. The yield obtained in puddle transplanted rice was significantly superior to other two crop establishment methods (ZTTR and DDSR). The DDSR system had the lowest rice yield (36.22 q/ha) and was significantly inferior to even zero till transplanted rice.

Table 7.8. Northern Hills Zone SPL-2. Rice Malan 2013-14

N Treatments	Rice Establishment Methods							
in Wheat	PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
			Yield, q/ha					
No N control	50.80	3	44.62	1	31.51	4	42.31	3
75 kg N/ha	51.11	2	44.49	2	39.24	1	44.95	1
150 kg N/ha	51.24	1	39.56	3	36.36	3	42.39	2
LCC based N	49.02	4	36.13	4	37.78	2	40.98	4
Mean	50.54		41.20		36.22		42.66	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	7.37		NS		NS		NS	
			Earhead/sq.m.					
No N control	208	4	193	2	223	4	208	3
75 kg N/ha	212	2	197	1	265	1	224	1
150 kg N/ha	227	1	178	3	243	2	216	2
LCC based N	212	2	165	4	240	3	206	4
Mean	215		183		243		214	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	24.77		NS		NS		NS	
			Grains/Earhead					
No N control	97.07	1	87.03	2	54.02	4	79.37	2
75 kg N/ha	93.50	2	88.61	1	56.49	3	79.53	1
150 kg N/ha	90.76	3	84.25	3	56.98	2	77.33	4
LCC based N	90.51	4	82.37	4	61.11	1	77.99	3
Mean	92.96		85.57		57.15		78.56	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	6.97		NS		NS		NS	
			1000 Grains Weight, g					
No N control	25.25	3	26.47	2	26.57	1	26.09	1
75 kg N/ha	25.81	1	25.57	4	26.24	2	25.87	3
150 kg N/ha	24.94	4	26.31	3	26.16	3	25.80	4
LCC based N	25.56	2	26.60	1	25.80	4	25.98	2
Mean	25.39		26.24		26.19		25.94	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	0.44		NS		NS		NS	

In Northern Western Plain Zone, this trial was conducted at three locations (Gurdaspur, Karnal and Pantnagar) and the wheat data are presented in Table 7.9. A perusal of data showed that tillage options in rice had significant effect of wheat productivity and puddle transplanted rice tillage option gave the highest yield (45.08 q/ha), which was significantly higher than zero tillage transplanted rice and dry direct seeded rice tillage options. The

nitrogen effect was also significant on yield and yield attributes, with highest yield (54.70 q/ha) recorded when N was applied using leaf colour chart application followed by N application @ 150 kg/ha (53.61 q/ha) which were significantly higher than lower dose of nitrogen (75 kg/ha) and control.

Table 7.9. North Western Plains Zone SPL-2-Wheat Pooled 2013-14

N Treatments in Wheat	Rice establishment methods							
	PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
Yield, q/ha								
No N control	20.57	4	21.80	4	21.08	4	21.15	4
75 kg N/ha	47.05	3	42.67	3	41.91	3	43.88	3
150 kg N/ha	55.68	2	51.68	2	53.49	2	53.61	2
LCC based N	57.03	1	52.41	1	54.66	1	54.70	1
Mean	45.08		42.14		42.78		43.33	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	2.08		1.97		NS		NS	
Earhead/sq.m.								
No N control	248	4	258	4	252	4	252	4
75 kg N/ha	319	3	304	3	285	3	303	3
150 kg N/ha	355	1	351	2	346	2	351	1
LCC based N	344	2	355	1	351	1	350	2
Mean	316		317		308		314	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		15.00		NS		NS	
Grains/earhead								
No N control	20.18	4	21.59	4	20.84	4	20.87	4
75 kg N/ha	36.18	3	34.06	3	36.16	3	35.47	3
150 kg N/ha	40.31	2	38.47	1	39.12	2	39.30	2
LCC based N	43.43	1	36.94	2	40.06	1	40.14	1
Mean	35.03		32.76		34.04		33.94	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		2.31		NS		NS	
1000 Grains weight, g								
No N control	41.20	1	40.17	2	40.84	1	40.74	1
75 kg N/ha	40.83	2	40.87	1	40.50	2	40.73	2
150 kg N/ha	39.75	3	38.53	4	39.97	3	39.41	4
LCC based N	39.30	4	40.10	3	39.48	4	39.63	3
Mean	40.27		39.92		40.19		40.13	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		0.74		NS		NS	

Centres: Gurdaspur, Karnal, Pantnagar

The results for rice crop are presented in Table 7.10 which showed that the rice establishment method had significant effect on rice yield and yield attributes whereas effect of nitrogen treatments in wheat had non-significant effect on rice yield. However, the yield

attributes were significantly affected by nitrogen in wheat and the interaction effects were also significant except thousand grains weight. The rice yield in puddle transplanting (66.19 q/ha) was significantly superior to other two crop establishment methods (ZTTR and DDSR). The direct dry seeded rice system had the lowest yield (51.36 q/ha) which was significantly inferior to even zero tillage transplanted rice.

Table 7.10. North Western Plains Zone SPL-2-Rice Pooled 2013-14

N Treatments in	Rice establishment methods							
Wheat	PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
			Yield, q/ha					
No N control	64.25	4	57.68	4	50.01	4	57.31	4
75 kg N/ha	65.88	2	60.02	3	51.89	2	59.26	3
150 kg N/ha	65.50	3	61.28	2	52.10	1	59.62	2
LCC based N	69.12	1	61.46	1	51.45	3	60.68	1
Mean	66.19		60.11		51.36		59.22	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	2.51		NS		NS		NS	
			Earhead/sq.m.					
No N control	315	3	261	4	319	3	299	4
75 kg N/ha	310	4	307	3	350	1	322	3
150 kg N/ha	324	2	336	1	315	4	325	2
LCC based N	341	1	326	2	341	2	336	1
Mean	323		308		331		320	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	9.41		13.42		23.25		21.92	
			Grains/earhead					
No N control	82.97	2	94.85	1	67.37	2	81.73	1
75 kg N/ha	87.34	1	84.25	2	63.35	4	78.31	2
150 kg N/ha	80.83	4	71.96	4	70.77	1	74.52	3
LCC based N	81.91	3	73.11	3	63.95	3	72.99	4
Mean	83.26		81.04		66.36		76.89	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	2.33		4.78		8.28		7.48	
			1000 Grains weight, g					
No N control	25.21	4	25.31	4	23.35	4	24.62	4
75 kg N/ha	25.62	3	25.40	3	23.86	3	24.96	3
150 kg N/ha	25.95	1	25.71	2	23.90	2	25.18	2
LCC based N	25.65	2	26.43	1	24.37	1	25.48	1
Mean	25.60		25.71		23.87		25.06	
CD (0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	0.70		0.58		NS		NS	

Centres: Gurdaspur, Karnal, Pantnagar

In Northern Eastern Plains Zone, this trial was conducted at Kalyani centre and data is presented in Table 7.11. On mean basis the highest yield was obtained in puddle transplanting of rice (27.78 q/ha) followed by dry seeded after conventional tillage (26.34 q/ha) and zero tillage transplanting (25.29 q/ha) which were statistically at par. On average basis application of 150 kg N/ha produced maximum grain yield (36.58 q/ha) followed by LCC based (33.58 q/ha) which were found statistically at par.

Table 7.11. North Eastern Plains Zone SPL-2 Kalyani 2013-14

N Treatments in Wheat	Rice Establishment Methods PTR	Rk	ZTTR	Rk	DDSAR	Rk	Mean	Rk
			Yield q/ha					
No N control	12.87	4	11.93	4	12.47	4	12.42	4
75 kg N/ha	24.40	3	22.40	3	23.10	3	23.30	3
150 kg N/ha	38.07	1	34.87	1	36.80	1	36.58	1
LCC based N	35.77	2	31.97	2	33.00	2	33.58	2
Mean	27.78		25.29		26.34		26.47	
CD(0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	NS		3.18		NS		NS	
			Earhead/sq.m.					
No N control	146	4	140	4	144	4	143	4
75 kg N/ha	164	3	141	3	156	3	154	3
150 kg N/ha	241	1	217	1	229	1	229	1
LCC based N	240	2	200	2	208	2	216	2
Mean	198		174		185		186	
CD(0.05)	Methods (A)		Nitrogen (B)		B within A		A within B	
	11.48		9.78		NS		NS	
			Grains/Earhead					
No N control	25.60	4	24.17	4	23.96	4	24.58	4
75 kg N/ha	36.20	3	37.83	3	38.41	3	37.48	3
150 kg N/ha	38.90	1	40.05	2	40.37	1	39.77	1
LCC based N	38.71	2	40.06	1	39.18	2	39.32	2
Mean	34.85		35.53		35.48		35.29	
CD(0.05)	Method (A)		Nitrogen (B)		B within A		A within B	
	NS		5.39		NS		NS	
			1000 Grains Weight, g					
No N control	34.33	4	35.33	4	36.00	4	35.22	4
75 kg N/ha	41.33	1	42.33	1	38.67	3	40.78	1
150 kg N/ha	40.67	2	40.33	2	40.00	2	40.33	2
LCC based N	38.67	3	40.33	2	40.67	1	39.89	3
Mean	38.75		39.58		38.83		39.06	
CD(0.05)	Method (A)		Nitrogen (B)		B within A		A within B	
	NS		2.22		NS		NS	

SPL-3 Sowing time effect on wheat productivity in Peninsular Zone

Optimum sowing time has been a matter of debate for quite some time, especially, due to the changing climate. To optimize the sowing time for yield maximisation in wheat, a special coordinated trial was planned and conducted in peninsular zone under irrigated timely sown conditions. The experiment was conducted in split plot design with three dates of sowing in main plot and four varieties in sub plot. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation, fertilization and weed control measures were followed as per recommended package of practices for the respective zones.

In Peninsular Zone, this trial was conducted at two locations (Dharwad and Niphad) with three sowing dates as main plots and four recommended varieties of the zone as sub plot treatments. First two sowing dates i.e. 29th October to 4th November (44.54 q/ha) and 5-11th November (45.29 q/ha) produced at par grain yield. Further delay in wheat sowing i.e. 12-18th November reduced the grain yield (36.21 q/ha) to great extent. Decrease in yield due to delayed sowing was mainly due to significantly lesser grains/earhead and thousand grain weight as compared to earlier sowing dates. Among varieties, UAS 415 recorded maximum

grain yield (43.26 q/ha) followed by GW 322 (42.93 q/ha). Former variety ranked first in first two sowing dates whereas latter variety ranked first in 3rd sowing date (12-18th November).

Table 7.12. Peninsular Zone SPL-3 Pooled 2013-14

Variety	Sowing Time: 29 Oct-4 Nov	Rk	5-11 Nov	Rk	12-18 Nov	Rk	Mean	Rk
			Yield, q/ha					
GW 322	44.35	2	45.52	2	38.92	1	42.93	2
MACS 6222	43.03	4	44.02	3	35.01	4	40.69	4
HI 8663	44.16	3	43.64	4	35.71	2	41.17	3
UAS 415	46.61	1	47.96	1	35.21	3	43.26	1
Mean	44.54		45.29		36.21		42.01	
CD (0.05)	Sowing (A)		Variety (B)		B within A		A within B	
	2.93		1.57		2.71		3.49	
			Earhead/sq.m.					
GW 322	323	4	329	4	322	4	325	4
MACS 6222	328	2	334	2	325	1	329	1
HI 8663	324	3	334	1	323	2	327	3
UAS 415	332	1	331	3	323	3	329	2
Mean	327		332		323		327	
CD (0.05)	Sowing (A)		Variety (B)		B within A		A within B	
	5.43		NS		NS		NS	
			Grains/Earhead					
GW 322	33.48	1	35.10	1	30.95	1	33.17	1
MACS 6222	31.09	2	31.43	3	27.59	2	30.04	2
HI 8663	27.78	4	27.67	4	24.37	4	26.61	4
UAS 415	30.41	3	31.90	2	24.79	3	29.03	3
Mean	30.69		31.52		26.92		29.71	
CD (0.05)	Sowing (A)		Variety (B)		B within A		A within B	
	2.30		1.49		NS		NS	
			1000 Grains Weight, g					
GW 322	44.13	4	43.48	4	43.65	3	43.75	4
MACS 6222	45.68	3	46.15	3	42.37	4	44.73	3
HI 8663	52.31	1	52.05	1	49.53	1	51.29	1
UAS 415	51.19	2	51.09	2	47.68	2	49.99	2
Mean	48.33		48.19		45.81		47.44	
CD (0.05)	Sowing (A)		Variety (B)		B within A		A within B	
	1.24		1.12		NS		NS	

Centres: Dharwad and Niphad

SPL-4: Performance of wheat varieties at different dates of sowing under irrigated conditions

The sowing time needs to be adjusted under the changing climate and a special coordinated trial was planned and conducted in Northern Hill Zone and Northern West Plain Zone under irrigated conditions. The experiment was conducted in split plot design with four dates of sowing in main plot and four varieties in sub plot. The sowing was done using a normalized seed rate of 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation, fertilization and weed control measures were followed as per recommended package of practices for the respective zones.

In Northern Hills Zone, the four high yielding varieties (VL804, VL 907, HS 507 and HS 240) were evaluated at four dates of sowing (25th October, 05th November, 15th November and 25th November). The trial was conducted at five locations (Almora, Bajaura, Imphal, Khudwani and Malan). The pooled data presented in Table 7.13 and the centre wise data are given in Tables 7.13.1 to 7.13.5 in Annexure I. The perusal of data revealed significant

effect of sowing time and variety on yield and yield attributes except grains/earhead for sowing time effect. On an average basis, the wheat grain yield was at par when sown from 25th October to 5th November with an average yield of 45.91 to 44.85 q/ha. The sowing after first week of November caused significant yield reductions and yield recorded was 41.16 and 39.99 q/ha, when sown on 15th and 25th November, respectively. The lower wheat grain yield in 25th November sowing was mainly due to lower thousand grains weight. Among varieties, HS 240 produced significantly lower grain yield (37.64 q/ha) than other varieties. The data suggests that the wheat should be sown in northern hills from 25th October to 5th November for optimum productivity.

Table 7.13. Northern Hills Zone SPL-4 Pooled 2013-14

	Sowing Date									
Genotype	25 Oct.	Rk	05 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
					Yield, q/ha					
VL 804	46.14	3	46.28	2	44.23	1	41.46	3	44.53	3
VL 907	46.29	2	46.25	3	42.82	3	42.86	1	44.56	2
HS 507	48.51	1	46.85	1	43.44	2	41.97	2	45.19	1
HS 240	42.69	4	40.01	4	34.17	4	33.68	4	37.64	4
Mean	45.91		44.85		41.16		39.99		42.98	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			1.38		1.18		2.37		2.45	
					Earhead/sq.m.					
VL 804	351	2	346	2	351	2	330	2	344	2
VL 907	336	4	335	3	320	4	316	4	327	4
HS 507	338	3	329	4	332	3	324	3	331	3
HS 240	367	1	358	1	359	1	363	1	362	1
Mean	348		342		341		333		341	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			10.25		9.47		NS		NS	
					Grains/Earhead					
VL 804	29.62	4	31.29	2	30.53	3	31.71	1	30.79	2
VL 907	29.89	3	30.86	3	30.72	2	30.81	3	30.57	3
HS 507	31.41	1	32.07	1	31.33	1	31.13	2	31.48	1
HS 240	30.18	2	30.28	4	29.09	4	27.71	4	29.32	4
Mean	30.27		31.12		30.42		30.34		30.54	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			NS		0.93		NS		NS	
					1000 Grains Weight, g					
VL 804	43.60	3	42.04	3	40.17	3	38.93	3	41.19	3
VL 907	45.95	1	43.91	1	42.22	1	42.75	1	43.71	1
HS 507	44.98	2	43.60	2	40.73	2	40.52	2	42.46	2
HS 240	38.10	4	36.84	4	33.64	4	34.27	4	35.71	4
Mean	43.16		41.60		39.19		39.12		40.77	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			0.76		0.69		NS		NS	

Centres: Almora, Bajaura, Imphal, Khudwani, Malan

In North Western Plain Zone, the four high yielding varieties (DPW 621-50, PBW 550, HD 2967 and WH 1105) were evaluated at four dates of sowing (25th October, 05th November, 15th November and 25th November). The trial was conducted at seven locations (Agra, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana and Pantnagar).

The pooled data presented in Table 7.14 and the centre wise data are given in Tables 7.14.1 to 7.14.7 in Annexure I. The perusal of data revealed significant effect of sowing time and variety on yield and yield attributes. On an average basis, the wheat grain yield was the

highest when sown from 25th October (53.69 q/ha) followed by 5th November sown with an average yield of 52.55 q/ha. The sowing after first week of November caused significant yield reductions and yield recorded was 51.05 and 50.01 q/ha, when sown on 15th and 25th November, respectively. The lower wheat grain yield in 25th November sowing was mainly due to lower thousand grains weight. Among varieties, WH 1105 produced significantly higher grain yield (53.30 q/ha) than other varieties. The data suggests that the wheat should be sown in NWPZ from 25th October to 5th November for optimum productivity.

Table 7.14. North Western Plains Zone SPL-4 Pooled 2013-14

	Time of sowing									
Genotype	25 Oct.	Rk	05 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
					Yield, q/ha					
DPW 621-50	52.77	4	51.88	3	51.36	2	50.21	2	51.56	2
PBW 550	53.74	2	52.33	2	49.72	4	49.17	4	51.24	3
HD 2967	52.98	3	51.36	4	51.07	3	49.40	3	51.20	4
WH 1105	55.24	1	54.63	1	52.06	1	51.26	1	53.30	1
Mean	53.69		52.55		51.05		50.01		51.82	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			0.89		0.86		NS		NS	
					Earhead/sq.m.					
DPW 621-50	413	1	414	1	410	1	387	1	406	1
PBW 550	405	2	413	2	394	3	378	3	397	3
HD 2967	405	3	402	3	398	2	386	2	398	2
WH 1105	401	4	394	4	378	4	375	4	387	4
Mean	406		406		395		381		397	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			10.23		7.49		NS		NS	
					Grains/Earhead					
DPW 621-50	33.74	2	32.92	2	32.45	3	35.87	2	33.75	2
PBW 550	33.28	3	32.05	4	32.54	2	34.91	3	33.19	3
HD 2967	31.82	4	32.69	3	32.24	4	33.53	4	32.57	4
WH 1105	37.62	1	38.02	1	38.19	1	38.43	1	38.07	1
Mean	34.11		33.92		33.85		35.68		34.39	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			1.27		1.14		NS		NS	
					1000 Grains Weight, g					
DPW 621-50	39.10	3	38.93	3	38.54	2	37.39	3	38.49	3
PBW 550	40.50	2	39.42	2	38.45	3	37.88	2	39.06	2
HD 2967	41.55	1	40.95	1	39.99	1	38.73	1	40.30	1
WH 1105	38.85	4	38.86	4	37.93	4	37.04	4	38.17	4
Mean	40.00		39.54		38.73		37.76		39.01	
CD (0.05)			Sowing (A)		Genotype (B)		B within A		A within B	
			0.61		0.51		NS		NS	

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

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

To improve the water use efficiency and wheat productivity, an experiment was initiated at four locations *i.e.* Durgapura and Karnal in NWPZ, Vijapur in CZ and Niphad in PZ. The treatments comprised of three irrigation systems namely conventional flood irrigation; drip irrigation and sprinkler irrigation and four irrigation schedules *viz*. IW/CPE of 1.20, 1.00, 0.80 and 0.60.

In North Western Plains Zone, this trial was conducted at two locations (Durgapura and Karnal) and the pooled analysis data are presented in Table 7.15. The centre wise data are

presented in Annexure-I in Table 7.15.1 to 7.15.2. Both irrigation methods and irrigation schedules have significant effect on yield and number of grains per earhead (Table 7.15). The highest yield was recorded in drip irrigation (53.35 q/ha) which was significantly higher than other methods of irrigation. Among irrigation schedules the highest yield (53.30 q/ha) was found in IW/CPE-1.00 treatment followed by IW/CPE-1.20 treatment (52.24 q/ha) which were at par among themselves and significantly superior to IW/CPE-0.80 and IW/CPE-0.60 treatments.

Table 7.15. North Western Plain Zone SPL-5 Pooled 2013-14

Irrigation Schedules	Irrigation Method							
	Flood	Rk	Drip	Rk	Sprinkle	Rk	Mean	Rk
			Yield, q/ha					
IW/CPE-1.20	52.09	1	56.13	2	48.50	2	52.24	2
IW/CPE-1.00	51.98	2	56.63	1	51.30	1	53.30	1
IW/CPE-0.80	48.71	3	52.10	3	45.69	3	48.83	3
IW/CPE-0.60	45.53	4	48.54	4	42.97	4	45.68	4
Mean	49.58		53.35		47.12		50.01	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	1.41		1.62		NS		NS	
			Earhead/sq.m.					
IW/CPE-1.20	455	4	482	1	415	3	451	3
IW/CPE-1.00	483	1	479	2	411	4	458	2
IW/CPE-0.80	480	2	473	3	424	1	459	1
IW/CPE-0.60	456	3	468	4	424	2	449	4
Mean	468		475		418		454	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	6.58		NS		18.35		16.92	
			Grains/earhead					
IW/CPE-1.20	29.52	1	28.61	2	30.10	2	29.41	2
IW/CPE-1.00	28.14	2	29.08	1	32.06	1	29.76	1
IW/CPE-0.80	26.84	3	28.17	3	28.35	3	27.79	3
IW/CPE-0.60	26.46	4	27.04	4	27.59	4	27.03	4
Mean	27.74		28.23		29.53		28.50	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	0.76		1.33		NS		NS	
			1000 Grains weight, g					
IW/CPE-1.20	39.70	2	41.42	2	39.29	1	40.14	2
IW/CPE-1.00	39.73	1	41.54	1	39.15	2	40.14	1
IW/CPE-0.80	39.53	3	40.43	3	38.30	3	39.42	3
IW/CPE-0.60	38.67	4	39.31	4	36.57	4	38.18	4
Mean	39.41		40.67		38.33		39.47	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	0.63		NS		NS		NS	

Centres: Durgapura and Karnal

The irrigation water used in different treatments including rainfall has been presented in Table 7.16 for two locations i.e. Durgapura and Karnal. At Durgapura, the water expense in flood and sprinkler irrigation was almost similar having a difference of only 0.3 per cent whereas in drip irrigation a saving of 11.5 per cent was recorded. At Karnal, the respective saving of water was 21.0 and 3.7 percent. Among irrigation schedules, as expected the highest water expense was in IW/CPE of 1.2 and the lowest was in IW/CPE of 0.6 in which yield recorded was also the lowest.

Table 7.16. Amount of water used under different irrigation practices

Irrigation Options	Total water used including rainfall, mm	
Main plots	Durgapura*	Karnal**
Conventional flood irrigation	556.5	301.0
Drip irrigation	492.7	289.9
Sprinkler irrigation	555.0	237.7
Sub plots		
IW/CPE 1.2	656.9	284.1
IW/CPE-1.0	575.4	279.0
IW/CPE-0.8	494.0	272.8
IW/CPE-0.6	412.5	269.0

**Pre Sowing irrigation of 100 mm and Rain fall of 68.6 mm included*
***Rainfall of 181.0 mm have been included and seeding was done in residual moisture after rice.*

In Central Zone, the maximum wheat grain yield was obtained with flood irrigation with a mean yield of 45.06 q/ha (Table 7.17). Between two drip irrigation schedules, drip-ADFPE (alternate day fraction pan evaporation) base schedule was significantly superior to drip-CPE base schedule except at IW/CPE ratio of 0.6. Among four IW/CPE ratios, the maximum wheat yield was obtained at a ratio of 1.2 and declined as the ratio reduced to 0.6.

Table 7.17. Central Zone		**SPL-5**	**Vijapur**			**2013-14**
Irrigation Method	Irrigation Schedule	Earhead/sq.m.	1000 Grains Weight, g	Grains/ Earhead	Yield, q/ha	Water used after CRI irrigation, mm
Conventional Flood	Check	264	41.08	41.96	45.06	420.0
Drip- ADFPE base	1.2 IW/CPE	271	39.58	41.53	44.25	260.7
	1.0 IW/CPE	252	38.48	43.77	41.94	217.3
	0.8 IW/CPE	218	39.78	42.97	36.90	173.9
	0.6 IW/CPE	199	37.95	45.33	33.96	130.4
Drip- CPE basis	1.2 IW/CPE	251	40.58	43.66	44.22	240.0
	1.0 IW/CPE	232	41.73	39.67	37.93	200.0
	0.8 IW/CPE	208	43.18	37.04	33.20	160.0
	0.6 IW/CPE	201	40.68	40.92	33.45	120.0
	CD (0.05)	**26.00**	**2.72**	**NS**	**1.95**	

The crop was sown on 14th Nov. 2013 and first irrigation at CRI was given on 4th December 2013. The different drip irrigation schedules were imposed after applying CRI irrigation. In drip-ADFPE base scheduling a total of 27 irrigations were applied and water applied was 260.74, 217.3, 173.9 and 130.4 mm under IW/CPE ratios of 1.2, 1.0, 0.8 and 0.6, respectively. In drip-CPE base schedule total number of irrigations (Each irrigation was of 40 mm) given were 6, 5, 4 and 3 under IW/CPE ratios of 1.2, 1.0, 0.8 and 0.6, respectively and the total water applied was 240, 200, 160 and 120 mm, respectively.

In Peninsular Zone, this trial was conducted at one location *i.e.* Niphad with three irrigation options (conventional, drip and sprinkler) as main plot and four IW/CPE ratio (1.2, 1.0, 0.8 and 0.6) as subplot treatments (Table 7.18). Drip irrigation method produced maximum and significantly higher grain yield (45.4 q/ha) than other methods. Similarly, sprinkler irrigation method also produced significantly higher grain yield (42.13 q/ha) than conventional method of irrigation. Application of irrigation at 0.8 IW/CPE ratio produced maximum grain yield (45.06 q/ha) followed by 1.0, 0.6 and 1.2 IW/CPE. Lowest yield at highest IW/CPE ratio suggests that over irrigation in wheat is not required for wheat production.

Table 7.18. Peninsular Zone SPL-5 Niphad 2013-14

	Irrigation Method							
IW/CPE	Conventional	Rk	Drip	Rk	Sprinkler	Rk	Mean	Rk
			Yield, q/ha					
1.2	37.02	3	43.22	4	39.80	3	40.01	4
1.0	44.07	1	44.21	3	43.99	2	44.09	2
0.8	41.23	2	48.90	1	45.06	1	45.06	1
0.6	35.72	4	45.27	2	39.68	4	40.23	3
Mean	39.51		45.40		42.13		42.35	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	2.48		2.79		NS		NS	
			Earhead/sq.m.					
1.2	402	3	412	4	410	3	408	3
1.0	420	1	421	3	420	2	420	2
0.8	410	2	433	1	422	1	422	1
0.6	390	4	424	2	410	3	408	3
Mean	405		422		415		414	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	10.93		9.89		NS		NS	
			Grains/Earhead					
1.2	21.91	4	23.52	1	22.50	4	22.64	3
1.0	23.06	2	22.98	3	23.35	1	23.13	2
0.8	23.08	1	23.25	2	23.23	2	23.19	1
0.6	22.07	3	22.24	4	22.67	3	22.33	4
Mean	22.53		23.00		22.94		22.82	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	NS		NS		NS		NS	
			1000 Grains Weight, g					
1.2	42.09	3	44.78	4	43.29	3	43.39	4
1.0	45.55	1	45.80	3	45.01	2	45.46	2
0.8	43.58	2	48.64	1	45.92	1	46.05	1
0.6	41.55	4	48.08	2	42.81	4	44.15	3
Mean	43.19		46.82		44.26		44.76	
CD (0.05)	Method (A)		Schedule (B)		B within A		A within B	
	2.20		1.23		2.13		2.49	

SPL-6: Improving productivity of cotton-wheat system through relay cropping

This trial was conducted at two locations at Sirsa and Hisar to explore the possibility of relay seeding of wheat with cotton for increased productivity of wheat leading to improved productivity and profitability of Cotton-Wheat system. The data for Hisar are presented in Table 7.18 and that of Sirsa are presented in Table 7.19.

At Sirsa, the trial was conducted with seven seeding options viz., (i) Wheat seeding after short duration Cotton, (ii) Broadcasting + Power tiller, (iii) Power tiller drilling, (iv) Dry Seed broadcasting, (v) Soaked seed broadcasting, (vi) Sprouted seed broadcasting and (vii) Late sown after long duration cotton. The wheat crop was sown on 21st November, 2013, after the harvest of short duration cotton towards the fag end of the timely sown duration. The seeding in all the treatments except late sown was also done on the same day. In the late sown treatment, the wheat was drill sown on 20th December, 2013 after the harvest of long duration cotton. The effect of various seeding options and the variety as well as their interaction effects were statistically significant. The highest mean yield, as expected, was recorded in drill sown wheat after harvest of short duration cotton (Figure 7.1). As compared to late sown condition, the yield levels in relay cropped wheat were either statistically similar or higher. However, there was a yield gain of 7.35 and 3.38 percent in mixing the seed after

broadcasting and drilling using power tiller, respectively. In surface seeding of wheat by broadcasting, the mean yield levels in rest of the treatments were 0.3 to 7.13 percent lower.

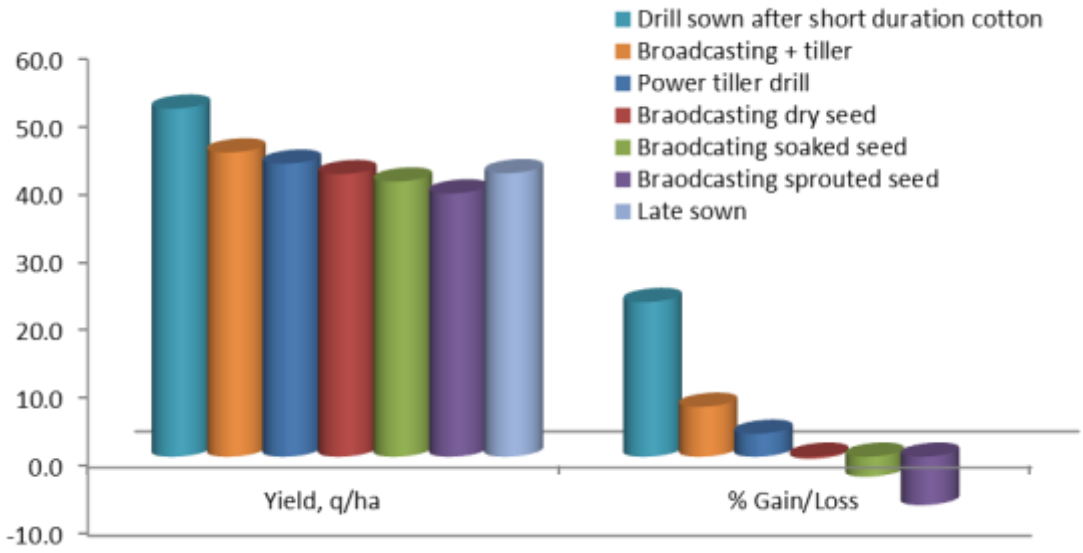

Figure 7.1. Performance of relay wheat in cotton-wheat cropping system

At Hisar, this trial was conducted with four treatments *i.e.* Cotton-Wheat (Wheat sown after cotton harvest in December), Cotton-Wheat (Wheat relay sown in November), Cotton-Wheat (Wheat relay sown in December) and Cotton-Wheat (Wheat sown after cotton harvest in November) in main plots and four varieties (DPW 621-50, PBW 550, HD 2967 and WH 1105) in sub plots replicated thrice.

The results showed that both planting options and varieties have significant effect on yield and 1000 grains weight. The highest yield (60.21 q/ha) was obtained in Cotton-Wheat (sown after cotton harvest in November) which was significantly superior to other treatments of planting options. Among varieties WH 1105 produced the highest yield (53.59 q/ha) followed by HD 2967 (52.09 q/ha), PBW 550 (50.51 q/ha) and the variety DPW 621-50 produced the lowest yield (48.59 q/ha).

SPL-7: Wheat yield maximization under different tillage options

To identify the effect of different tillage options and row spacing on wheat productivity under different nutrients levels, an experiment involving chiselling followed by two tillage options (Conventional tillage for both rice and wheat and Rotary tillage for both rice and wheat), two row spacing (20 cm and 15 cm), and three nutrients levels in wheat (Recommended NPK, Recommended NPK + FYM @ 15 t/ha and 125% Recommended NPK + FYM @ 15 t/ha) was conducted in NWPZ. The experiment was conducted in strip plot design with tillage options and row spacings in main plots and nutrients levels in wheat in sub-plots and each treatment was replicated thrice. Recommended dose of fertilizers applied was 150 kg N/ha, 60 kg P_2O_5/ha, and 40 kg K_2O/ha. 1/3rd N and full dose of P_2O_5, and K_2O were applied as basal dose as per the treatment plan. The sowing was done using the normalized seed rate @ 100 kg/ha (adjusted considering 1000 grains weight as 38 g). Irrigation measures were followed as per recommended package of practices for the zone.

In Northern Western Plains Zone, this trial was conducted at three centres (Karnal, Ludhiana and Pantnagar) and pooled analysis data are presented in Table 7.20. and the centre wise data have been presented in Annexure-I in Table 7.20.1 to 7.20.3 The effect of tillage options and row spacing was found to be significant and the highest yield (59.02 q/ha) was obtained in conventional tillage at 15 cm spacing which was significantly superior to other treatments of tillage and row spacing. The effect of the nutrients levels was also significant. Application of 125% Recommended NPK + FYM @ 15 t/ha produced significantly higher yield (58.10 q/ha) than recommended NPK treatment and at par with recommended NPK + FYM @ 15 t/ha treatment. Interaction effects were non-significant for yield and yield attributes.

Table 7.19. North Western Plains Zone SPL-6 Hisar 2013-14

	Wheat Seeding option									
Treatment	C-W (Dec)	Rk	Relay C-W(Nov)	Rk	Relay C-W (Dec)	Rk	C-W (Nov)	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	44.17	4	51.37	3	42.65	4	56.17	4	48.59	4
PBW 550	45.86	3	50.10	4	44.10	3	62.00	2	50.51	3
HD 2967	49.57	1	53.60	2	45.94	2	59.23	3	52.09	2
WH 1105	48.90	2	54.24	1	47.80	1	63.43	1	53.59	1
Mean	47.12		52.33		45.12		60.21		51.20	
CD (0.05)			Sowing (A)		Variety (B)		B within A		A within B	
			4.26		3.60		NS		NS	
Earheads/sq. m										
DPW 621-50	365	4	408	4	355	4	417	4	386	4
PBW 550	379	3	441	1	361	3	462	1	411	1
HD 2967	388	2	423	2	378	1	439	3	407	2
WH 1105	391	1	419	3	363	2	446	2	405	3
Mean	381		423		364		441		402	
CD (0.05)			Sowing (A)		Variety (B)		B within A		A within B	
			17.29		NS		NS		NS	
Grains/Earhead										
DPW 621-50	29.96	4	29.91	3	30.28	4	31.48	4	30.41	4
PBW 550	31.81	2	28.88	4	32.50	2	33.10	2	31.57	3
HD 2967	32.17	1	31.06	2	31.35	3	32.81	3	31.85	2
WH 1105	31.36	3	31.10	1	33.37	1	33.35	1	32.30	1
Mean	31.33		30.24		31.87		32.68		31.53	
CD (0.05)			Sowing (A)		Variety (B)		B within A		A within B	
			NS		NS		NS		NS	
1000 Grains weight, g										
DPW 621-50	40.65	1	42.32	1	40.03	1	42.81	1	41.45	1
PBW 550	38.11	4	39.34	4	37.71	4	40.66	4	38.96	4
HD 2967	39.91	3	40.92	3	38.76	3	41.24	3	40.21	3
WH 1105	40.35	2	41.98	2	39.53	2	42.66	2	41.13	2
Mean	39.75		41.14		39.01		41.84		40.44	
CD (0.05)			Sowing (A)		Variety (B)		B within A		A within B	
			1.50		1.41		NS		NS	

Rice data from two centres (Karnal and Pantnagar) also received and presented in Table 7.21 and the centre wise data have been presented in Annexure I in Table 7.21.1 to 7.21.2. The effect of tillage options and row spacing in wheat was significant on the productivity of rice and the highest yield (68.27 q/ha) was obtained in rotary tillage at 20 cm spacing which was significantly superior to other treatments of tillage and row spacing except rotary tillage at 15 cm spacing which was at par (66.79 q/ha) . Interaction effects were non-significant for yield and yield attributes except earhead density.

Table 7.20. North Western Plains Zone SPL-7-Wheat Pooled 2013-14

Nutrient in Wheat	Tillage and Row Spacing									
	CT 20cm	Rk	CT 15cm	Rk	RT 20cm	Rk	RT 15cm	Rk	Mean	Rk
Yield, q/ha										
Rec. NPK	56.40	3	58.17	3	54.79	3	54.07	3	55.86	3
Rec. NPK+ 15 t/ha FYM	57.17	2	59.48	1	54.95	2	58.29	2	57.47	2
125% NPK+ 15 t/ha FYM	57.37	1	59.42	2	56.04	1	59.57	1	58.10	1
Mean	56.98		59.02		55.26		57.31		57.14	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	1.59				1.63		NS		NS	
Earhead/sq.m.										
Rec. NPK	408	3	472	3	376	3	464	3	430	3
Rec. NPK+ 15 t/ha FYM	410	2	493	2	411	2	495	2	452	2
125% NPK+ 15 t/ha FYM	433	1	507	1	428	1	500	1	467	1
Mean	417		490		405		487		450	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	10.39				12.84		NS		NS	
Grains/Earhead										
Rec. NPK	33.79	2	29.50	2	35.15	1	29.35	1	31.95	1
Rec. NPK+ 15 t/ha FYM	34.27	1	30.42	1	33.09	2	28.28	3	31.52	2
125% NPK+ 15 t/ha FYM	32.44	3	28.30	3	32.77	3	28.57	2	30.52	3
Mean	33.50		29.41		33.67		28.73		31.33	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	1.50				NS		NS		NS	
1000 Grains Weight, g										
Rec. NPK	41.29	1	41.98	1	42.05	1	40.46	3	41.44	1
Rec. NPK+ 15 t/ha FYM	40.55	3	40.30	3	40.64	2	41.94	1	40.86	3
125% NPK+ 15 t/ha FYM	40.70	2	41.56	2	40.22	3	41.73	2	41.05	2
Mean	40.84		41.28		40.97		41.38		41.12	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	NS				NS		NS		NS	

Centres: Karnal, Ludhiana , Pantnagar

Table 7.21. North Western Plains Zone SPL-7-Rice Pooled 2013-14

Nutrient in Wheat	Tillage and Row Spacing									
	CT 20cm	Rk	CT 15cm	Rk	RT 20cm	Rk	RT 15cm	Rk	Mean	Rk
Yield, q/ha										
Rec. NPK	64.39	2	59.81	3	66.56	3	66.36	2	64.28	3
Rec. NPK+ 15 t/ha FYM	62.67	3	66.29	2	68.56	2	65.64	3	65.79	2
125% NPK+ 15 t/ha FYM	66.93	1	66.32	1	69.70	1	68.38	1	67.83	1
Mean	64.66		64.14		68.27		66.79		65.97	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	2.64				2.40		NS		NS	
Earhead/sq.m.										
Rec. NPK	305	2	349	3	324	2	360	3	334	3
Rec. NPK+ 15 t/ha FYM	301	3	373	1	333	1	392	1	350	2
125% NPK+ 15 t/ha FYM	363	1	361	2	323	3	384	2	358	1
Mean	323		361		326		379		347	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	13.61				17.38		34.76		31.12	
Grains/Earhead										
Rec. NPK	86.48	1	68.09	3	89.28	1	73.37	1	79.30	1
Rec. NPK+ 15 t/ha FYM	85.46	2	70.45	2	81.31	3	66.51	3	75.93	3
125% NPK+ 15 t/ha FYM	74.23	3	73.34	1	84.49	2	72.59	2	76.16	2
Mean	82.05		70.63		85.03		70.82		77.13	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	4.81				NS		NS		NS	
1000 Grains Weight, g										
Rec. NPK	24.50	3	25.31	3	23.51	3	25.72	1	24.76	3
Rec. NPK+ 15 t/ha FYM	24.72	2	25.69	2	25.34	2	25.63	2	25.34	2
125% NPK+ 15 t/ha FYM	25.05	1	25.87	1	25.47	1	25.60	3	25.49	1
Mean	24.75		25.62		24.77		25.65		25.20	
CD (0.05)	Tillage & Spacing (A)				Nutrition (B)		B within A		A within B	
	0.67				NS		NS		NS	

Centres: Karnal, Pantnagar

Annexures

ANNEXURE-I

CENTRE-WISE DATA

Table 1.1.1. Northern Hills Zone **IR-TS-TAS-DOS** **Almora 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	72.17	3	73.80	2	72.98	2	427	4	445	3	436	3
VL 804 (c)	71.57	4	71.10	4	71.33	3	457	1	423	4	440	2
VL 907 (c)	75.50	1	73.47	3	74.48	1	435	3	453	1	444	1
HPW 349 (c)	73.10	2	68.20	5	70.65	4	453	2	413	5	433	4
VL 967	63.70	5	76.70	1	70.20	5	413	5	447	2	430	5
Mean	71.21		72.65		71.93		437		436		437	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	1.18	7.20	6.37			N.S.	9.97	60.67	8.84	
Genotype (B)		N.S.	2.45	7.35	8.35			N.S.	12.11	36.31	6.79	
B with A		N.S.	3.47	10.39				N.S.	17.13	51.35		
A with B			3.32	9.95					18.28	54.80		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	34.64	1	35.89	2	35.27	2	48.87	3	46.16	4	47.51	4
VL 804 (c)	33.14	4	37.60	1	35.37	1	48.45	4	44.59	5	46.52	5
VL 907 (c)	33.73	3	32.43	4	33.08	4	51.53	2	49.99	2	50.76	2
HPW 349 (c)	34.61	2	33.53	3	34.07	3	46.64	5	49.19	3	47.92	3
VL 967	26.58	5	30.30	5	28.44	5	58.11	1	56.97	1	57.54	1
Mean	32.54		33.95		33.25		50.72		49.38		50.05	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.40	2.46	4.71			**	0.03	0.19	0.24	
Genotype (B)		N.S.	1.64	4.92	12.10			**	0.53	1.59	2.59	
B with A		N.S.	2.32	6.96				**	0.75	2.24		
A with B			2.12	6.35					0.67	2.01		
Date of sowing	07.11.2013		27.11.2013				Date of Harvesting	20.5.2014		23.5.2014		

Table 1.1.2. Northern Hills Zone **IR-TS-TAS-DOS** **Bajaura 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	61.93	3	55.70	3	58.81	3	397	1	363	3	380	2
VL 804 (c)	47.89	5	50.22	4	49.05	4	383	2	420	1	401	1
VL 907 (c)	48.38	4	44.25	5	46.32	5	341	4	335	5	338	5
HPW 349 (c)	61.99	2	58.40	2	60.19	2	328	5	353	4	340	4
VL 967	65.52	1	63.57	1	64.54	1	344	3	372	2	358	3
Mean	57.14		54.43		55.78		359		368		363	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	1.32	8.00	9.13			N.S.	7.11	43.27	7.58	
Genotype (B)		**	1.54	4.63	6.77			*	12.84	38.49	8.65	
B with A		N.S.	2.18	6.54				N.S.	18.15	54.43		
A with B			2.35	7.06					17.73	53.15		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	37.22	3	36.68	1	36.95	2	43.07	4	42.13	5	42.60	4
VL 804 (c)	31.35	5	28.12	4	29.74	5	40.67	5	42.67	4	41.67	5
VL 907 (c)	32.48	4	27.19	5	29.83	4	44.80	3	48.93	2	46.87	3
HPW 349 (c)	38.81	1	35.57	2	37.19	1	48.87	2	46.93	3	47.90	2
VL 967	37.73	2	34.18	3	35.95	3	51.20	1	50.60	1	50.90	1
Mean	35.52		32.35		33.93		45.72		46.25		45.99	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.43	2.60	4.87			N.S.	1.84	11.18	15.47	
Genotype (B)		N.S.	2.35	7.04	16.96			*	1.97	5.91	10.49	
B with A		N.S.	3.32	9.96				N.S.	2.79	8.35		
A with B			3.00	9.00					3.10	9.28		
Date of sowing	07.11.2013		22.11.2013				Date of Harvesting	30.5.2014		06.6.2014		

Table 1.1.3. Northern Hills Zone **IR-TS-TAS-DOS** **Imphal 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	28.03	3	24.81	3	26.42	3	192	4	196	4	194	4
VL 804 (c)	29.50	1	25.91	1	27.71	1	232	1	245	1	239	1
VL 907 (c)	28.23	2	25.89	2	27.06	2	231	2	222	2	227	2
HPW 349 (c)	25.25	4	22.99	5	24.12	5	229	3	210	3	219	3
VL 967	24.72	5	24.31	4	24.52	4	174	5	172	5	173	5
Mean	27.15		24.78		25.96		211		209		210	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.05	0.30	0.73			N.S.	4.37	26.61	8.06	
Genotype (B)		**	0.62	1.87	5.89			**	4.35	13.06	5.07	
B with A		N.S.	0.88	2.65				N.S.	6.16	18.46		
A with B			0.79	2.37					7.03	21.09		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	34.55	1	31.93	2	33.24	1	42.39	4	39.73	4	41.06	4
VL 804 (c)	31.74	3	26.52	5	29.13	3	40.08	5	39.98	3	40.03	5
VL 907 (c)	28.21	4	29.04	3	28.63	4	43.39	2	40.15	2	41.77	2
HPW 349 (c)	25.68	5	27.64	4	26.66	5	43.05	3	39.63	5	41.34	3
VL 967	32.34	2	32.27	1	32.30	2	43.94	1	43.88	1	43.91	1
Mean	30.50		29.48		29.99		42.57		40.67		41.62	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.60	3.62	7.69			**	0.11	0.64	0.98	
Genotype (B)		**	0.76	2.26	6.17			**	0.29	0.87	1.70	
B with A		*	1.07	3.20				**	0.41	1.23		
A with B			1.13	3.37					0.38	1.14		

Date of sowing	09.11.2013	30.11.2013	Date of Harvesting	11.04.2014	30.04.2014

Table 1.1.4. Northern Hills Zone **IR-TS-TAS-DOS** **Khudwani 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	25.95	4	23.17	4	24.56	4	256	4	239	4	247	4
VL 804 (c)	30.33	3	28.19	2	29.26	3	271	3	263	3	267	3
VL 907 (c)	33.86	1	29.28	1	31.57	1	297	1	288	1	292	1
HPW 349 (c)	22.96	5	19.90	5	21.43	5	242	5	229	5	235	5
VL 967	32.71	2	27.14	3	29.93	2	281	2	267	2	274	2
Mean	29.16		25.54		27.35		269		257		263	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.58	3.53	8.22			*	1.14	6.96	1.68	
Genotype (B)		**	0.62	1.85	5.52			**	5.78	17.33	5.38	
B with A		N.S.	0.87	2.61				N.S.	8.18	24.51		
A with B			0.97	2.91					7.40	22.19		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	29.64	4	29.39	3	29.52	4	34.50	4	33.10	4	33.80	4
VL 804 (c)	31.76	2	31.62	1	31.69	1	35.30	3	33.90	3	34.60	3
VL 907 (c)	31.42	3	29.15	4	30.28	3	36.33	1	34.90	1	35.62	1
HPW 349 (c)	27.76	5	26.59	5	27.17	5	34.17	5	32.77	5	33.47	5
VL 967	32.51	1	29.72	2	31.11	2	35.77	2	34.33	2	35.05	2
Mean	30.62		29.29		29.96		35.21		33.80		34.51	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.91	5.52	11.73			N.S.	0.29	1.75	3.23	
Genotype (B)		*	0.86	2.57	7.01			**	0.16	0.49	1.17	
B with A		N.S.	1.21	3.64				N.S.	0.23	0.70		
A with B			1.41	4.24					0.35	1.06		

Date of sowing	11.07.2013	26.11.2013	Date of Harvesting	23.06.2014	28.06.2014

Table 1.1.5. Northern Hills Zone **IR-TS-TAS-DOS** **Malan 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	47.08	5	50.06	3	48.57	3	270	2	298	2	284	2
VL 804 (c)	50.32	4	37.00	5	43.66	5	268	4	257	4	263	4
VL 907 (c)	55.57	1	53.31	1	54.44	1	304	1	309	1	307	1
HPW 349 (c)	50.38	3	44.38	4	47.38	4	258	5	243	5	250	5
VL 967	53.11	2	50.71	2	51.91	2	270	2	262	3	266	3
Mean	51.29		47.09		49.19		274		274		274	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.19	1.15	1.49			N.S.	4.33	26.33	6.12	
Genotype (B)		**	1.81	5.42	9.00			*	11.53	34.57	10.32	
B with A		N.S.	2.56	7.67				N.S.	16.31	48.90		
A with B			2.30	6.88					15.22	45.62		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	42.30	3	42.78	2	42.54	3	41.50	4	39.39	4	40.44	4
VL 804 (c)	46.84	1	39.14	5	42.99	2	40.15	5	36.96	5	38.56	5
VL 907 (c)	38.80	5	40.80	3	39.80	5	46.98	2	42.34	2	44.66	2
HPW 349 (c)	46.04	2	45.96	1	46.00	1	42.38	3	39.82	3	41.10	3
VL 967	40.40	4	40.65	4	40.53	4	49.03	1	47.78	1	48.41	1
Mean	42.88		41.87		42.37		44.01		41.26		42.63	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.76	4.61	6.93			*	0.32	1.96	2.93	
Genotype (B)		**	1.05	3.15	6.08			**	0.58	1.73	3.32	
B with A		*	1.49	4.46				N.S.	0.82	2.45		
A with B			1.53	4.59					0.80	2.39		
Date of sowing	05.11.2013		02.12.2013				Date of Harvesting	15.05.2014		23.05.2014		

Table 1.1.6. Northern Hills Zone **IR-TS-TAS-DOS** **Shimla 2013-14**

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HS 507 (c)	22.23	4	18.67	5	20.45	5	277	5	297	5	287	5
VL 804 (c)	25.90	1	25.67	1	25.78	1	377	3	457	1	417	1
VL 907 (c)	23.37	3	21.57	3	22.47	3	388	2	337	4	363	3
HPW 349 (c)	20.77	5	20.73	4	20.75	4	398	1	370	2	384	2
VL 967	25.77	2	24.10	2	24.93	2	348	4	363	3	356	4
Mean	23.61		22.15		22.88		358		365		361	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)	(A)	*	0.14	0.86	2.40		(A)	*	0.71	4.30	0.76	
Genotype (B)	(B)	**	0.36	1.07	3.84		(B)	**	4.30	12.89	2.91	
B with A		*	0.51	1.52				**	6.08	18.22		
A with B			0.47	1.42					5.48	16.44		
	Grains/earhead						**1000 Grains weight, g**					
HS 507 (c)	18.55	1	14.74	1	16.64	1	43.33	3	42.67	4	43.00	4
VL 804 (c)	16.25	2	13.29	3	14.77	2	42.33	5	42.33	5	42.33	5
VL 907 (c)	12.77	4	14.48	2	13.63	4	47.33	2	44.33	2	45.83	2
HPW 349 (c)	12.26	5	12.83	4	12.54	5	42.67	4	43.67	3	43.17	3
VL 967	14.55	3	12.78	5	13.66	3	51.00	1	52.00	1	51.50	1
Mean	14.87		13.62		14.25		45.33		45.00		45.17	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)	(A)	*	0.17	1.03	4.58		(A)	N.S.	0.90	5.47	7.71	
Genotype (B)	(B)	**	0.25	0.76	4.36		(B)	**	0.92	2.76	5.00	
B with A		**	0.36	1.08				N.S.	1.30	3.91		
A with B			0.36	1.09					2.33	6.98		
Date of sowing	10.11.2013		02.12.2013				Date of Harvesting	05.06.2014		07.06.2014		

Table 1.2.1. Northern Hills Zone **RF-ES-TAS-LON** **Almora 2013-14**

Genotype	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HPW 376	18.67	3	26.20	3	27.57	3	24.14	3	262	3	263	5	275	3	267	2
HS 277 (c)	26.30	1	30.20	1	33.07	1	29.86	1	248	4	270	2	278	2	266	4
VL 829 (c)	14.07	5	20.93	4	26.73	4	20.58	4	263	2	268	3	268	4	267	2
HPW 251 (c)	21.30	2	29.37	2	29.67	2	26.78	2	267	1	285	1	287	1	279	1
HS 542 (l)	15.50	4	20.47	5	22.43	5	19.47	5	238	5	267	4	268	4	258	5
Mean	19.17		25.43		27.89		24.16		256		271		275		267	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.88		3.47		14.18		N.S.		7.31		28.68		10.59	
Genotype (B)	**		0.75		2.19		9.32		N.S.		5.46		15.94		6.13	
B with A	N.S.		1.30		3.80				N.S.		9.46		27.61			
A with B			1.46		4.27						11.18		32.63			
	Grains/earhead								**1000 Grains weight, g**							
HPW 376	16.56	3	22.76	3	24.16	3	21.16	3	43.19	2	43.73	3	41.85	4	42.92	3
HS 277 (c)	24.83	1	27.13	1	28.21	1	26.73	1	42.70	4	41.29	4	42.16	3	42.05	4
VL 829 (c)	11.74	5	16.73	4	21.95	4	16.80	4	45.64	1	46.98	2	45.52	2	46.05	1
HPW 251 (c)	18.93	2	24.92	2	25.94	2	23.26	2	42.75	3	41.26	5	39.91	5	41.31	5
HS 542 (l)	15.21	4	16.42	5	18.14	5	16.59	5	42.68	5	47.15	1	46.22	1	45.35	2
Mean	17.45		21.59		23.68		20.91		43.39		44.08		43.13		43.54	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.60		2.34		11.05		N.S.		0.62		2.42		5.48	
Genotype (B)	**		0.83		2.44		11.97		**		0.63		1.84		4.35	
B with A	N.S.		1.44		4.22				N.S.		1.09		3.19			
A with B			1.42		4.15						1.16		3.37			

Date of sowing 10.10.2013 Date of Harvesti16.5.2014

Table 1.2.2. Northern Hills Zone **RF-ES-TAS-LON** **Bajaura 2013-14**

Genotype	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HPW 376	36.32	3	42.67	2	51.22	2	43.40	2	283	4	304	1	350	1	312	1
HS 277 (c)	28.64	4	31.25	4	34.64	4	31.51	4	315	1	293	2	309	3	306	2
VL 829 (c)	36.57	2	39.97	3	43.45	3	40.00	3	284	3	260	5	293	4	279	4
HPW 251 (c)	23.28	5	29.89	5	30.55	5	27.91	5	258	5	262	4	273	5	264	5
HS 542 (l)	38.61	1	45.99	1	51.86	1	45.49	1	311	2	286	3	312	2	303	3
Mean	32.69		37.95		42.34		37.66		290		281		308		293	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		1.28		5.03		13.18		N.S.		7.87		30.88		10.40	
Genotype (B)	**		1.43		4.18		11.42		**		8.26		24.10		8.46	
B with A	N.S.		2.48		7.25				N.S.		14.30		41.74			
A with B			2.56		7.48						15.02		43.83			
	Grains/earhead								**1000 Grains weight, g**							
HPW 376	28.88	1	31.04	2	30.20	2	30.04	1	44.70	3	45.30	4	48.50	3	46.17	3
HS 277 (c)	21.96	4	25.53	4	27.03	5	24.84	4	41.83	5	41.70	5	41.57	4	41.70	5
VL 829 (c)	25.03	3	29.01	3	28.98	3	27.67	3	52.10	1	53.03	1	51.03	2	52.06	1
HPW 251 (c)	20.54	5	25.21	5	28.53	4	24.76	5	44.37	4	45.70	3	39.43	5	43.17	4
HS 542 (l)	26.30	2	31.46	1	32.33	1	30.03	2	47.43	2	51.03	2	51.77	1	50.08	2
Mean	24.54		28.45		29.41		27.47		46.09		47.35		46.46		46.63	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.91		3.58		12.86		N.S.		0.66		2.59		5.49	
Genotype (B)	**		1.03		3.01		11.27		**		0.89		2.58		5.70	
B with A	N.S.		1.79		5.22				N.S.		1.53		4.48			
A with B			1.84		5.37						1.52		4.44			

Date of sowing 16.10.2013 Date of Harvesting 04.06.2014

Table 1.2.3. Northern Hills Zone **RF-ES-TAS-LON** **Khudwani 2013-14**

Genotype	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HPW 376	19.03	5	23.20	5	26.27	5	22.83	5	199	4	209	4	217	4	208	4
HS 277 (c)	25.57	2	30.67	1	34.03	1	30.09	1	218	1	228	1	233	2	226	1
VL 829 (c)	22.60	3	26.80	3	30.67	3	26.69	3	197	5	208	5	215	5	207	5
HPW 251 (c)	25.73	1	30.43	2	33.63	2	29.93	2	215	2	227	2	237	1	226	2
HS 542 (l)	21.67	4	24.60	4	27.93	4	24.73	4	201	3	213	3	220	3	212	3
Mean	22.92		27.14		30.51		26.86		206		217		224		216	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.33		1.31		4.82		**		1.70		6.69		3.06	
Genotype (B)	**		0.38		1.10		4.20		**		1.61		4.69		2.23	
B with A	N.S.		0.65		1.90				N.S.		2.78		8.13			
A with B			0.67		1.96						3.02		8.81			
	Grains/earhead								**1000 Grains weight, g**							
HPW 376	28.92	5	32.25	5	34.34	5	31.84	5	33.17	5	34.37	4	35.30	4	34.28	4
HS 277 (c)	34.21	2	37.79	1	39.61	2	37.20	1	34.30	2	35.60	2	36.90	2	35.60	2
VL 829 (c)	34.03	3	37.15	3	39.92	1	37.03	2	33.67	3	34.70	3	35.80	3	34.72	3
HPW 251 (c)	34.67	1	37.36	2	38.40	3	36.81	3	34.57	1	35.93	1	37.00	1	35.83	1
HS 542 (l)	32.33	4	33.72	4	36.08	4	34.05	4	33.30	4	34.20	5	35.20	5	34.23	5
Mean	32.83		35.66		37.67		35.39		33.80		34.96		36.04		34.93	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.39		1.53		4.27		**		0.21		0.81		2.29	
Genotype (B)	**		0.51		1.50		4.36		**		0.28		0.81		2.38	
B with A	N.S.		0.89		2.60				N.S.		0.48		1.40			
A with B			0.89		2.59						0.48		1.39			

Date of sowing 28.10.2013 Date of Harvesting 22&25.06.2014

Table 1.2.4. Northern Hills Zone **RF-ES-TAS-LON** **Malan 2013-14**

Genotype	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HPW 376	14.30	4	19.73	3	17.31	4	17.11	3	263	3	304	2	276	4	281	3
HS 277 (c)	14.76	3	15.63	4	14.41	5	14.93	4	261	4	262	4	262	5	261	4
VL 829 (c)	11.05	5	15.10	5	17.82	3	14.66	5	227	5	255	5	279	3	254	5
HPW 251 (c)	25.81	1	25.81	1	30.50	1	27.37	1	330	1	335	1	343	1	336	1
HS 542 (l)	16.26	2	22.63	2	22.74	2	20.55	2	278	2	290	3	286	2	284	2
Mean	16.44		19.78		20.56		18.92		272		289		289		283	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.88		3.46		18.04		N.S.		4.71		18.50		6.44	
Genotype (B)	**		0.94		2.75		14.93		**		8.20		23.94		8.69	
B with A	N.S.		1.63		4.76				N.S.		14.21		41.47			
A with B			1.70		4.98						13.55		39.56			
	Grains/earhead								**1000 Grains weight, g**							
HPW 376	14.25	4	16.87	3	16.23	4	15.78	4	38.22	2	38.23	3	38.53	4	38.33	3
HS 277 (c)	16.09	2	16.60	4	15.59	5	16.09	3	35.15	5	35.98	5	35.66	5	35.60	5
VL 829 (c)	13.00	5	15.71	5	16.41	3	15.04	5	37.55	4	37.70	4	38.63	3	37.96	4
HPW 251 (c)	18.69	1	19.20	1	21.81	1	19.90	1	41.57	1	40.15	2	40.29	2	40.67	1
HS 542 (l)	15.31	3	18.84	2	19.26	2	17.80	2	38.12	3	41.02	1	41.08	1	40.07	2
Mean	15.47		17.45		17.86		16.92		38.12		38.62		38.84		38.53	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.34		1.35		7.86		N.S.		0.20		0.79		2.02	
Genotype (B)	**		0.37		1.08		6.54		**		0.49		1.43		3.83	
B with A	*		0.64		1.86				N.S.		0.85		2.49			
A with B			0.67		1.95						0.79		2.30			

Date of sowing 14.10.2013 Date of Harvesting 02.05.2014

Table 1.2.5. Northern Hills Zone **RF-ES-TAS-LON** **Shimla 2013-14**

Genotype	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels,kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HPW 376	20.23	4	26.00	1	27.53	1	24.59	1	428	4	482	2	515	1	475	2
HS 277 (c)	23.30	1	20.43	4	26.00	4	23.24	2	477	2	443	3	472	2	464	3
VL 829 (c)	21.13	2	20.00	5	26.47	2	22.53	4	342	5	303	5	392	5	346	5
HPW 251 (c)	18.20	5	23.27	2	20.23	5	20.57	5	455	3	527	1	457	3	479	1
HS 542 (l)	20.43	3	21.77	3	26.43	3	22.88	3	485	1	332	4	434	4	417	4
Mean	20.66		22.29		25.33		22.76		438		417		454		436	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		1.07		4.19		18.17		*		5.36		21.05		4.76	
Genotype (B)	*		0.76		2.23		10.05		**		9.95		29.05		6.84	
B with A	*		1.32		3.85				**		17.24		50.32			
A with B			1.59		4.65						16.32		47.65			
	Grains/earhead								**1000 Grains weight, g**							
HPW 376	11.28	3	11.84	3	11.14	4	11.42	3	42.00	5	45.67	3	48.00	2	45.22	3
HS 277 (c)	11.37	2	10.11	5	11.83	3	11.10	4	43.00	3	45.67	3	46.67	4	45.11	4
VL 829 (c)	13.62	1	13.86	2	13.89	1	13.79	1	45.33	1	47.67	1	49.00	1	47.33	1
HPW 251 (c)	9.37	5	10.11	4	10.37	5	9.95	5	42.67	4	44.00	5	42.67	5	43.11	5
HS 542 (l)	9.64	4	14.31	1	12.93	2	12.29	2	43.67	2	46.00	2	47.33	3	45.67	2
Mean	11.06		12.05		12.03		11.71		43.33		45.80		46.73		45.29	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.37		1.44		12.13		N.S.		0.71		2.80		6.10	
Genotype (B)	**		0.40		1.16		10.18		**		0.58		1.69		3.84	
B with A	*		0.69		2.01				N.S.		1.00		2.93			
A with B			0.72		2.09						1.15		3.35			

Date of sowing 14.10.2013 Date of Harvesting 25.05.2014

Table 1.3.1. Northern Hills Zone **RF-TS-TAS-LON** **Almora 2013-14**

Genotype	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	35.73	3	44.27	1	44.63	2	41.54	3	353	3	402	2	407	2	387	2
VL 804 (c)	40.43	1	42.20	2	44.27	3	42.30	1	357	2	373	4	377	5	369	4
VL 907 (c)	38.20	2	41.83	3	46.17	1	42.07	2	408	1	418	1	425	1	417	1
HPW 349 (c)	31.30	4	33.50	4	42.70	4	35.83	4	337	4	362	5	393	3	364	5
VL 967	30.43	5	33.10	5	36.83	5	33.46	5	337	4	385	3	390	4	371	3
Mean	35.22		38.98		42.92		39.04		358		388		398		382	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		1.45		5.70		14.41		*		5.66		22.22		5.75	
Genotype (B)	**		0.81		2.38		6.26		**		10.52		30.71		8.27	
B with A	N.S.		1.41		4.12				N.S.		18.22		53.18			
A with B			1.92		5.62						17.25		50.36			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	24.07	2	26.42	2	26.31	2	25.60	2	42.03	4	41.71	5	42.05	5	41.93	5
VL 804 (c)	27.79	1	26.45	1	26.80	1	27.01	1	40.97	5	42.90	4	44.24	3	42.70	4
VL 907 (c)	21.59	4	21.59	3	23.76	4	22.31	4	43.71	2	46.34	2	45.80	2	45.29	2
HPW 349 (c)	21.92	3	21.20	4	25.70	3	22.94	3	42.46	3	43.79	3	42.23	4	42.83	3
VL 967	17.48	5	16.45	5	17.75	5	17.23	5	51.89	1	52.31	1	53.20	1	52.47	1
Mean	22.57		22.42		24.06		23.02		44.21		45.41		45.50		45.04	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.65		2.55		10.91		N.S.		0.52		2.04		4.48	
Genotype (B)	**		0.69		2.01		8.97		**		0.58		1.68		3.83	
B with A	N.S.		1.19		3.48				N.S.		1.00		2.91			
A with B			1.25		3.64						1.03		3.01			

Date of sowing 22.10.2013 Date of Harvesting 14.05.2014

Table 1.3.2. Northern Hills Zone **RF-TS-TAS-LON** **Bajaura 2013-14**

Genotype	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	36.88	2	43.13	3	50.39	3	43.47	3	316	4	343	4	413	1	357	4
VL 804 (c)	33.37	5	39.25	5	45.30	5	39.31	5	330	2	382	2	409	2	374	1
VL 907 (c)	35.21	4	39.59	4	48.03	4	40.94	4	358	1	364	3	383	3	369	2
HPW 349 (c)	36.28	3	47.33	2	50.89	2	44.83	2	326	3	384	1	375	4	361	3
VL 967	38.51	1	48.77	1	53.44	1	46.91	1	305	5	330	5	354	5	330	5
Mean	36.05		43.62		49.61		43.09		327		361		387		358	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		1.39		5.46		12.49		N.S.		12.30		48.28		13.30	
Genotype (B)	**		1.45		4.23		10.10		*		9.99		29.16		8.37	
B with A	N.S.		2.51		7.33				N.S.		17.31		50.51			
A with B			2.64		7.71						19.77		57.70			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	28.44	2	28.71	4	28.70	4	28.62	3	41.11	4	43.71	2	42.60	4	42.47	3
VL 804 (c)	29.32	1	29.83	1	28.69	5	29.28	1	34.65	5	34.51	5	38.77	5	35.98	5
VL 907 (c)	23.92	5	25.66	5	29.41	2	26.33	5	41.60	3	42.28	3	42.69	3	42.19	4
HPW 349 (c)	26.92	3	29.26	2	30.28	1	28.82	2	41.76	2	42.25	4	45.01	2	43.01	2
VL 967	25.26	4	28.81	3	28.90	3	27.66	4	50.09	1	51.05	1	52.71	1	51.28	1
Mean	26.77		28.45		29.20		28.14		41.84		42.76		44.36		42.99	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.47		1.83		6.42		*		0.45		1.77		4.07	
Genotype (B)	N.S.		0.93		2.73		9.96		**		0.68		1.99		4.76	
B with A	N.S.		1.62		4.73				N.S.		1.18		3.45			
A with B			1.52		4.44						1.15		3.36			

Date of sowing 30.10.2013 Date of Harvesting 06.06.2014

Table 1.3.3. Northern Hills Zone **RF-TS-TAS-LON** **Imphal 2013-14**

Genotype	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	12.14	4	14.18	3	15.17	4	13.83	4	154	5	171	3	177	3	167	3
VL 804 (c)	11.50	5	13.41	5	15.29	3	13.40	5	156	3	165	5	169	5	163	5
VL 907 (c)	15.89	1	16.82	1	18.74	1	17.15	1	182	1	189	1	193	1	188	1
HPW 349 (c)	12.74	3	13.98	4	15.04	5	13.92	3	154	4	170	4	177	3	167	4
VL 967	13.88	2	15.47	2	15.75	2	15.04	2	166	2	173	2	177	2	172	2
Mean	13.23		14.77		16.00		14.67		162		173		178		171	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.52		2.05		13.79		*		2.00		7.85		4.52	
Genotype (B)	**		0.33		0.96		6.70		**		2.83		8.27		4.96	
B with A	N.S.		0.57		1.66				N.S.		4.91		14.32			
A with B			0.73		2.13						4.82		14.08			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	19.90	2	20.63	2	21.17	2	20.56	1	39.63	4	40.20	5	40.51	4	40.12	5
VL 804 (c)	18.67	4	20.07	3	22.24	1	20.33	2	39.56	5	40.41	4	40.49	5	40.16	4
VL 907 (c)	19.89	3	19.62	4	21.02	3	20.18	3	43.99	2	45.31	1	46.18	1	45.16	1
HPW 349 (c)	19.91	1	19.33	5	19.99	4	19.75	4	41.31	3	42.56	2	42.49	3	42.12	3
VL 967	18.32	5	21.19	1	19.53	5	19.68	5	45.66	1	42.34	3	45.38	2	44.46	2
Mean	19.34		20.17		20.79		20.10		42.03		42.17		43.01		42.40	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.48		1.87		9.19		N.S.		0.27		1.07		2.48	
Genotype (B)	N.S.		0.34		1.00		5.12		**		0.26		0.75		1.81	
B with A	*		0.59		1.74				**		0.44		1.29			
A with B			0.71		2.08						0.48		1.40			

Date of sowing 30.10.2013 Date of Harvesting 11.04.2014

Table 1.3.4. Northern Hills Zone **RF-TS-TAS-LON** **Khudwani 2013-14**

	Nitrogen levels,kg/ha								Nitrogen levels,kg/ha							
Genotype	40	RK	60	RK	80	RK	Mean	RK	40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	20.47	5	24.30	5	25.80	5	23.52	5	177	5	189	5	203	5	189	5
VL 804 (c)	21.93	3	26.50	3	27.20	4	25.21	3	191	4	202	4	211	4	201	4
VL 907 (c)	23.33	1	27.67	2	30.80	2	27.27	2	209	1	223	1	236	1	223	1
HPW 349 (c)	21.50	4	25.07	4	27.83	3	24.80	4	204	3	217	3	227	3	216	3
VL 967	23.13	2	27.70	1	31.77	1	27.53	1	208	2	221	2	235	2	221	2
Mean	22.07		26.25		28.68		25.67		198		211		222		210	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.32		1.24		4.77		**		1.00		3.92		1.84	
Genotype (B)	**		0.30		0.87		3.48		**		2.89		8.44		4.13	
B with A	*		0.52		1.51				N.S.		5.01		14.62			
A with B			0.56		1.63						4.59		13.40			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	34.27	1	36.74	1	36.00	1	35.67	1	33.87	5	35.07	5	35.37	5	34.77	5
VL 804 (c)	33.05	2	36.43	2	35.47	2	34.98	2	34.87	4	36.10	4	36.47	4	35.81	4
VL 907 (c)	31.59	3	33.75	3	35.37	3	33.57	3	35.43	3	36.77	3	36.97	3	36.39	3
HPW 349 (c)	28.89	5	30.62	5	32.19	5	30.57	5	36.47	2	37.73	2	38.10	2	37.43	2
VL 967	30.13	4	32.76	4	35.18	4	32.69	4	37.00	1	38.27	1	38.67	1	37.98	1
Mean	31.59		34.06		34.84		33.50		35.53		36.79		37.11		36.48	
	F. Test		S.E.m	C.D.			C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.69	3	3.68		7.97		**		0.19		0.75		2.02	
Genotype (B)	**		0.68	2			6.09		**		0.45		1.31		3.70	
B with A	N.S.		1.18	3					N.S.		0.78		2.27			
A with B			1.26								0.72		2.11			
Date of sowing			11.04.2013						Date of Harvesting				24&28.06.2014			

Table 1.3.5. Northern Hills Zone **RF-TS-TAS-LON** **Malan 2013-14**

	Nitrogen levels,kg/ha								Nitrogen levels,kg/ha							
Genotype	40	RK	60	RK	80	RK	Mean	RK	40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	29.25	2	34.95	1	39.84	1	34.68	2	245	2	277	1	295	1	272	2
VL 804 (c)	23.41	4	25.02	4	23.97	5	24.13	4	226	4	238	3	236	4	233	4
VL 907 (c)	34.15	1	32.52	2	39.09	2	35.25	1	273	1	271	2	293	2	279	1
HPW 349 (c)	27.32	3	27.84	3	30.50	3	28.55	3	228	3	235	4	249	3	237	3
VL 967	22.21	5	24.11	5	24.43	4	23.58	5	203	5	215	5	218	5	212	5
Mean	27.27		28.89		31.57		29.24		235		247		258		247	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.82		3.23		10.89		N.S.		6.75		26.51		10.60	
Genotype (B)	**		1.08		3.15		11.08		**		7.71		22.51		9.38	
B with A	N.S.		1.87		5.46				N.S.		13.36		38.98			
A with B			1.86		5.44						13.72		40.05			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	29.86	2	31.47	1	33.69	1	31.67	1	40.03	3	40.10	4	40.07	5	40.07	4
VL 804 (c)	26.71	4	26.35	4	24.97	4	26.01	4	39.00	5	39.87	5	40.68	4	39.85	5
VL 907 (c)	28.06	3	26.98	3	29.38	3	28.14	3	44.68	2	44.40	2	45.50	2	44.86	2
HPW 349 (c)	30.48	1	29.39	2	29.89	2	29.92	2	39.32	4	40.15	3	40.76	3	40.08	3
VL 967	22.21	5	23.15	5	22.74	5	22.70	5	49.47	1	48.51	1	49.22	1	49.06	1
Mean	27.46		27.47		28.13		27.69		42.50		42.60		43.24		42.78	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.15		0.60		2.13		N.S.		0.24		0.95		2.20	
Genotype (B)	**		0.35		1.02		3.80		**		0.48		1.41		3.40	
B with A	**		0.61		1.77				N.S.		0.84		2.45			
A with B			0.56		1.65						0.79		2.30			
Date of sowing			28.10.2013						Date of Harvesting				17.05.2014			

Table 1.3.6. Northern Hills Zone **RF-TS-TAS-LON** **Shimla 2013-14**

Genotype	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK	Nitrogen levels,kg/ha 40	RK	60	RK	80	RK	Mean	RK
	Yield, q/ha								**Earhead/sq.m.**							
HS 507 (c)	20.36	5	27.56	2	21.83	5	23.25	4	275	5	373	1	315	4	321	4
VL 804 (c)	21.67	4	25.75	3	22.11	4	23.18	5	400	1	323	2	333	3	352	1
VL 907 (c)	21.92	3	25.25	5	30.69	1	25.95	2	288	4	293	4	399	1	327	3
HPW 349 (c)	22.03	2	25.56	4	25.58	3	24.39	3	318	2	317	3	399	1	345	2
VL 967	23.17	1	28.44	1	30.31	2	27.31	1	315	3	269	5	296	5	293	5
Mean	21.83		26.51		26.11		24.81		319		315		349		328	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.15		0.61		2.41		**		3.18		12.47		3.75	
Genotype (B)	**		0.33		0.97		4.03		**		2.60		7.60		2.38	
B with A	**		0.58		1.69				**		4.51		13.16			
A with B			0.54		1.57						5.13		14.98			
	Grains/earhead								**1000 Grains weight, g**							
HS 507 (c)	19.51	1	16.98	5	16.04	3	17.51	2	38.00	5	43.47	4	43.23	5	41.57	4
VL 804 (c)	14.03	5	19.73	2	15.21	4	16.32	5	38.57	4	40.33	5	43.67	4	40.86	5
VL 907 (c)	17.07	2	17.72	4	16.88	2	17.22	3	44.50	2	48.53	2	45.53	2	46.19	2
HPW 349 (c)	16.63	3	18.26	3	14.34	5	16.41	4	41.57	3	44.17	3	44.67	3	43.47	3
VL 967	16.24	4	20.25	1	19.14	1	18.54	1	45.20	1	52.20	1	53.50	1	50.30	1
Mean	16.70		18.59		16.32		17.20		41.57		45.74		46.12		44.48	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.16		0.63		3.59		**		0.20		0.79		1.74	
Genotype (B)	**		0.29		0.86		5.11		**		0.31		0.92		2.12	
B with A	**		0.51		1.48				**		0.54		1.59			
A with B			0.48		1.40						0.53		1.54			

Date of sowing 28.10.2013 Date of Harvesting 31.05.2014

Table 2.1.1. North Western Plains Zone IR-TS-TAS-DOS Agra 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	53.26	5	36.66	3	44.96	3	519	4	469	3	494	4
HUW 666	53.55	3	34.68	7	44.12	6	505	7	451	7	478	7
HD 2967 (c)	54.45	2	38.76	1	46.61	1	523	2	471	2	497	2
HD 3086 (I)	49.44	9	34.16	9	41.80	9	496	9	447	9	471	9
PBW 681	52.82	6	35.51	5	44.17	5	510	6	452	6	481	6
WH 1138	52.39	7	35.24	6	43.81	7	511	5	457	5	484	5
DPW 621-50 (c)	51.88	8	34.65	8	43.26	8	501	8	450	8	476	8
PBW 550 (c)	53.40	4	36.08	4	44.74	4	521	3	468	4	494	3
DBW 88 (I)	54.68	1	37.42	2	46.05	2	523	1	473	1	498	1
Mean	52.87		35.91		44.39		512		460		486	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.27	1.65	3.18		**		0.74	4.53	0.80	
Genotype (B)	**		0.50	1.45	2.77		**		1.30	3.76	0.66	
B within A	N.S.		0.71	2.05			N.S.		1.84	5.32		
A within B			0.72	2.08					1.89	5.46		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	26.98	7	21.37	5	24.17	6	38.00	3	36.67	2	37.33	4
HUW 666	27.63	4	21.17	7	24.40	5	38.33	2	36.33	3	37.33	3
HD 2967 (c)	27.93	3	23.10	3	25.51	4	37.33	6	35.67	6	36.50	6
HD 3086 (I)	26.70	8	21.16	8	23.93	8	37.33	6	36.33	3	36.83	5
PBW 681	27.27	6	20.75	9	24.01	7	38.00	3	37.83	1	37.92	1
WH 1138	26.51	9	21.31	6	23.91	9	38.67	1	36.33	3	37.50	2
DPW 621-50 (c)	29.87	2	23.63	2	26.75	1	34.67	8	32.67	8	33.67	9
PBW 550 (c)	30.25	1	22.55	4	26.40	2	34.00	9	34.33	7	34.17	8
DBW 88 (I)	27.54	5	24.71	1	26.12	3	38.00	3	32.00	9	35.00	7
Mean	27.85		22.19		25.02		37.15		35.35		36.25	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.07	0.45	1.55		*		0.23	1.42	3.34	
Genotype (B)	**		0.61	1.77	5.99		**		0.65	1.88	4.41	
B within A	N.S.		0.87	2.50			N.S.		0.92	2.66		
A within B			0.82	2.37					0.90	2.60		
Date of sowing:	10.11.2013		12.12.2013				Date of harvesting:		05.04.2014		10.04.2014	

Table 2.1.2. North Western Plains Zone IR-TS-TAS-DOS Durgapura 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	54.58	5	49.72	2	52.15	5	414	6	403	3	408	5
HUW 666	58.59	4	53.67	1	56.13	1	428	4	410	2	419	4
HD 2967 (c)	60.20	2	49.04	3	54.62	2	433	3	415	1	424	3
HD 3086 (I)	52.30	8	46.90	4	49.60	7	414	5	398	4	406	6
PBW 681	61.30	1	45.92	6	53.61	3	469	1	391	6	430	1
WH 1138	53.87	6	46.15	5	50.01	6	413	7	394	5	404	7
DPW 621-50 (c)	60.10	3	44.91	8	52.51	4	464	2	387	7	426	2
PBW 550 (c)	53.54	7	45.34	7	49.44	8	409	8	387	7	398	8
DBW 88 (I)	51.80	9	42.44	9	47.12	9	401	9	381	9	391	9
Mean	56.25		47.12		51.69		427		396		412	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.66	3.99	6.60		*		2.72	16.54	3.43	
Genotype (B)	**		1.51	4.36	7.17		*		8.31	23.97	4.94	
B within A	N.S.		2.14	6.17			*		11.75	33.90		
A within B			2.12	6.12					11.41	32.91		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	32.45	4	32.48	6	32.47	7	40.87	3	37.97	2	39.42	2
HUW 666	34.21	2	39.47	1	36.84	1	40.27	8	33.13	8	36.70	8
HD 2967 (c)	34.46	1	32.03	7	33.25	3	40.50	5	36.90	3	38.70	4
HD 3086 (I)	31.12	7	33.88	3	32.50	6	40.70	4	34.80	7	37.75	7
PBW 681	32.39	5	32.95	5	32.67	5	40.43	7	35.63	5	38.03	5
WH 1138	32.31	6	33.32	4	32.82	4	40.43	6	35.33	6	37.88	6
DPW 621-50 (c)	32.63	3	36.21	2	34.42	2	39.77	9	32.27	9	36.02	9
PBW 550 (c)	30.70	8	28.44	9	29.57	9	42.73	1	41.13	1	41.93	1
DBW 88 (I)	30.69	9	31.27	8	30.98	8	42.20	2	35.87	4	39.03	3
Mean	32.33		33.34		32.83		40.88		35.89		38.39	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.38	2.30	5.98		*		0.56	3.40	7.57	
Genotype (B)	*		1.16	3.34	8.64		**		0.95	2.74	6.06	
B within A	N.S.		1.64	4.73			N.S.		1.34	3.88		
A within B			1.59	4.59					1.38	4.00		
Date of sowing:	07.11.2013		13.12.2013				Date of harvesting:		31.03.2014		12.04.2014	

Table 2.1.3. North Western Plains Zone IR-TS-TAS-DOS Gurdaspur 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	43.99	3	40.17	7	42.08	3	397	8	367	7	382	8
HUW 666	38.52	7	40.54	4	39.53	8	419	5	381	6	400	5
HD 2967 (c)	38.10	8	41.35	2	39.72	7	406	6	411	2	408	4
HD 3086 (I)	45.21	1	39.73	8	42.47	1	459	2	363	8	411	3
PBW 681	42.51	4	39.25	9	40.88	6	467	1	395	3	431	1
WH 1138	41.63	5	40.35	6	40.99	5	426	4	417	1	421	2
DPW 621-50 (c)	37.98	9	40.89	3	39.43	9	398	7	383	4	390	7
PBW 550 (c)	44.40	2	40.38	5	42.39	2	430	3	362	9	396	6
DBW 88 (I)	41.35	6	41.89	1	41.62	4	380	9	381	5	380	9
Mean	41.52		40.51		41.01		420		384		402	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.46	2.81	5.84		N.S.		9.30	56.59	12.01	
Genotype (B)	N.S.		1.01	2.91	6.03		**		9.75	28.11	5.94	
B within A	*		1.43	4.12			**		13.78	39.76		
A within B			1.42	4.10					15.98	46.10		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	32.54	1	29.43	3	30.98	2	34.07	6	37.28	3	35.68	6
HUW 666	29.09	4	28.92	5	29.01	4	31.74	9	36.89	5	34.31	7
HD 2967 (c)	26.67	7	27.25	9	26.96	8	36.09	4	36.92	4	36.51	4
HD 3086 (I)	24.88	9	31.88	2	28.38	5	39.92	1	34.44	7	37.18	1
PBW 681	27.55	5	28.25	7	27.90	6	33.08	8	35.43	6	34.25	8
WH 1138	25.21	8	28.59	6	26.90	9	39.07	2	33.87	8	36.47	5
DPW 621-50 (c)	27.07	6	27.96	8	27.51	7	35.35	5	38.28	1	36.82	3
PBW 550 (c)	30.93	2	33.14	1	32.04	1	33.47	7	33.68	9	33.57	9
DBW 88 (I)	30.20	3	29.03	4	29.62	3	36.16	3	37.92	2	37.04	2
Mean	28.24		29.38		28.81		35.44		36.08		35.76	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.76	4.60	13.63		N.S.		0.33	2.00	4.78	
Genotype (B)	*		1.02	2.94	8.67		**		0.63	1.83	4.35	
B within A	N.S.		1.44	4.16			**		0.90	2.59		
A within B			1.56	4.49					0.91	2.62		
Date of sowing:	6.11.2013		10.12.2013				Date of harvesting:		03.05.2014		06.05.2014	

Table 2.1.4. North Western Plains Zone IR-TS-TAS-DOS Hisar 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	60.27	2	51.80	3	56.04	2	440	7	425	5	433	5
HUW 666	59.69	3	52.86	1	56.28	1	455	4	427	4	441	4
HD 2967 (c)	61.77	1	48.47	7	55.12	4	442	6	415	7	428	7
HD 3086 (I)	59.35	4	52.55	2	55.95	3	500	1	457	2	478	1
PBW 681	55.88	8	48.81	6	52.35	8	418	9	397	9	408	9
WH 1138	58.91	5	51.29	4	55.10	5	478	2	458	1	468	2
DPW 621-50 (c)	58.27	6	47.76	8	53.01	6	450	5	413	8	432	6
PBW 550 (c)	54.05	9	45.07	9	49.56	9	463	3	438	3	451	3
DBW 88 (I)	56.84	7	48.98	5	52.91	7	435	8	418	6	427	8
Mean	58.34		49.73		54.03		454		428		441	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		1.22	7.40	11.69		*		2.92	17.75	3.44	
Genotype (B)	*		1.44	4.15	6.52		**		11.24	32.42	6.25	
B within A	N.S.		2.03	5.87			N.S.		15.89	45.84		
A within B			2.27	6.55					15.26	44.03		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	37.36	1	34.61	2	35.99	2	36.70	9	35.25	8	35.97	8
HUW 666	33.19	3	31.87	3	32.53	3	39.86	6	39.25	2	39.56	5
HD 2967 (c)	30.89	7	29.63	7	30.26	6	45.33	1	39.52	1	42.43	1
HD 3086 (I)	29.43	8	30.06	5	29.75	8	40.42	5	38.37	6	39.39	6
PBW 681	36.26	2	37.83	1	37.05	1	36.79	8	32.68	9	34.73	9
WH 1138	29.22	9	29.10	8	29.16	9	42.23	2	38.45	5	40.34	2
DPW 621-50 (c)	31.70	5	30.09	4	30.90	4	41.05	4	38.54	4	39.80	4
PBW 550 (c)	30.98	6	28.67	9	29.83	7	37.73	7	36.17	7	36.95	7
DBW 88 (I)	31.71	4	29.93	6	30.82	5	41.29	3	39.15	3	40.22	3
Mean	32.31		31.31		31.81		40.16		37.49		38.82	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.91	5.52	14.82		*		0.22	1.34	2.95	
Genotype (B)	**		1.18	3.41	9.09		**		0.56	1.61	3.53	
B within A	N.S.		1.67	4.82			N.S.		0.79	2.28		
A within B			1.82	5.24					0.78	2.24		
Date of sowing:	06.11.2013		12.12.2013				Date of harvesting:		16.04.2014		28.04.2014	

Table 2.1.5. North Western Plains Zone IR-TS-TAS-DOS Jammu 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	44.70	3	34.60	3	39.65	2	395	3	313	4	354	2
HUW 666	41.61	6	35.46	1	38.54	5	370	6	321	2	346	5
HD 2967 (c)	41.37	8	33.05	6	37.21	7	368	8	304	6	336	7
HD 3086 (I)	46.31	1	34.42	4	40.37	1	406	1	316	3	361	1
PBW 681	42.80	5	31.30	9	37.05	8	379	5	291	9	335	8
WH 1138	41.49	7	33.47	5	37.48	6	369	7	310	5	340	6
DPW 621-50 (c)	45.66	2	32.34	7	39.00	3	402	2	298	7	350	4
PBW 550 (c)	39.83	9	31.73	8	35.78	9	349	9	294	8	322	9
DBW 88 (I)	43.22	4	34.66	2	38.94	4	381	4	324	1	353	3
Mean	43.00		33.45		38.22		380		308		344	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.52	3.17	7.09		**		3.86	23.47	5.83	
Genotype (B)	*		0.92	2.66	5.91		*		7.13	20.57	5.08	
B within A	N.S.		1.31	3.77			N.S.		10.08	29.09		
A within B			1.34	3.86					10.26	29.60		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	29.12	6	32.99	2	31.06	2	38.93	4	33.63	7	36.28	7
HUW 666	26.67	9	33.09	1	29.88	6	42.19	1	33.47	9	37.83	2
HD 2967 (c)	30.62	2	32.58	3	31.60	1	36.76	9	33.55	8	35.15	9
HD 3086 (I)	29.84	4	30.03	6	29.94	5	38.28	5	36.35	2	37.32	4
PBW 681	27.60	8	29.63	8	28.61	9	40.93	3	36.28	3	38.61	1
WH 1138	29.52	5	29.62	9	29.57	8	38.08	6	36.44	1	37.26	5
DPW 621-50 (c)	27.63	7	31.73	4	29.68	7	41.01	2	34.15	6	37.58	3
PBW 550 (c)	30.67	1	29.85	7	30.26	4	37.24	8	36.24	4	36.74	6
DBW 88 (I)	30.44	3	31.06	5	30.75	3	37.32	7	34.47	5	35.90	8
Mean	29.12		31.18		30.15		38.97		34.95		36.96	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.23	1.42	4.01		*		0.45	2.76	6.39	
Genotype (B)	N.S.		0.69	1.99	5.61		**		0.59	1.72	3.94	
B within A	*		0.98	2.81			**		0.84	2.43		
A within B			0.95	2.74					0.91	2.64		
Date of sowing:	11.11.2013		14.12.2013				Date of harvesting:		24.04.2014		03.05.2014	

Table 2.1.6. North Western Plains Zone IR-TS-TAS-DOS Karnal 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	63.22	1	47.06	8	55.14	4	409	8	386	7	398	7
HUW 666	62.35	2	48.40	3	55.38	2	380	9	386	7	383	9
HD 2967 (c)	62.23	4	47.34	6	54.78	6	428	4	391	5	410	5
HD 3086 (I)	61.57	7	48.80	2	55.18	3	456	2	437	3	446	3
PBW 681	61.78	6	47.10	7	54.44	7	412	6	391	5	401	6
WH 1138	62.25	3	47.70	4	54.98	5	467	1	456	1	461	1
DPW 621-50 (c)	58.79	9	47.41	5	53.10	8	421	5	407	4	414	4
PBW 550 (c)	59.97	8	45.43	9	52.70	9	410	7	366	9	388	8
DBW 88 (I)	62.12	5	50.39	1	56.26	1	447	3	453	2	450	2
Mean	61.59		47.74		54.66		425		408		417	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.55	3.36	5.25		N.S.		13.58	82.62	16.93	
Genotype (B)	N.S.		0.92	2.66	4.14		*		16.67	48.10	9.80	
B within A	N.S.		1.31	3.77			N.S.		23.58	68.03		
A within B			1.35	3.89					26.05	75.15		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	38.71	3	33.20	3	35.95	2	40.53	7	37.27	7	38.90	7
HUW 666	39.72	2	31.69	4	35.71	3	41.48	5	39.63	2	40.56	5
HD 2967 (c)	34.47	5	31.20	5	32.84	5	42.27	4	39.21	3	40.74	4
HD 3086 (I)	30.79	9	29.22	7	30.01	8	44.01	1	38.26	4	41.13	2
PBW 681	39.75	1	34.36	1	37.06	1	38.28	9	35.17	9	36.73	9
WH 1138	31.09	8	27.68	9	29.38	9	43.64	2	38.01	5	40.82	3
DPW 621-50 (c)	34.03	6	31.02	6	32.52	6	41.18	6	37.97	6	39.57	6
PBW 550 (c)	36.46	4	33.65	2	35.06	4	40.49	8	36.92	8	38.70	8
DBW 88 (I)	32.60	7	28.08	8	30.34	7	42.79	3	39.73	1	41.26	1
Mean	35.29		31.12		33.21		41.63		38.02		39.82	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.44	8.77	22.55		*		0.31	1.88	4.03	
Genotype (B)	**		1.35	3.90	9.96		**		0.32	0.91	1.95	
B within A	N.S.		1.91	5.51			**		0.45	1.29		
A within B			2.31	6.65					0.52	1.51		
Date of sowing:	10.11.2013		13.12.2013				Date of harvesting:		14.04.2014		25.04.2014	

Table 2.1.7. North Western Plains Zone IR-TS-TAS-DOS Ludhiana 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	62.15	2	51.04	9	56.60	8	375	4	304	7	339	6
HUW 666	60.76	5	55.44	4	58.10	3	340	9	303	8	321	9
HD 2967 (c)	60.42	6	53.94	7	57.18	5	367	5	325	3	346	5
HD 3086 (I)	56.71	9	57.64	1	57.18	5	360	7	334	2	347	4
PBW 681	64.00	1	54.40	6	59.20	1	357	8	311	6	334	7
WH 1138	59.14	7	55.79	3	57.47	4	379	3	317	5	348	3
DPW 621-50 (c)	57.41	8	55.09	5	56.25	9	383	1	325	4	354	2
PBW 550 (c)	62.04	4	51.39	8	56.71	7	362	6	299	9	330	8
DBW 88 (I)	62.15	2	56.13	2	59.14	2	382	2	343	1	363	1
Mean	60.53		54.54		57.54		367		318		343	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.45	2.72	4.04		**		2.61	15.89	3.96	
Genotype (B)	N.S.		0.77	2.23	3.30		**		6.82	19.66	4.87	
B within A	**		1.09	3.16			N.S.		9.64	27.81		
A within B			1.12	3.25					9.45	27.28		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	40.58	6	44.92	6	42.75	6	40.99	2	37.47	7	39.23	3
HUW 666	45.10	2	46.34	4	45.72	3	39.99	4	39.55	2	39.77	2
HD 2967 (c)	43.02	3	42.10	8	42.56	7	38.49	9	39.41	3	38.95	4
HD 3086 (I)	40.76	4	45.75	5	43.25	5	38.92	7	37.81	6	38.36	7
PBW 681	46.70	1	50.33	2	48.52	1	38.61	8	34.79	8	36.70	9
WH 1138	40.03	7	46.51	3	43.27	4	39.57	6	38.32	4	38.94	5
DPW 621-50 (c)	37.62	9	44.89	7	41.26	8	39.88	5	37.86	5	38.87	6
PBW 550 (c)	39.48	8	55.82	1	47.65	2	43.46	1	30.98	9	37.22	8
DBW 88 (I)	40.63	5	41.13	9	40.88	9	40.07	3	39.93	1	40.00	1
Mean	41.55		46.42		43.98		40.00		37.34		38.67	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.04	6.32	12.28		N.S.		0.71	4.33	9.55	
Genotype (B)	**		1.49	4.31	8.32		N.S.		0.86	2.47	5.42	
B within A	*		2.11	6.09			**		1.21	3.49		
A within B			2.25	6.48					1.34	3.88		
Date of sowing:	07.11.2013		15.12.2013		Date of harvesting:		22.04.2014		02.05.2014			

Table 2.1.8. North Western Plains Zone IR-TS-TAS-DOS Nagina 2013-14

Genotype	Sowing time: Tmely	Rk	Late	Rk	Mean	Rk	Sowing time: Tmely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	50.84	1	41.34	1	46.09	1	383	1	277	1	330	1
HUW 666	46.39	6	39.28	3	42.83	4	349	6	242	8	296	8
HD 2967 (c)	46.94	5	37.67	6	42.30	6	366	4	258	4	312	4
HD 3086 (I)	49.60	2	39.61	2	44.61	2	342	8	257	6	300	6
PBW 681	47.01	4	38.03	5	42.52	5	379	2	265	2	322	2
WH 1138	43.37	9	35.12	7	39.25	8	349	6	242	8	296	8
DPW 621-50 (c)	43.92	8	32.86	9	38.39	9	366	4	258	4	312	4
PBW 550 (c)	46.17	7	35.00	8	40.59	7	342	8	257	6	300	6
DBW 88 (I)	48.78	3	39.07	4	43.92	3	379	2	265	2	322	2
Mean	47.00		37.55		42.28		362		258		310	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.73	4.42	8.92		*		7.46	45.38	12.50	
Genotype (B)	**		0.74	2.13	4.27		**		5.05	14.57	3.99	
B within A	N.S.		1.04	3.01			N.S.		7.14	20.60		
A within B			1.22	3.53					10.05	28.99		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	33.34	4	40.04	4	36.69	3	39.83	1	37.26	1	38.54	1
HUW 666	33.57	3	44.54	1	39.06	2	39.59	2	36.66	5	38.12	5
HD 2967 (c)	32.41	6	40.06	3	36.23	5	39.56	4	36.45	8	38.01	7
HD 3086 (I)	36.83	1	42.02	2	39.42	1	39.55	6	36.95	3	38.25	3
PBW 681	31.41	8	39.58	6	35.50	7	39.53	8	36.47	7	38.00	9
WH 1138	31.53	7	39.22	7	35.37	8	39.59	2	37.26	1	38.42	2
DPW 621-50 (c)	30.30	9	34.78	9	32.54	9	39.56	4	36.66	5	38.11	6
PBW 550 (c)	34.31	2	37.67	8	35.99	6	39.55	6	36.45	8	38.00	8
DBW 88 (I)	32.57	5	40.04	5	36.31	4	39.53	8	36.95	3	38.24	4
Mean	32.92		39.77		36.35		39.59		36.79		38.19	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.44	8.78	20.63		**		0.16	1.00	2.23	
Genotype (B)	**		1.08	3.11	7.26		N.S.		0.13	0.38	0.84	
B within A	N.S.		1.52	4.40			N.S.		0.19	0.53		
A within B			2.04	5.88					0.24	0.69		
Date of sowing:	11.11.2013		11.12.2013		Date of harvesting:		10.04.2014		18.04.2014			

Table 2.1.9. North Western Plains Zone IR-TS-TAS-DOS Pantnagar 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	48.47	3	51.60	1	50.03	3	332	9	351	9	342	9
HUW 666	40.63	6	51.17	2	45.90	6	342	8	372	8	357	8
HD 2967 (c)	40.07	7	48.77	8	44.42	7	346	7	425	5	385	6
HD 3086 (I)	48.07	4	45.03	9	46.55	5	410	4	503	1	457	1
PBW 681	45.07	5	50.43	4	47.75	4	375	5	445	2	410	4
WH 1138	52.43	1	49.63	7	51.03	1	475	1	426	4	451	2
DPW 621-50 (c)	50.70	2	50.70	3	50.70	2	427	2	427	3	427	3
PBW 550 (c)	31.37	9	49.70	6	40.53	9	371	6	392	7	382	7
DBW 88 (I)	36.33	8	50.00	5	43.17	8	415	3	400	6	407	5
Mean	43.68		49.67		46.68		388		416		402	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.87	5.32	9.73		N.S.		5.44	33.09	7.03	
Genotype (B)	**		1.37	3.94	7.17		**		12.47	35.97	7.60	
B within A	**		1.93	5.57			**		17.63	50.87		
A within B			2.02	5.83					17.49	50.46		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	29.19	3	40.74	1	34.97	1	50.43	1	36.47	6	43.45	1
HUW 666	27.95	4	34.18	3	31.07	3	42.80	4	40.40	1	41.60	2
HD 2967 (c)	26.07	7	32.94	6	29.51	4	44.77	2	35.90	7	40.33	4
HD 3086 (I)	30.23	2	23.85	9	27.04	9	40.13	6	37.87	3	39.00	6
PBW 681	33.62	1	33.43	5	33.53	2	35.87	9	34.03	9	34.95	9
WH 1138	26.81	6	31.28	8	29.05	7	41.43	5	37.27	4	39.35	5
DPW 621-50 (c)	27.64	5	31.37	7	29.51	5	42.93	3	38.10	2	40.52	3
PBW 550 (c)	21.09	9	35.90	2	28.50	8	39.93	7	35.67	8	37.80	7
DBW 88 (I)	24.50	8	34.02	4	29.26	6	37.30	8	36.80	5	37.05	8
Mean	27.46		33.08		30.27		41.73		36.94		39.34	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.72	4.41	12.44		*		0.36	2.20	4.79	
Genotype (B)	N.S.		1.98	5.72	16.04		**		1.37	3.96	8.55	
B within A	*		2.80	8.08			*		1.94	5.60		
A within B			2.74	7.90					1.87	5.38		
Date of sowing:	09.11.2013		10.12.2013		Date of harvesting:		17.04.2014		21.04.2014			

Table 2.1.10. North Western Plains Zone IR-TS-TAS-DOS Sriganganagar 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
WH 1105 (c)	58.51	7	51.48	4	55.00	5	297	6	250	9	274	9
HUW 666	62.87	5	45.83	7	54.35	7	315	4	275	5	295	4
HD 2967 (c)	63.27	3	46.24	6	54.76	6	325	2	292	2	309	2
HD 3086 (I)	63.56	1	55.32	1	59.44	1	330	1	296	1	313	1
PBW 681	62.77	6	45.37	8	54.07	8	295	7	270	6	283	6
WH 1138	57.96	8	52.26	3	55.11	4	292	8	284	3	288	5
DPW 621-50 (c)	63.10	4	47.13	5	55.12	3	312	5	253	8	283	6
PBW 550 (c)	51.29	9	42.24	9	46.77	9	289	9	265	7	277	8
DBW 88 (I)	63.47	2	52.92	2	58.20	2	325	2	280	4	303	3
Mean	60.76		48.75		54.76		309		274		291	
		F. T	S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	(A)	**	0.14	0.83	1.30		**		0.13	0.80	0.23	
Genotype (B)	(B)	**	0.14	0.40	0.62		**		1.00	2.89	0.84	
B within A		**	0.20	0.56			**		1.42	4.09		
A within B			0.23	0.66					1.34	3.88		
	Grains/earhead						**1000 Grains weight, g**					
WH 1105 (c)	52.96	4	58.25	1	55.60	2	37.22	6	35.39	5	36.31	6
HUW 666	56.50	2	49.04	6	52.77	4	35.33	7	34.04	6	34.69	7
HD 2967 (c)	49.59	6	47.28	9	48.43	8	39.29	4	33.52	7	36.41	5
HD 3086 (I)	44.51	9	50.23	5	47.37	9	43.29	1	37.21	3	40.25	1
PBW 681	63.40	1	53.81	3	58.60	1	33.62	8	31.23	8	32.43	8
WH 1138	49.13	7	48.94	7	49.04	7	40.42	2	37.62	2	39.02	2
DPW 621-50 (c)	52.14	5	48.81	8	50.47	5	38.80	5	38.23	1	38.52	3
PBW 550 (c)	54.15	3	56.32	2	55.23	3	32.81	9	28.31	9	30.56	9
DBW 88 (I)	48.44	8	52.17	4	50.31	6	40.32	3	36.25	4	38.29	4
Mean	52.31		51.65		51.98		37.90		34.64		36.27	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.10	0.64	1.05		**		0.00	0.03	0.06	
Genotype (B)	**		0.33	0.95	1.56		**		0.12	0.35	0.83	
B within A	**		0.47	1.35			**		0.17	0.50		
A within B			0.45	1.31					0.16	0.47		
Date of sowing:	11.11.2013		16.12.2013		Date of harvesting:		28.04.2014		28.04.2014			

Table 2.2.1. **North Western Plains Zone** **IR-LS-TAS-DOS** Agra **2013-14**

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	58.82	1	39.25	1	49.04	1	547	1	514	1	530	1
DBW 90 (I)	54.21	2	38.28	2	46.25	2	532	2	474	3	503	2
WH 1129	42.21	7	30.98	7	36.60	7	485	6	438	7	462	7
PBW 550 (c)	50.57	3	36.24	3	43.41	3	515	3	477	2	496	3
HD 3059 (c)	44.90	5	31.53	5	38.22	5	490	5	453	5	472	5
WH 1021 (c)	43.79	6	31.41	6	37.60	6	484	7	447	6	466	6
WH 1124 (I)	48.14	4	33.68	4	40.91	4	511	4	465	4	488	4
Mean	48.95		34.48		41.72		509		467		488	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.44	2.68	4.85		**		0.73	4.45	0.69	
Genotype (B)	**		0.39	1.14	2.29		**		1.14	3.32	0.57	
B within A	**		0.55	1.61			**		1.61	4.69		
A within B			0.67	1.97					1.66	4.84		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	27.36	1	23.77	3	25.57	2	39.34	1	32.13	1	35.74	1
DBW 90 (I)	26.71	2	25.69	1	26.20	1	38.18	3	31.43	4	34.81	3
WH 1129	24.76	7	23.50	4	24.13	5	35.13	7	30.10	7	32.62	7
PBW 550 (c)	25.70	3	23.81	2	24.75	3	38.22	2	31.91	2	35.07	2
HD 3059 (c)	25.19	5	22.64	7	23.92	6	36.41	5	30.73	6	33.57	5
WH 1021 (c)	24.97	6	22.75	6	23.86	7	36.23	6	30.87	5	33.55	6
WH 1124 (I)	25.66	4	22.76	5	24.21	4	36.70	4	31.83	3	34.27	4
Mean	25.76		23.56		24.66		37.17		31.29		34.23	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.30	1.81	5.54		**		0.06	0.36	0.79	
Genotype (B)	**		0.31	0.89	3.04		**		0.17	0.50	1.23	
B within A	N.S.		0.43	1.26			**		0.24	0.71		
A within B			0.50	1.46					0.23	0.68		
Date of sowing:	12.12.2013		06.01.2014		Date of harvesting:		09.04.2014		18.04.2014			

Table 2.2.2. **North Western Plains Zone** **IR-LS-TAS-DOS** **Delhi** **2013-14**

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	42.00	3	32.33	7	37.17	5	409	5	381	5	395	5
DBW 90 (I)	37.33	5	39.67	3	38.50	4	385	7	354	6	370	7
WH 1129	38.00	4	33.67	6	35.83	6	391	6	354	6	373	6
PBW 550 (c)	36.00	6	35.00	5	35.50	7	449	3	405	3	427	3
HD 3059 (c)	35.67	7	43.00	1	39.33	3	465	1	415	1	440	1
WH 1021 (c)	45.67	1	40.00	2	42.83	1	455	2	409	2	432	2
WH 1124 (I)	45.33	2	36.00	4	40.67	2	441	4	399	4	420	4
Mean	40.00		37.10		38.55		428		388		408	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.59	9.70	18.94		N.S.		9.47	57.65	10.64	
Genotype (B)	*		1.49	4.35	9.46		**		3.10	9.06	1.86	
B within A	**		2.11	6.15			N.S.		4.39	12.82		
A within B			2.52	7.35					10.31	30.09		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	28.68	1	23.94	7	26.31	2	35.92	7	35.51	2	35.72	6
DBW 90 (I)	25.82	4	34.04	1	29.93	1	37.63	5	32.93	7	35.28	7
WH 1129	25.41	5	27.07	3	26.24	3	38.28	4	35.19	4	36.73	3
PBW 550 (c)	21.99	6	24.64	6	23.31	7	36.57	6	34.99	5	35.78	5
HD 3059 (c)	20.03	7	30.29	2	25.16	6	38.39	3	34.26	6	36.33	4
WH 1021 (c)	26.12	3	26.11	4	26.11	4	38.63	2	37.54	1	38.08	1
WH 1124 (I)	26.31	2	25.60	5	25.96	5	39.41	1	35.22	3	37.32	2
Mean	24.91		27.38		26.14		37.83		35.09		36.46	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.62	9.83	28.32		*		0.28	1.70	3.51	
Genotype (B)	*		1.06	3.11	9.98		**		0.38	1.11	2.56	
B within A	**		1.51	4.40			**		0.54	1.57		
A within B			2.13	6.23					0.57	1.67		
Date of sowing:	16.12.2013		03.01.2014		Date of harvesting:		21.04.2014		26.04.2014			

Table 2.2.3. North Western Plains Zone IR-LS-TAS-DOS Durgapura 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	40.69	5	26.24	6	33.47	6	406	6	309	6	358	6
DBW 90 (l)	41.21	3	27.62	4	34.42	4	412	4	322	4	367	4
WH 1129	40.97	4	28.83	3	34.90	3	427	2	327	3	377	3
PBW 550 (c)	46.42	1	31.86	1	39.14	1	442	1	375	1	409	1
HD 3059 (c)	40.58	6	29.59	2	35.09	2	427	3	347	2	387	2
WH 1021 (c)	41.31	2	27.33	5	34.32	5	411	5	312	5	361	5
WH 1124 (l)	39.44	7	25.47	7	32.46	7	389	7	298	7	344	7
Mean	41.52		28.14		34.83		416		327		372	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.29	1.76	3.80		**		2.93	17.84	3.61	
Genotype (B)	*		1.25	3.66	8.82		**		7.24	21.14	4.77	
B within A	N.S.		1.77	5.17			N.S.		10.24	29.90		
A within B			1.67	4.86					9.93	28.97		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	25.03	7	24.31	7	24.67	7	40.10	2	34.93	2	37.52	2
DBW 90 (l)	29.60	1	27.11	4	28.36	1	34.03	7	31.63	4	32.83	7
WH 1129	25.50	5	26.65	5	26.07	5	37.57	5	33.13	3	35.35	4
PBW 550 (c)	25.89	3	24.32	6	25.10	6	40.67	1	35.03	1	37.85	1
HD 3059 (c)	25.19	6	27.95	1	26.57	4	37.80	4	30.47	7	34.13	5
WH 1021 (c)	25.59	4	27.85	2	26.72	3	39.37	3	31.43	5	35.40	3
WH 1124 (l)	27.29	2	27.81	3	27.55	2	37.20	6	30.63	6	33.92	6
Mean	26.30		26.57		26.43		38.10		32.47		35.29	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.26	1.56	4.45		**		0.38	2.31	4.93	
Genotype (B)	*		0.81	2.36	7.49		*		1.02	2.98	7.08	
B within A	N.S.		1.14	3.33			N.S.		1.44	4.21		
A within B			1.09	3.18					1.39	4.05		

Date of sowing: 12.12.2013 03.01.2014 Date of harvesting: 10.04.2014 24.04.2014

Table 2.2.4. North Western Plains Zone IR-LS-TAS-DOS Gurdaspur 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	45.09	5	38.44	6	41.76	5	299	7	324	5	312	7
DBW 90 (l)	46.25	2	44.13	4	45.19	3	359	1	340	1	350	1
WH 1129	45.43	4	44.18	3	44.81	4	337	3	332	3	334	4
PBW 550 (c)	41.41	6	41.34	5	41.38	6	323	6	302	7	313	6
HD 3059 (c)	47.60	1	48.62	1	48.11	1	336	5	306	6	321	5
WH 1021 (c)	31.36	7	37.03	7	34.19	7	341	2	331	4	336	3
WH 1124 (l)	46.04	3	46.97	2	46.50	2	337	4	338	2	337	2
Mean	43.31		42.96		43.14		333		325		329	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.93	5.65	9.86		N.S.		4.85	29.51	6.75	
Genotype (B)	**		1.29	3.78	7.35		*		8.93	26.07	6.65	
B within A	N.S.		1.83	5.34			N.S.		12.63	36.88		
A within B			1.93	5.64					12.66	36.96		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	41.01	1	32.93	7	36.97	3	36.91	4	36.05	4	36.48	6
DBW 90 (l)	34.91	4	35.68	5	35.30	6	36.80	5	36.56	3	36.68	4
WH 1129	34.79	5	36.05	4	35.42	5	38.73	1	37.30	1	38.01	1
PBW 550 (c)	33.87	6	38.51	2	36.19	4	37.84	3	35.62	5	36.73	3
HD 3059 (c)	37.29	2	46.04	1	41.66	1	38.04	2	35.22	6	36.63	5
WH 1021 (c)	27.44	7	33.56	6	30.50	7	33.63	7	33.32	7	33.47	7
WH 1124 (l)	37.25	3	37.46	3	37.35	2	36.69	6	37.13	2	36.91	2
Mean	35.22		37.18		36.20		36.95		35.89		36.42	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.19	7.25	15.08		N.S.		0.51	3.11	6.44	
Genotype (B)	**		1.42	4.15	9.62		**		0.56	1.63	3.75	
B within A	*		2.01	5.87			N.S.		0.79	2.30		
A within B			2.21	6.45					0.89	2.60		

Date of sowing: 11.12.2013 06.01.2014 Date of harvesting: 10.05.2014 12.05.2014

Table 2.2.5. North Western Plains Zone IR-LS-TAS-DOS Hisar 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	52.46	4	40.25	6	46.35	5	420	4	380	5	400	5
DBW 90 (l)	54.91	1	43.50	3	49.21	2	440	2	402	2	421	2
WH 1129	49.32	7	41.95	5	45.63	7	420	4	395	3	408	3
PBW 550 (c)	49.70	6	43.08	4	46.39	4	398	6	372	6	385	7
HD 3059 (c)	53.38	2	47.39	1	50.39	1	395	7	385	4	390	6
WH 1021 (c)	53.06	3	38.62	7	45.84	6	443	1	363	7	403	4
WH 1124 (l)	50.91	5	44.86	2	47.88	3	432	3	412	1	422	1
Mean	51.96		42.81		47.39		421		387		404	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.84	5.08	8.08		*		2.62	15.97	2.98	
Genotype (B)	*		1.00	2.92	5.17		**		7.23	21.09	4.38	
B within A	*		1.41	4.13			N.S.		10.22	29.83		
A within B			1.55	4.53					9.82	28.66		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	34.69	1	30.14	3	32.42	2	36.03	7	35.31	6	35.67	7
DBW 90 (l)	31.76	4	28.47	5	30.11	4	39.34	4	38.15	4	38.75	4
WH 1129	27.49	7	26.43	7	26.96	7	42.80	1	40.18	1	41.49	1
PBW 550 (c)	32.54	3	34.88	1	33.71	1	38.70	6	33.27	7	35.99	6
HD 3059 (c)	33.43	2	31.33	2	32.38	3	40.45	2	39.52	2	39.98	2
WH 1021 (c)	30.34	6	27.69	6	29.01	6	39.45	3	38.58	3	39.02	3
WH 1124 (l)	30.53	5	29.05	4	29.79	5	38.75	5	37.53	5	38.14	5
Mean	31.54		29.71		30.63		39.36		37.51		38.43	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.84	5.09	12.50		*		0.22	1.33	2.60	
Genotype (B)	**		1.02	2.98	8.18		**		0.42	1.23	2.69	
B within A	N.S.		1.45	4.22			**		0.60	1.74		
A within B			1.58	4.61					0.59	1.74		

Date of sowing: 11.12.2013 04.01.2014 Date of harvesting: 24.04.2014 01.05.2014

Table 2.2.6. North Western Plains Zone IR-LS-TAS-DOS Jammu 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	34.43	4	25.68	6	30.06	5	347	3	266	4	307	2
DBW 90 (l)	36.93	2	28.89	1	32.91	1	342	4	272	2	307	1
WH 1129	33.06	5	25.06	7	29.06	7	352	1	261	6	306	3
PBW 550 (c)	35.51	3	28.86	2	32.18	3	341	5	267	3	304	5
HD 3059 (c)	37.75	1	27.83	4	32.79	2	350	2	261	5	306	4
WH 1021 (c)	32.66	6	28.17	3	30.42	4	297	7	273	1	285	6
WH 1124 (l)	32.14	7	26.91	5	29.52	6	310	6	253	7	282	7
Mean	34.64		27.34		30.99		334		265		299	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.55	3.33	8.09		**		3.97	24.16	6.07	
Genotype (B)	*		0.99	2.89	7.82		*		6.75	19.70	5.52	
B within A	N.S.		1.40	4.08			*		9.54	27.86		
A within B			1.41	4.10					9.69	28.27		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	25.77	6	26.70	7	26.23	6	38.63	2	36.21	4	37.42	2
DBW 90 (l)	30.01	2	29.46	3	29.74	1	36.05	6	36.01	6	36.03	7
WH 1129	24.91	7	27.02	6	25.96	7	37.66	4	35.64	7	36.65	4
PBW 550 (c)	28.40	3	29.79	1	29.09	3	36.70	5	36.33	2	36.51	5
HD 3059 (c)	27.09	5	28.10	5	27.59	5	40.08	1	38.16	1	39.12	1
WH 1021 (c)	30.49	1	28.53	4	29.51	2	36.01	7	36.25	3	36.13	6
WH 1124 (l)	27.55	4	29.61	2	28.58	4	37.80	3	36.09	5	36.95	3
Mean	27.74		28.46		28.10		37.56		36.39		36.97	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.53	3.20	8.58		N.S.		0.32	1.92	3.92	
Genotype (B)	N.S.		1.11	3.24	9.67		**		0.43	1.27	2.88	
B within A	N.S.		1.57	4.58			N.S.		0.61	1.79		
A within B			1.54	4.51					0.65	1.90		

Date of sowing: 14.12.2013 07.01.2014 Date of harvesting: 10.05.2014 17.05.2014

Table 2.2.7. North Western Plains Zone IR-LS-TAS-DOS Karnal 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	45.23	7	38.82	7	42.02	7	377	7	302	7	339	7
DBW 90 (I)	53.79	2	47.59	1	50.69	1	522	1	435	2	478	1
WH 1129	56.31	1	43.68	4	49.99	2	393	5	393	3	393	4
PBW 550 (c)	47.46	6	40.52	5	43.99	6	383	6	363	6	373	6
HD 3059 (c)	50.43	4	43.75	3	47.09	4	405	4	365	5	385	5
WH 1021 (c)	48.82	5	40.21	6	44.52	5	457	3	387	4	422	3
WH 1124 (I)	50.64	3	45.87	2	48.25	3	472	2	468	1	470	2
Mean	50.38		42.92		46.65		430		388		409	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.75	4.54	7.33		N.S.		9.60	58.40	10.76	
Genotype (B)	**		0.93	2.71	4.87		**		19.06	55.65	11.43	
B within A	N.S.		1.31	3.83			N.S.		26.96	78.70		
A within B			1.43	4.16					26.74	78.06		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	28.98	4	33.66	1	31.32	2	42.35	3	38.22	2	40.28	2
DBW 90 (I)	24.73	7	30.01	3	27.37	5	42.07	4	37.24	7	39.66	5
WH 1129	33.69	1	29.84	4	31.76	1	42.69	1	37.25	6	39.97	4
PBW 550 (c)	30.46	2	29.59	5	30.02	4	40.80	7	38.04	3	39.42	7
HD 3059 (c)	30.11	3	30.43	2	30.27	3	41.68	5	39.49	1	40.58	1
WH 1021 (c)	26.19	5	27.65	6	26.92	6	41.15	6	37.71	4	39.43	6
WH 1124 (I)	25.56	6	26.14	7	25.85	7	42.61	2	37.51	5	40.06	3
Mean	28.53		29.62		29.07		41.91		37.92		39.91	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.23	1.42	3.67		**		0.11	0.70	1.32	
Genotype (B)	*		1.44	4.22	12.17		N.S.		0.40	1.17	2.46	
B within A	N.S.		2.04	5.96			N.S.		0.57	1.66		
A within B			1.91	5.56					0.54	1.57		
Date of sowing:	10.12.2013		06.01.2014				Date of harvesting:		25.04.2014		29.04.2014	

Table 2.2.8. North Western Plains Zone IR-LS-TAS-DOS Ludhiana 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	50.87	6	30.75	6	40.81	7	233	7	236	5	235	7
DBW 90 (I)	62.64	2	44.58	2	53.61	2	278	2	235	6	257	2
WH 1129	56.36	5	38.75	4	47.55	4	253	6	241	2	247	5
PBW 550 (c)	57.04	4	30.75	6	43.90	5	265	4	236	3	251	4
HD 3059 (c)	64.13	1	51.90	1	58.01	1	275	3	236	3	256	3
WH 1021 (c)	50.75	7	36.81	5	43.78	6	261	5	227	7	244	6
WH 1124 (I)	59.67	3	43.44	3	51.55	3	283	1	246	1	265	1
Mean	57.35		39.57		48.46		264		237		250	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.67	4.09	6.35		*		2.78	16.89	5.08	
Genotype (B)	**		1.39	4.06	7.03		**		3.30	9.63	3.23	
B within A	*		1.97	5.74			**		4.67	13.62		
A within B			1.94	5.66					5.13	14.99		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	61.58	2	42.58	6	52.08	5	35.54	6	30.60	7	33.07	7
DBW 90 (I)	58.06	4	53.40	2	55.73	1	38.86	3	35.66	3	37.26	2
WH 1129	61.22	3	42.86	5	52.04	6	36.56	4	37.66	2	37.11	4
PBW 550 (c)	62.25	1	39.50	7	50.87	7	34.60	7	33.15	5	33.87	5
HD 3059 (c)	53.01	7	56.02	1	54.51	2	44.16	1	39.24	1	41.70	1
WH 1021 (c)	53.10	6	52.08	3	52.59	3	36.53	5	31.14	6	33.84	6
WH 1124 (I)	54.17	5	50.01	4	52.09	4	38.92	2	35.35	4	37.14	3
Mean	57.63		48.06		52.85		37.88		34.69		36.28	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		1.76	10.74	15.30		N.S.		0.57	3.48	7.22	
Genotype (B)	N.S.		1.97	5.75	9.13		**		0.59	1.73	4.00	
B within A	**		2.78	8.13			**		0.84	2.45		
A within B			3.12	9.12					0.96	2.81		
Date of sowing:	10.12.2013		05.01.2014				Date of harvesting:		04.05.2014		07.05.2014	

Table 2.2.9. North Western Plains Zone IR-LS-TAS-DOS Nagina 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	43.06	1	36.45	1	39.76	1	329	1	313	1	321	1
DBW 90 (I)	38.27	7	34.56	2	36.42	5	315	5	241	2	278	2
WH 1129	40.73	5	30.39	7	35.56	7	325	2	214	7	270	5
PBW 550 (c)	41.14	4	31.78	5	36.46	4	320	3	231	4	275	3
HD 3059 (c)	42.96	2	31.79	4	37.38	2	316	4	233	3	275	4
WH 1021 (c)	41.93	3	31.50	6	36.72	3	315	6	222	6	269	6
WH 1124 (I)	39.24	6	32.76	3	36.00	6	310	7	227	5	268	7
Mean	41.05		32.75		36.90		319		240		279	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.43	2.63	5.37		**		2.61	15.91	4.29	
Genotype (B)	**		0.65	1.90	4.33		**		4.48	13.08	3.93	
B within A	**		0.92	2.69			**		6.33	18.49		
A within B			0.96	2.79					6.42	18.74		
							1000 Grains weight, g					
PBW 590 (c)	34.69	3	33.49	7	34.09	7	37.76	1	34.85	2	36.30	1
DBW 90 (I)	32.39	7	41.81	2	37.10	6	37.52	3	34.25	4	35.88	4
WH 1129	33.44	6	40.90	4	37.17	5	37.49	6	35.05	1	36.27	2
PBW 550 (c)	34.34	4	40.34	5	37.34	4	37.51	5	34.18	7	35.84	6
HD 3059 (c)	36.22	1	39.97	6	38.10	2	37.51	4	34.18	6	35.85	5
WH 1021 (c)	35.52	2	41.27	3	38.39	1	37.52	2	34.36	3	35.94	3
WH 1124 (I)	33.85	5	42.22	1	38.04	3	37.48	7	34.21	5	35.84	7
Mean	34.35		40.00		37.18		37.54		34.44		35.99	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	*		0.84	5.12	10.37		**		0.04	0.22	0.45	
Genotype (B)	*		0.82	2.41	5.43		**		0.09	0.27	0.62	
B within A	**		1.17	3.40			*		0.13	0.38		
A within B			1.37	4.00					0.12	0.36		
Date of sowing:	12.12.2013		02.01.2014		Date of harvesting:		28.04.2014		06.05.2014			

Table 2.2.10. North Western Plains Zone IR-LS-TAS-DOS Pantnagar 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	47.80	6	31.97	7	39.88	7	422	5	257	7	340	6
DBW 90 (I)	48.33	5	43.00	1	45.67	2	467	2	372	1	419	1
WH 1129	51.07	2	38.00	5	44.53	3	425	4	352	3	389	3
PBW 550 (c)	50.13	3	34.03	6	42.08	5	356	6	258	6	307	7
HD 3059 (c)	54.57	1	40.87	2	47.72	1	439	3	302	5	371	4
WH 1021 (c)	44.33	7	38.40	3	41.37	6	353	7	371	2	362	5
WH 1124 (I)	49.17	4	38.20	4	43.68	4	474	1	337	4	406	2
Mean	49.34		37.78		43.56		420		321		370	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.68	4.16	7.19		**		5.83	35.50	7.22	
Genotype (B)	**		1.13	3.29	6.33		**		14.53	42.41	9.61	
B within A	**		1.59	4.65			**		20.55	59.98		
A within B			1.62	4.74					19.90	58.08		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	32.33	4	38.08	2	35.20	2	34.97	7	32.80	7	33.88	7
DBW 90 (I)	29.11	6	33.82	4	31.46	6	35.63	5	34.20	4	34.92	5
WH 1129	30.44	5	32.54	5	31.49	5	39.50	1	33.23	6	36.37	3
PBW 550 (c)	39.76	1	39.65	1	39.70	1	35.53	6	33.50	5	34.52	6
HD 3059 (c)	32.74	3	36.36	3	34.55	3	38.33	2	37.60	1	37.97	1
WH 1021 (c)	33.75	2	29.55	7	31.65	4	37.47	4	35.03	3	36.25	4
WH 1124 (I)	27.92	7	30.76	6	29.34	7	38.23	3	37.20	2	37.72	2
Mean	32.29		34.40		33.34		37.10		34.80		35.95	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.69	4.21	9.52		N.S.		0.63	3.81	7.98	
Genotype (B)	**		1.20	3.49	8.78		**		0.53	1.55	3.63	
B within A	N.S.		1.69	4.94			*		0.75	2.20		
A within B			1.71	5.00					0.94	2.73		
Date of sowing:	11.12.2013		02.01.2014		Date of harvesting:		26.04.2014		03.05.2014			

Table 2.2.11. North Western Plains Zone IR-LS-TAS-DOS Sriganganagar 2013-14

Genotype	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
PBW 590 (c)	33.75	7	16.92	7	25.34	7	232	7	210	6	221	6
DBW 90 (I)	57.97	1	28.08	3	43.03	1	297	1	254	1	276	1
WH 1129	47.89	5	23.09	5	35.49	5	263	3	223	4	243	4
PBW 550 (c)	40.38	6	20.32	6	30.35	6	237	6	188	7	213	7
HD 3059 (c)	51.13	3	30.40	1	40.77	3	262	5	230	3	246	3
WH 1021 (c)	48.81	4	27.62	4	38.22	4	267	2	217	5	242	5
WH 1124 (I)	56.17	2	29.73	2	42.95	2	263	3	238	2	251	2
Mean	48.01		25.17		36.59		260		223		242	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	**		0.26	1.59	3.27		**		0.70	4.26	1.33	
Genotype (B)	**		0.46	1.34	3.08		**		0.98	2.86	0.99	
B within A	**		0.65	1.90			**		1.39	4.05		
A within B			0.66	1.91					1.46	4.27		
	Grains/earhead						**1000 Grains weight, g**					
PBW 590 (c)	32.58	7	28.72	7	30.65	7	44.93	4	28.08	5	36.51	4
DBW 90 (I)	42.11	3	37.10	6	39.61	5	46.40	3	29.89	1	38.15	2
WH 1129	46.21	2	38.79	4	42.50	4	39.47	7	26.74	7	33.11	7
PBW 550 (c)	35.57	6	38.31	5	36.94	6	47.90	2	28.31	2	38.11	3
HD 3059 (c)	39.09	5	46.82	1	42.96	3	50.01	1	28.24	3	39.13	1
WH 1021 (c)	41.12	4	45.87	2	43.49	2	44.50	5	27.74	6	36.12	5
WH 1124 (I)	48.87	1	44.27	3	46.57	1	43.80	6	28.23	4	36.02	6
Mean	40.79		39.98		40.39		45.29		28.18		36.73	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Sowing (A)	N.S.		0.31	1.88	3.50		**		0.04	0.23	0.48	
Genotype (B)	**		0.50	1.47	3.06		**		0.16	0.47	1.06	
B within A	**		0.71	2.08			**		0.23	0.66		
A within B			0.73	2.13					0.21	0.62		

Date of sowing:	16.12.2013	07.01.2014	Date of harvesting:	29.04.2014	29.04.2014

Table 2.3.1. North Western Plains Zone RIR-TS-TAS Agra 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	36.74	3	41.51	2	47.28	2	41.85	2	387	3	405	3	417	2	403	3
WH 1142	43.20	1	47.11	1	47.86	1	46.06	1	414	1	434	1	441	1	430	1
PBW 644 (c)	32.72	4	34.42	4	43.31	3	36.82	4	374	4	399	4	414	4	396	4
WH 1080 (c)	38.13	2	39.55	3	41.06	4	39.58	3	392	2	414	2	416	3	407	2
C-306 (c)	21.19	5	29.47	5	32.08	5	27.58	5	353	5	383	5	397	5	378	5
Mean	34.40		38.41		42.32		38.38		384		407		417		403	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.30		1.17		3.02		**		1.00		3.91		0.96	
Genotype (B)	**		0.47		1.37		3.66		**		1.76		5.13		1.31	
B within A	**		0.81		2.37				N.S.		3.04		8.89			
A within B			0.78		2.29						2.90		8.46			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	24.19	3	25.40	2	27.88	1	25.82	1	39.33	4	40.33	4	40.67	4	40.11	4
HD 3070	25.37	1	25.67	1	25.63	3	25.56	2	41.33	2	42.33	2	42.33	2	42.00	2
HD 3043 (c)	22.43	4	21.57	4	26.16	2	23.39	4	39.00	5	40.00	5	40.00	5	39.67	5
PBW 175 (c)	24.32	2	22.93	3	23.88	4	23.71	3	40.00	3	41.67	3	41.33	3	41.00	3
DBW 74	13.97	5	17.50	5	18.39	5	16.62	5	43.00	1	44.00	1	44.00	1	43.67	1
Mean	22.06		22.61		24.39		23.02		40.53		41.67		41.67		41.29	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		0.29		1.13		4.83		N.S.		0.30		1.19		2.85	
Genotype (B)	**		0.41		1.20		5.36		**		0.50		1.46		3.64	
B within A	**		0.71		2.08				N.S.		0.87		2.53			
A within B			0.70		2.04						0.83		2.43			

Date of sowing: 09.11.2013 Date of harvesting: 12.04.2014

Table 2.3.2. North Western Plains Zone RIR-TS-TAS Durgapura 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	27.46	4	32.97	4	37.07	5	32.50	4	259	4	290	4	308	4	286	4
WH 1142	28.35	3	36.53	2	39.44	2	34.77	2	295	3	322	2	341	2	319	3
PBW 644 (c)	32.51	1	38.28	1	41.91	1	37.56	1	315	1	342	1	363	1	340	1
WH 1080 (c)	27.19	5	32.09	5	37.16	4	32.15	5	236	5	260	5	275	5	257	5
C-306 (c)	29.32	2	34.71	3	37.97	3	34.00	3	305	2	320	3	338	3	321	2
Mean	28.97		34.92		38.71		34.20		282		307		325		305	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.65		2.55		7.34		**		3.42		13.43		4.35	
Genotype (B)	**		0.84		2.46		7.41		**		8.09		23.61		7.97	
B within A	N.S.		1.46		4.27				N.S.		14.01		40.89			
A within B			1.46		4.26						12.99		37.91			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	28.14	3	28.84	3	29.61	2	28.87	3	38.03	1	39.70	2	40.83	2	39.52	2
HD 3070	27.73	4	28.96	2	29.26	4	28.65	4	34.67	3	39.53	3	39.73	3	37.98	3
HD 3043 (c)	29.86	2	28.78	4	29.45	3	29.36	2	34.57	4	39.20	4	39.30	4	37.69	4
PBW 175 (c)	38.50	1	35.33	1	34.95	1	36.26	1	30.13	5	34.90	5	38.97	5	34.67	5
DBW 74	26.37	5	25.44	5	25.40	5	25.74	5	36.40	2	42.77	1	44.33	1	41.17	1
Mean	30.12		29.47		29.74		29.78		34.76		39.22		40.63		38.20	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.79		3.09		10.23		*		0.73		2.87		7.41	
Genotype (B)	**		0.77		2.25		7.78		**		0.82		2.40		6.45	
B within A	N.S.		1.34		3.90				N.S.		1.42		4.15			
A within B			1.43		4.18						1.47		4.28			

Date of sowing: 01.11.2013 Date of harvesting: 25.03.2014

Table 2.3.3. North Western Plains Zone RIR-TS-TAS Gurdaspur 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	37.87	3	35.59	3	35.33	2	36.26	2	290	5	391	2	387	1	356	4
WH 1142	40.13	1	29.78	4	31.20	3	33.70	3	346	2	399	1	363	5	369	2
PBW 644 (c)	38.77	2	39.19	1	41.03	1	39.66	1	331	3	370	4	367	3	356	3
WH 1080 (c)	33.37	4	35.87	2	29.34	4	32.86	4	365	1	371	3	376	2	371	1
C-306 (c)	27.77	5	22.46	5	21.93	5	24.05	5	329	4	364	5	366	4	353	5
Mean	35.58		32.58		31.76		33.31		332		379		372		361	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.41		1.62		4.79		N.S.		12.60		49.46		13.51	
Genotype (B)	**		1.16		3.39		10.47		N.S.		8.22		24.00		6.83	
B within A	N.S.		2.01		5.88				N.S.		14.24		41.56			
A within B			1.85		5.39						17.91		52.29			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	37.40	1	29.11	3	26.78	3	31.10	2	35.50	2	31.37	3	34.39	2	33.75	2
HD 3070	34.62	2	31.47	1	34.63	1	33.57	1	33.68	4	23.95	5	24.94	5	27.52	5
HD 3043 (c)	28.26	3	25.30	4	30.05	2	27.87	4	41.73	1	41.81	1	37.44	1	40.33	1
PBW 175 (c)	26.95	4	31.13	2	25.85	4	27.98	3	33.90	3	31.16	4	30.23	3	31.77	4
DBW 74	26.29	5	18.12	5	20.23	5	21.54	5	32.80	5	34.44	2	29.77	4	32.34	3
Mean	30.70		27.03		27.51		28.41		35.52		32.55		31.35		33.14	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		1.24		4.87		16.91		**		0.42		1.64		4.87	
Genotype (B)	**		1.26		3.66		13.26		**		0.69		2.01		6.23	
B within A	*		2.17		6.35				**		1.19		3.48			
A within B			2.31		6.73						1.14		3.34			

Date of sowing: 05.11.2013 Date of harvesting: 27.04.2014

Table 2.3.4. North Western Plains Zone RIR-TS-TAS Hisar 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	40.31	3	48.37	3	54.35	3	47.68	3	331	4	398	4	425	4	385	4
WH 1142	44.39	1	57.31	1	62.76	1	54.82	1	333	3	410	3	440	3	394	3
PBW 644 (c)	39.80	4	47.76	4	53.88	4	47.14	4	292	5	361	5	392	5	348	5
WH 1080 (c)	42.89	2	49.29	2	54.97	2	49.05	2	367	2	416	2	449	2	411	2
C-306 (c)	34.93	5	36.39	5	39.59	5	36.97	5	436	1	449	1	456	1	447	1
Mean	40.46		47.82		53.11		47.13		352		407		432		397	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.89		3.50		7.33		**		7.94		31.16		7.75	
Genotype (B)	**		1.38		4.02		8.77		**		8.56		24.99		6.47	
B within A	N.S.		2.39		6.97				N.S.		14.83		43.29			
A within B			2.31		6.75						15.46		45.12			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	32.60	3	30.74	3	31.39	3	31.58	3	37.32	5	39.70	5	40.87	5	39.30	5
HD 3070	34.15	1	35.18	1	34.81	1	34.72	1	39.14	4	40.02	4	41.10	4	40.08	4
HD 3043 (c)	33.99	2	31.87	2	32.51	2	32.79	2	40.16	3	41.81	2	42.41	2	41.46	2
PBW 175 (c)	27.57	4	27.28	4	27.14	4	27.33	4	42.73	1	43.46	1	45.31	1	43.83	1
DBW 74	19.82	5	19.92	5	21.12	5	20.29	5	40.58	2	40.99	3	41.34	3	40.97	3
Mean	29.62		29.00		29.40		29.34		39.99		41.19		42.21		41.13	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.93		3.64		12.24		*		0.27		1.06		2.54	
Genotype (B)	**		1.08		3.16		11.08		**		0.62		1.82		4.54	
B within A	N.S.		1.88		5.48				N.S.		1.08		3.14			
A within B			1.92		5.60						1.00		2.92			

Date of sowing: 29.10.2013 Date of harvesting: 10.04.2014

Table 2.3.5. North Western Plains Zone RIR-TS-TAS Jammu 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	32.45	2	40.39	3	41.66	3	38.17	3	305	5	378	1	374	2	353	2
WH 1142	33.49	1	42.73	1	42.99	2	39.74	1	316	3	368	3	364	3	350	3
PBW 644 (c)	29.57	4	32.16	4	32.33	4	31.35	4	306	4	338	4	330	5	325	5
WH 1080 (c)	32.34	3	41.89	2	43.60	1	39.28	2	325	1	377	2	385	1	362	1
C-306 (c)	28.68	5	29.59	5	29.24	5	29.17	5	319	2	328	5	345	4	330	4
Mean	31.31		37.35		37.97		35.54		314		358		360		344	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.76		2.98		8.28		*		7.16		28.12		8.07	
Genotype (B)	**		0.82		2.39		6.91		*		8.90		25.98		7.76	
B within A	*		1.42		4.14				N.S.		15.42		45.00			
A within B			1.48		4.32						15.54		45.35			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	27.19	1	26.21	3	27.59	3	27.00	2	39.14	3	40.98	1	40.50	3	40.21	3
HD 3070	26.66	2	28.78	1	28.89	1	28.11	1	39.71	2	40.32	3	40.86	2	40.29	2
HD 3043 (c)	25.23	3	24.72	4	24.59	4	24.85	4	38.39	4	38.55	5	39.85	4	38.93	4
PBW 175 (c)	24.95	4	27.33	2	27.65	2	26.64	3	39.99	1	40.78	2	41.06	1	40.61	1
DBW 74	23.68	5	23.43	5	22.01	5	23.04	5	38.02	5	38.73	4	38.49	5	38.41	5
Mean	25.54		26.09		26.15		25.93		39.05		39.87		40.15		39.69	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.38		1.49		5.65		N.S.		0.39		1.52		3.78	
Genotype (B)	**		0.48		1.40		5.54		*		0.55		1.59		4.12	
B within A	N.S.		0.83		2.42				N.S.		0.94		2.76			
A within B			0.83		2.43						0.93		2.71			

Date of sowing: 30.10.2013 Date of harvesting: 23.04.2014

Table 2.3.6. North Western Plains Zone RIR-TS-TAS Karnal 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	46.96	4	44.46	3	51.00	1	47.47	2	396	4	325	5	332	4	351	4
WH 1142	48.05	2	51.73	1	49.50	2	49.76	1	520	1	343	3	340	3	401	3
PBW 644 (c)	47.65	3	43.23	4	43.22	3	44.70	3	360	5	332	4	293	5	328	5
WH 1080 (c)	45.50	5	45.40	2	43.12	4	44.68	4	467	3	427	1	438	1	444	1
C-306 (c)	49.19	1	40.20	5	41.25	5	43.55	5	517	2	375	2	392	2	428	2
Mean	47.47		45.01		45.62		46.03		452		360		359		390	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.25		0.98		2.09		*		15.11		59.31		14.99	
Genotype (B)	**		0.58		1.69		3.77		**		11.70		34.16		8.99	
B within A	**		1.00		2.93				*		20.27		59.18			
A within B			0.93		2.72						23.60		68.89			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	29.98	1	32.17	2	37.08	1	33.08	1	39.68	4	42.49	3	41.75	2	41.31	3
HD 3070	25.26	3	36.67	1	36.46	2	32.80	2	36.81	5	41.46	4	40.18	4	39.48	5
HD 3043 (c)	29.58	2	29.75	3	32.84	3	30.72	3	45.27	1	44.10	1	45.29	1	44.89	1
PBW 175 (c)	23.74	4	24.40	5	26.22	4	24.79	5	41.85	2	43.69	2	38.74	5	41.43	2
DBW 74	23.00	5	27.02	4	25.81	5	25.28	4	41.70	3	39.78	5	41.08	3	40.85	4
Mean	26.31		30.00		31.68		29.33		41.06		42.30		41.41		41.59	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		1.46		5.74		19.30		N.S.		0.93		3.66		8.69	
Genotype (B)	**		0.84		2.45		8.59		**		0.82		2.38		5.89	
B within A	*		1.46		4.25				N.S.		1.41		4.13			
A within B			1.96		5.71						1.57		4.59			

Date of sowing: 28.10.2013 Date of harvesting: 12.04.2014

Table 2.3.7. North Western Plains Zone RIR-TS-TAS Ludhiana 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	41.98	3	44.75	4	46.32	2	44.35	4	270	4	317	3	314	4	300	4
WH 1142	43.62	1	48.15	2	48.35	1	46.71	1	269	5	313	4	313	5	298	5
PBW 644 (c)	43.00	2	51.75	1	43.62	4	46.12	2	273	3	323	2	320	3	305	3
WH 1080 (c)	41.36	4	47.33	3	45.99	3	44.89	3	277	2	324	1	322	1	308	2
C-306 (c)	34.05	5	41.56	5	36.93	5	37.52	5	299	1	312	5	322	2	311	1
Mean	40.80		46.71		44.24		43.92		278		318		318		305	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		0.86		3.36		7.56		**		3.29		12.93		4.19	
Genotype (B)	**		0.77		2.26		5.29		**		2.44		7.13		2.41	
B within A	N.S.		1.34		3.92				*		4.23		12.35			
A within B			1.47		4.30						5.02		14.64			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	36.52	3	35.91	2	37.15	2	36.53	2	42.57	4	39.36	4	40.24	4	40.72	4
HD 3070	43.77	1	39.59	1	41.38	1	41.58	1	37.41	5	38.93	5	37.28	5	37.87	5
HD 3043 (c)	36.58	2	33.52	4	28.24	4	32.78	4	43.08	3	47.90	1	48.25	1	46.41	1
PBW 175 (c)	33.40	4	33.86	3	35.44	3	34.24	3	44.73	2	43.34	3	40.65	3	42.91	3
DBW 74	25.04	5	28.88	5	25.70	5	26.54	5	45.48	1	46.36	2	44.86	2	45.57	2
Mean	35.06		34.35		33.58		34.33		42.65		43.18		42.25		42.70	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.84		3.30		9.47		N.S.		0.75		2.96		6.84	
Genotype (B)	**		0.92		2.68		8.03		**		0.69		2.03		4.88	
B within A	*		1.59		4.65				*		1.20		3.51			
A within B			1.65		4.82						1.31		3.84			

Date of sowing: 29.10.2013 Date of harvesting: 22.04.2014

Table 2.3.8. North Western Plains Zone RIR-TS-TAS Nagina 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	35.02	2	41.90	2	43.87	2	40.26	2	293	1	363	1	374	1	343	1
WH 1142	33.77	4	40.32	5	42.45	4	38.84	4	263	4	339	4	328	5	310	4
PBW 644 (c)	34.62	3	40.49	3	43.38	3	39.50	3	275	3	340	3	354	3	323	3
WH 1080 (c)	33.25	5	40.37	4	42.01	5	38.54	5	258	5	331	5	335	4	308	5
C-306 (c)	35.03	1	42.91	1	44.69	1	40.88	1	286	2	353	2	368	2	335	2
Mean	34.34		41.20		43.28		39.60		275		345		352		324	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		1.20		4.70		11.70		**		3.72		14.59		4.44	
Genotype (B)	N.S.		0.59		1.71		4.44		**		4.50		13.12		4.16	
B within A	N.S.		1.01		2.96				N.S.		7.79		22.73			
A within B			1.50		4.38						7.89		23.04			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	33.25	5	31.06	5	31.05	5	31.79	5	35.88	1	37.18	1	37.81	2	36.96	1
HD 3070	35.93	2	32.26	3	34.37	1	34.19	2	35.78	5	36.89	5	37.66	4	36.78	5
HD 3043 (c)	35.36	3	32.07	4	32.59	3	33.34	3	35.82	3	37.17	3	37.67	3	36.89	3
PBW 175 (c)	36.03	1	32.84	1	33.73	2	34.20	1	35.80	4	37.17	4	37.55	5	36.84	4
DBW 74	34.24	4	32.72	2	32.15	4	33.04	4	35.86	2	37.17	2	37.81	1	36.95	2
Mean	34.96		32.19		32.78		33.31		35.83		37.12		37.70		36.88	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.85		3.35		9.93		**		0.04		0.15		0.41	
Genotype (B)	N.S.		0.80		2.33		7.20		*		0.04		0.13		0.35	
B within A	N.S.		1.38		4.04				N.S.		0.08		0.22			
A within B			1.50		4.39						0.08		0.23			

Date of sowing: 16.11.2013 Date of harvesting:

Table 2.3.9. North Western Plains Zone RIR-TS-TAS Pantnagar 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	41.40	4	46.57	2	47.50	4	45.16	4	266	4	376	2	371	2	338	2
WH 1142	43.13	3	45.83	3	55.93	1	48.30	2	285	2	307	5	384	1	326	3
PBW 644 (c)	45.53	1	43.03	4	49.00	3	45.86	3	269	3	317	4	318	5	301	5
WH 1080 (c)	44.47	2	50.60	1	50.20	2	48.42	1	254	5	338	3	350	4	314	4
C-306 (c)	37.40	5	36.50	5	37.00	5	36.97	5	296	1	392	1	359	3	349	1
Mean	42.39		44.51		47.93		44.94		274		346		357		326	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		0.85		3.35		7.34		**		3.78		14.85		4.50	
Genotype (B)	**		0.87		2.53		5.79		**		8.80		25.70		8.11	
B within A	**		1.50		4.38				*		15.25		44.51			
A within B			1.59		4.64						14.15		41.31			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	37.05	3	29.49	3	29.85	4	32.13	4	42.23	3	41.97	5	43.00	4	42.40	3
HD 3070	37.69	1	34.32	1	34.73	1	35.58	1	40.53	5	43.67	3	42.17	5	42.12	5
HD 3043 (c)	36.75	4	28.50	4	31.83	2	32.36	3	46.07	2	47.67	1	48.57	1	47.43	1
PBW 175 (c)	37.39	2	33.92	2	31.08	3	34.13	2	47.07	1	44.20	2	46.27	2	45.84	2
DBW 74	30.75	5	22.89	5	23.95	5	25.86	5	41.27	4	42.70	4	43.20	3	42.39	4
Mean	35.92		29.82		30.29		32.01		43.43		44.04		44.64		44.04	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.71		2.80		8.62		N.S.		0.37		1.44		3.23	
Genotype (B)	**		1.03		3.02		9.69		**		0.66		1.94		4.52	
B within A	N.S.		1.79		5.23				N.S.		1.15		3.35			
A within B			1.75		5.12						1.09		3.18			

Date of sowing: 29.10.2013 Date of harvesting: 17.04.2014

Table 2.3.10. North Western Plains Zone RIR-TS-TAS Sriganganagar 2013-14

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HD 3043 (c)	33.47	1	42.63	3	46.29	3	40.80	3	246	2	316	3	336	3	299	3
WH 1142	31.75	3	49.90	1	54.76	1	45.47	1	210	5	346	1	359	1	305	1
PBW 644 (c)	31.34	5	37.92	5	41.54	5	36.93	5	227	3	310	4	326	4	288	5
WH 1080 (c)	31.66	4	48.56	2	53.63	2	44.62	2	218	4	342	2	350	2	303	2
C-306 (c)	32.12	2	39.44	4	43.81	4	38.46	4	255	1	300	5	320	5	292	4
Mean	32.07		43.69		48.01		41.25		231		323		338		297	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.78		3.06		7.31		**		7.59		29.78		9.88	
Genotype (B)	**		0.18		0.54		1.34		**		0.88		2.56		0.89	
B within A	**		0.32		0.93				**		1.52		4.44			
A within B			0.83		2.42						7.71		22.50			
	Grains/earhead								**1000 Grains weight, g**							
WH 1080 (c)	33.94	3	36.82	1	41.10	2	37.29	2	40.18	3	36.66	5	33.56	4	36.80	5
HD 3070	38.12	1	36.36	2	48.38	1	40.95	1	39.68	4	39.70	3	31.53	5	36.97	4
HD 3043 (c)	35.25	2	31.10	4	34.40	4	33.58	3	39.20	5	39.36	4	37.08	3	38.55	3
PBW 175 (c)	32.85	4	31.19	3	35.71	3	33.25	4	44.26	1	45.59	1	42.93	1	44.26	1
DBW 74	31.23	5	29.78	5	33.65	5	31.55	5	40.37	2	44.24	2	40.68	2	41.76	2
Mean	34.28		33.05		38.65		35.33		40.74		41.11		37.16		39.67	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.56		2.20		6.13		**		0.38		1.49		3.71	
Genotype (B)	**		0.15		0.44		1.29		**		0.09		0.27		0.71	
B within A	**		0.26		0.77				**		0.16		0.47			
A within B			0.61		1.77						0.41		1.19			

Date of sowing: 05.11.2013 Date of harvesting: 26.04.2014

Table 3.1.1 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Burdwan** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	28.35	7	20.50	5	24.42	7	278	8	250	6	264	8
HI 1563 (c)	32.22	3	27.68	1	29.95	1	283	6	281	1	282	4
DBW 14 (c)	32.41	2	23.15	3	27.78	2	306	3	272	2	289	2
K 1114	27.40	8	23.91	2	25.65	4	279	7	263	3	271	7
HD 3118	29.29	5	18.80	8	24.05	8	322	2	250	6	286	3
HD 2733 (c)	29.20	6	19.84	7	24.52	6	328	1	252	5	290	1
DBW 107	30.23	4	20.03	6	25.13	5	296	5	250	8	273	6
NW 2036 (c)	32.88	1	21.83	4	27.35	3	300	4	254	4	277	5
Mean	30.25		21.97		26.11		299		259		279	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.56	3.41	10.52			**	0.46	2.82	0.81		
Genotype (B)	**	0.50	1.45	4.69			N.S.	7.81	22.63	6.86		
B within A	**	0.71	2.05				*	11.05	32.00			
A within B		0.87	2.51					10.35	29.96			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	26.90	3	24.19	5	25.54	3	38.07	7	34.03	5	36.05	7
HI 1563 (c)	29.32	2	28.61	1	28.97	1	38.93	6	34.50	4	36.72	6
DBW 14 (c)	25.95	4	24.24	4	25.09	4	41.07	5	35.13	3	38.10	3
K 1114	23.63	6	23.76	6	23.69	6	41.53	4	38.23	2	39.88	2
HD 3118	21.18	8	24.41	3	22.79	7	42.93	1	30.87	8	36.90	5
HD 2733 (c)	21.31	7	19.27	8	20.29	8	41.93	2	41.07	1	41.50	1
DBW 107	24.55	5	23.75	7	24.15	5	41.67	3	33.80	6	37.73	4
NW 2036 (c)	29.47	1	25.75	2	27.61	2	37.20	8	33.50	7	35.35	8
Mean	25.29		24.25		24.77		40.42		35.14		37.78	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.43	2.61	8.49			**	0.33	1.99	4.25		
Genotype (B)	**	0.60	1.74	5.93			**	0.62	1.79	4.01		
B within A	*	0.85	2.46				**	0.87	2.53			
A within B		0.90	2.61					0.88	2.55			

Date of Sowing: 20.12.2013 06.01.2014 Date of Harvesting: 03.04.2014 10.04.2014

Table 3.1.2 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Coochbehar** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	37.53	6	27.78	6	32.66	6	310	4	297	3	304	3
HI 1563 (c)	42.83	2	31.02	3	36.93	3	302	5	263	7	283	6
DBW 14 (c)	44.64	1	34.57	1	39.61	1	329	2	338	1	334	2
K 1114	40.43	4	29.36	4	34.90	4	317	3	289	4	303	4
HD 3118	37.84	5	28.73	5	33.29	5	299	6	287	5	293	5
HD 2733 (c)	42.65	3	32.62	2	37.64	2	368	1	318	2	343	1
DBW 107	32.48	8	25.44	8	28.96	8	281	8	247	8	264	8
NW 2036 (c)	35.90	7	27.68	7	31.79	7	282	7	270	6	276	7
Mean	39.29		29.65		34.47		311		289		300	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.10	0.64	1.49			N.S.	8.59	52.29	14.04		
Genotype (B)	**	0.32	0.91	2.24			*	15.50	44.89	12.66		
B within A	**	0.45	1.29				N.S.	21.92	63.49			
A within B		0.43	1.25					22.23	64.39			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	25.59	5	30.65	6	28.12	5	47.40	6	30.57	5	38.99	5
HI 1563 (c)	27.36	3	41.26	1	34.31	1	51.97	3	29.80	7	40.88	4
DBW 14 (c)	23.61	8	30.20	7	26.91	8	57.83	1	34.47	3	46.15	1
K 1114	23.80	7	31.44	4	27.62	7	54.73	2	32.34	4	43.54	2
HD 3118	26.59	4	34.64	3	30.61	3	47.80	5	28.93	8	38.37	6
HD 2733 (c)	24.36	6	31.20	5	27.78	6	48.10	4	34.70	2	41.40	3
DBW 107	28.30	2	35.11	2	31.71	2	40.87	7	30.03	6	35.45	8
NW 2036 (c)	31.74	1	29.16	8	30.45	4	40.50	8	35.20	1	37.85	7
Mean	26.42		32.96		29.69		48.65		32.01		40.33	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	*	1.03	6.28	17.03			**	0.16	1.00	1.99		
Genotype (B)	N.S.	1.79	5.17	14.73			**	0.34	1.00	2.09		
B within A	N.S.	2.52	7.31				**	0.49	1.41			
A within B		2.58	7.46					0.48	1.40			

Date of Sowing: 15.12.2013 01.01.2014 Date of Harvesting: 05.04.2014 13.04.2014

Table 3.1.3 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Faizabad** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	48.94	2	36.56	4	42.75	2	440	2	387	5	414	5
HI 1563 (c)	47.43	3	35.15	5	41.29	4	439	3	401	3	420	3
DBW 14 (c)	50.17	1	37.42	2	43.79	1	466	1	397	4	432	1
K 1114	44.22	6	31.93	8	38.08	7	382	7	352	7	367	7
HD 3118	45.73	4	38.26	1	42.00	3	437	4	415	2	426	2
HD 2733 (c)	44.60	5	36.94	3	40.77	5	411	5	423	1	417	4
DBW 107	43.37	7	33.92	6	38.64	6	375	8	345	8	360	8
NW 2036 (c)	42.99	8	32.69	7	37.84	8	398	6	369	6	384	6
Mean	45.93		35.36		40.64		418		386		402	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.35	2.11	4.18			**	2.17	13.22	2.65		
Genotype (B)	**	0.62	1.81	3.76			**	3.04	8.81	1.85		
B within A	*	0.88	2.55				**	4.30	12.46			
A within B		0.89	2.59					4.57	13.24			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	35.37	2	32.54	2	33.95	2	31.48	6	29.12	5	30.30	5
HI 1563 (c)	35.14	3	32.11	4	33.63	3	30.82	7	27.44	7	29.13	7
DBW 14 (c)	31.70	7	29.58	6	30.64	7	34.08	3	31.88	1	32.98	3
K 1114	29.30	8	29.52	7	29.41	8	39.54	1	30.85	3	35.20	1
HD 3118	32.74	6	32.43	3	32.58	4	32.00	5	28.43	6	30.21	6
HD 2733 (c)	32.93	5	29.26	8	31.09	6	33.16	4	29.98	4	31.57	4
DBW 107	33.36	4	31.31	5	32.33	5	34.69	2	31.49	2	33.09	2
NW 2036 (c)	35.43	1	33.32	1	34.38	1	30.51	8	26.57	8	28.54	8
Mean	33.25		31.26		32.25		33.28		29.47		31.38	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.54	3.31	8.26			*	0.28	1.68	4.31		
Genotype (B)	**	0.76	2.19	5.74			**	0.62	1.81	4.88		
B within A	N.S.	1.07	3.09				*	0.88	2.56			
A within B		1.14	3.30					0.87	2.52			

Date of Sowing: 15.12.-2013 01.01.2014 Date of Harvesting: 05.05.2014 07.05.2014

Table 3.1.4 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **IARI, Samastipur** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	46.03	2	31.02	2	38.52	2	406	5	379	5	393	5
HI 1563 (c)	34.09	8	24.51	7	29.30	8	426	3	349	7	387	6
DBW 14 (c)	46.27	1	33.15	1	39.71	1	568	1	426	2	497	2
K 1114	39.75	7	21.28	8	30.52	7	362	8	326	8	344	8
HD 3118	43.80	3	27.34	5	35.57	4	399	7	405	4	402	4
HD 2733 (c)	43.17	4	28.15	3	35.66	3	484	2	527	1	506	1
DBW 107	42.81	5	25.95	6	34.38	6	412	4	359	6	386	7
NW 2036 (c)	42.41	6	27.98	4	35.20	5	400	6	420	3	410	3
Mean	42.29		27.43		34.86		432		399		416	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	*	1.07	6.53	15.07			N.S.	15.59	94.88	18.38		
Genotype (B)	**	1.53	4.43	10.76			**	25.79	74.69	15.20		
B within A	N.S.	2.17	6.27				N.S.	36.47	105.62			
A within B		2.29	6.64					37.51	108.63			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	36.30	1	31.63	1	33.97	1	31.64	8	26.44	5	29.04	8
HI 1563 (c)	22.89	8	24.95	6	23.92	7	36.10	2	28.89	4	32.50	2
DBW 14 (c)	24.30	7	25.79	5	25.04	6	36.37	1	30.26	1	33.32	1
K 1114	31.67	4	22.48	7	27.08	5	35.08	3	29.37	3	32.22	3
HD 3118	33.01	2	26.23	4	29.62	3	33.77	6	26.00	6	29.89	5
HD 2733 (c)	26.32	6	18.13	8	22.23	8	34.18	4	29.55	2	31.87	4
DBW 107	30.58	5	30.26	2	30.42	2	34.18	4	24.04	8	29.11	7
NW 2036 (c)	32.62	3	26.32	3	29.47	4	33.42	7	25.34	7	29.38	6
Mean	29.71		25.73		27.72		34.34		27.49		30.91	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.85	5.19	15.06			N.S.	1.71	10.40	27.08		
Genotype (B)	**	1.96	5.66	17.28			N.S.	1.78	5.17	14.13		
B within A	N.S.	2.77	8.01				N.S.	2.52	7.31			
A within B		2.72	7.89					2.91	8.44			

Date of Sowing: 16.12.2013 02.01.2014 Date of Harvesting: 11.04.2014 17.04.2014

Table 3.1.5 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Kalyani** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	27.79	7	27.04	2	27.42	6	165	7	210	2	188	3
HI 1563 (c)	29.31	5	28.17	1	28.74	1	187	5	215	1	201	1
DBW 14 (c)	31.20	4	25.15	4	28.17	3	191	4	178	4	184	4
K 1114	33.09	1	24.01	6	28.55	2	233	1	156	6	195	2
HD 3118	27.04	8	25.53	3	26.28	7	163	8	202	3	183	5
HD 2733 (c)	28.17	6	23.64	7	25.90	8	185	6	149	7	167	8
DBW 107	32.33	2	23.26	8	27.79	5	216	2	145	8	181	7
NW 2036 (c)	31.57	3	24.39	5	27.98	4	200	3	163	5	182	6
Mean	30.06		25.15		27.61		193		177		185	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	*	0.76	4.60	13.40			*	1.52	9.26	4.03		
Genotype (B)	N.S.	0.99	2.87	8.80			N.S.	7.31	21.16	9.68		
B within A	*	1.40	4.06				**	10.33	29.92			
A within B		1.51	4.39					9.78	28.34			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	42.18	2	31.89	6	37.04	5	40.00	6	40.33	2	40.17	6
HI 1563 (c)	39.28	4	31.87	7	35.58	8	40.33	5	41.33	1	40.83	2
DBW 14 (c)	40.58	3	35.03	5	37.81	4	40.67	4	40.33	2	40.50	5
K 1114	34.26	8	38.21	3	36.23	7	41.67	1	40.33	2	41.00	1
HD 3118	42.41	1	31.40	8	36.91	6	39.67	8	40.33	2	40.00	7
HD 2733 (c)	38.02	6	39.69	2	38.86	1	40.00	6	40.00	7	40.00	7
DBW 107	36.22	7	40.49	1	38.36	2	41.33	2	40.00	7	40.67	3
NW 2036 (c)	38.58	5	37.15	4	37.86	3	41.00	3	40.33	2	40.67	3
Mean	38.94		35.72		37.33		40.58		40.38		40.48	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.62	3.76	8.11			N.S.	0.11	0.65	1.29		
Genotype (B)	N.S.	1.69	4.91	11.12			N.S.	0.39	1.14	2.38		
B within A	*	2.40	6.94				N.S.	0.56	1.61			
A within B		2.33	6.73					0.53	1.54			

Date of Sowing: 16.12.2013 02.01.2014 Date of Harvesting: 10.04.2014 14.04.2014

Table 3.1.6 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Kanpur** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	36.16	6	28.77	7	32.46	7	409	6	361	8	385	7
HI 1563 (c)	38.62	4	31.43	4	35.03	4	411	5	369	4	390	4
DBW 14 (c)	39.42	2	32.81	3	36.12	2	416	1	368	5	392	3
K 1114	37.17	5	33.25	2	35.21	3	408	7	372	3	390	4
HD 3118	41.36	1	34.02	1	37.69	1	414	3	380	1	397	1
HD 2733 (c)	33.00	8	25.40	8	29.20	8	402	8	366	6	384	8
DBW 107	35.58	7	31.27	5	33.43	6	414	2	376	2	395	2
NW 2036 (c)	38.68	3	30.93	6	34.81	5	412	4	365	7	389	6
Mean	37.50		30.99		34.24		411		370		390	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.24	1.44	3.38			**	1.32	8.03	1.66		
Genotype (B)	**	0.77	2.24	5.53			N.S.	3.12	9.03	1.96		
B within A	N.S.	1.09	3.16				N.S.	4.41	12.77			
A within B		1.05	3.04					4.33	12.54			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	23.59	6	22.54	7	23.07	6	37.47	4	35.30	2	36.38	3
HI 1563 (c)	26.34	1	25.96	2	26.15	1	35.67	8	32.83	7	34.25	7
DBW 14 (c)	25.23	4	25.40	3	25.32	2	37.57	3	35.13	3	36.35	4
K 1114	24.36	5	26.18	1	25.27	4	37.43	5	34.20	6	35.82	6
HD 3118	25.65	2	24.97	4	25.31	3	39.00	1	35.87	1	37.43	1
HD 2733 (c)	22.98	7	21.29	8	22.14	8	35.80	7	32.63	8	34.22	8
DBW 107	22.29	8	23.76	6	23.03	7	38.57	2	35.03	4	36.80	2
NW 2036 (c)	25.26	3	24.49	5	24.87	5	37.23	6	34.63	5	35.93	5
Mean	24.46		24.32		24.39		37.34		34.45		35.90	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.26	1.56	5.15			**	0.12	0.73	1.63		
Genotype (B)	**	0.71	2.05	7.10			**	0.28	0.83	1.94		
B within A	N.S.	1.00	2.90				N.S.	0.40	1.17			
A within B		0.97	2.81					0.40	1.15			

Date of Sowing: 20.12.2013 05.01.2014 Date of Harvesting: 22.04.2014 26.04.2014

Table 3.1.7 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **RAU, PUSA** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	35.64	7	33.46	5	34.55	7	279	7	272	5	276	7
HI 1563 (c)	43.05	2	28.65	8	35.85	6	292	2	265	8	279	4
DBW 14 (c)	36.82	6	40.28	1	38.55	3	280	6	281	1	281	3
K 1114	41.45	4	31.35	6	36.40	5	285	4	270	6	278	6
HD 3118	38.02	5	37.16	3	37.59	4	282	5	274	3	278	5
HD 2733 (c)	42.25	3	35.78	4	39.02	2	289	3	273	4	281	2
DBW 107	44.35	1	39.56	2	41.96	1	296	1	278	2	287	1
NW 2036 (c)	33.84	8	30.40	7	32.12	8	278	8	268	7	273	8
Mean	39.43		34.58		37.00		285		273		279	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	*	0.62	3.79	8.26			**	0.82	5.00	1.44		
Genotype (B)	**	0.87	2.51	5.75			N.S.	2.99	8.67	2.63		
B within A	**	1.23	3.56				N.S.	4.23	12.26			
A within B		1.31	3.79					4.04	11.72			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	32.90	7	31.76	5	32.33	7	38.82	7	38.76	5	38.79	7
HI 1563 (c)	34.61	4	31.02	6	32.82	6	42.65	2	36.58	8	39.62	6
DBW 14 (c)	33.47	5	35.11	1	34.29	2	39.32	6	41.25	1	40.29	4
K 1114	35.11	1	30.55	7	32.83	5	41.48	4	38.15	6	39.82	5
HD 3118	33.24	6	33.95	3	33.59	4	40.62	5	40.10	3	40.36	3
HD 2733 (c)	34.69	2	33.01	4	33.85	3	42.15	3	39.75	4	40.95	2
DBW 107	34.64	3	35.01	2	34.83	1	43.25	1	40.66	2	41.96	1
NW 2036 (c)	32.62	8	30.27	8	31.45	8	37.34	8	37.48	7	37.41	8
Mean	33.91		32.59		33.25		40.70		39.09		39.90	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.78	4.73	11.45			N.S.	0.63	3.85	7.77		
Genotype (B)	N.S.	1.45	4.21	10.71			N.S.	1.16	3.37	7.14		
B within A	N.S.	2.06	5.95				N.S.	1.65	4.77			
A within B		2.07	6.01					1.66	4.82			

Date of Sowing: 18.12.2013 04.01.2014 Date of Harvesting: 11.04.2014 17.04.2014

Table 3.1.8 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Ranchi** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	35.14	6	28.58	7	31.86	6	260	7	241	6	251	7
HI 1563 (c)	39.09	1	31.86	1	35.48	1	278	1	254	1	266	1
DBW 14 (c)	35.81	4	29.56	5	32.69	4	269	3	244	4	256	4
K 1114	35.47	5	28.91	6	32.19	5	263	6	239	7	251	6
HD 3118	32.85	8	29.56	4	31.21	8	265	5	242	5	254	5
HD 2733 (c)	34.82	7	28.25	8	31.53	7	258	8	237	8	248	8
DBW 107	36.79	3	29.89	3	33.34	3	269	4	245	3	257	3
NW 2036 (c)	37.77	2	30.88	2	34.33	2	276	2	249	2	263	2
Mean	35.97		29.69		32.83		267		244		256	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.22	1.34	3.28			**	0.55	3.35	1.06		
Genotype (B)	*	0.95	2.74	7.07			**	2.17	6.28	2.08		
B within A	N.S.	1.34	3.88				N.S.	3.07	8.89			
A within B		1.27	3.69					2.92	8.47			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	34.72	2	33.40	7	34.06	2	38.88	7	35.51	7	37.19	7
HI 1563 (c)	32.91	6	33.93	4	33.42	6	42.73	1	36.95	2	39.84	1
DBW 14 (c)	33.31	5	34.00	3	33.65	4	39.98	5	35.61	6	37.80	5
K 1114	34.26	3	34.62	1	34.44	1	39.42	6	34.90	8	37.16	8
HD 3118	30.63	8	34.03	2	32.33	8	40.43	4	35.87	5	38.15	4
HD 2733 (c)	35.55	1	32.18	8	33.86	3	38.03	8	36.97	1	37.50	6
DBW 107	33.38	4	33.66	6	33.52	5	41.02	3	36.29	4	38.66	3
NW 2036 (c)	32.89	7	33.75	5	33.32	7	41.67	2	36.69	3	39.18	2
Mean	33.46		33.70		33.58		40.27		36.10		38.19	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.17	1.03	2.48			**	0.13	0.77	1.62		
Genotype (B)	N.S.	0.77	2.22	5.58			**	0.39	1.12	2.48		
B within A	N.S.	1.08	3.13				**	0.55	1.58			
A within B		1.03	2.97					0.53	1.53			

Date of Sowing: 15.12.2013 01.01.2014 Date of Harvesting: 17.04.2014 23.04.2014

Table 3.1.9 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Sabour** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	40.44	6	32.88	7	36.66	6	230	7	213	5	222	6
HI 1563 (c)	44.97	1	36.66	1	40.82	1	246	1	225	1	235	1
DBW 14 (c)	41.19	4	34.01	5	37.60	4	238	3	212	6	225	4
K 1114	40.82	5	33.26	6	37.04	5	232	6	211	7	221	7
HD 3118	37.79	8	34.01	4	35.90	8	234	5	214	4	224	5
HD 2733 (c)	40.06	7	32.50	8	36.28	7	228	8	208	8	218	8
DBW 107	42.33	3	34.39	3	38.36	3	237	4	216	3	227	3
NW 2036 (c)	43.46	2	35.53	2	39.49	2	244	2	220	2	232	2
Mean	41.38		34.16		37.77		236		215		225	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.25	1.53	3.27			**	0.29	1.77	0.63		
Genotype (B)	*	1.09	3.16	7.07			**	1.71	4.94	1.85		
B within A	N.S.	1.54	4.47				N.S.	2.41	6.99			
A within B		1.46	4.24					2.28	6.59			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	46.21	2	41.17	8	43.69	7	38.00	7	38.00	1	38.00	3
HI 1563 (c)	43.96	6	45.30	5	44.63	5	41.67	1	36.00	2	38.83	1
DBW 14 (c)	44.47	5	46.13	2	45.30	3	39.00	5	34.67	6	36.83	6
K 1114	45.90	3	46.39	1	46.14	2	38.33	6	34.00	7	36.17	7
HD 3118	40.97	8	45.46	4	43.22	8	39.33	4	35.00	5	37.17	5
HD 2733 (c)	47.59	1	45.85	3	46.72	1	37.00	8	34.00	7	35.50	8
DBW 107	44.59	4	45.06	7	44.82	4	40.00	3	35.33	4	37.67	4
NW 2036 (c)	43.87	7	45.26	6	44.57	6	40.67	2	35.67	3	38.17	2
Mean	44.70		45.08		44.89		39.25		35.33		37.29	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	0.14	0.86	1.54			*	0.39	2.37	5.12		
Genotype (B)	N.S.	1.26	3.64	6.87			N.S.	0.74	2.14	4.84		
B within A	N.S.	1.78	5.15				N.S.	1.04	3.02			
A within B		1.67	4.84					1.05	3.04			

Date of Sowing: 17.12.2013 03.01.2014 Date of Harvesting: 15.04.2014 20.04.2014

Table 3.1.10 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Shillongani** **2013-14**

Genotype	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk	Sowing Time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	45.17	6	39.53	3	42.35	5	260	5	204	8	232	8
HI 1563 (c)	54.57	1	36.97	6	45.77	2	259	7	220	4	239	6
DBW 14 (c)	44.20	8	38.57	4	41.38	6	292	1	248	2	270	1
K 1114	48.17	4	37.67	5	42.92	4	285	3	209	6	247	3
HD 3118	52.47	2	40.37	1	46.42	1	260	5	251	1	256	2
HD 2733 (c)	45.57	5	30.00	8	37.78	8	286	2	207	7	247	3
DBW 107	44.33	7	36.37	7	40.35	7	269	4	220	4	244	5
NW 2036 (c)	49.27	3	40.23	2	44.75	3	244	8	221	3	233	7
Mean	47.97		37.46		42.71		270		222		246	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.32	1.92	3.62			N.S.	7.78	47.37	15.51		
Genotype (B)	*	1.71	4.96	9.81			N.S.	15.31	44.33	15.25		
B within A	N.S.	2.42	7.01				N.S.	21.65	62.70			
A within B		2.29	6.62					21.69	62.83			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	42.00	4	48.34	1	45.17	2	41.83	8	40.37	8	41.10	8
HI 1563 (c)	47.30	3	39.85	4	43.57	4	47.13	1	43.00	4	45.07	1
DBW 14 (c)	36.29	8	36.64	7	36.47	8	42.83	4	42.70	7	42.77	5
K 1114	38.43	5	42.32	3	40.38	5	44.00	3	43.30	2	43.65	3
HD 3118	50.50	1	37.59	6	44.05	3	42.60	5	43.13	3	42.87	4
HD 2733 (c)	38.10	6	35.09	8	36.59	7	42.10	7	42.87	5	42.48	7
DBW 107	37.80	7	38.58	5	38.19	6	46.13	2	43.73	1	44.93	2
NW 2036 (c)	49.08	2	42.69	2	45.88	1	42.60	5	42.83	6	42.72	6
Mean	42.44		40.14		41.29		43.65		42.74		43.20	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	N.S.	1.65	10.05	19.60			N.S.	0.33	2.04	3.80		
Genotype (B)	N.S.	3.64	10.53	21.57			N.S.	1.34	3.89	7.61		
B within A	N.S.	5.14	14.89				N.S.	1.90	5.49			
A within B		5.09	14.73					1.81	5.23			

Date of Sowing: 16.12.2013 01.01.2014 Date of Harvesting: 19.04.2014 23.04.2014

Table 3.1.11 **North Eastern Plains Zone** **IR-LS-TAS-DOS** **Varanasi** **2013-14**

Genotype	Sowing Time: Late	Rk	Very Late	Rk	Mean	Rk	Sowing Time: Late	Rk	Very Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HD 2985 (c)	44.93	3	38.13	5	41.53	5	287	4	271	3	279	2
HI 1563 (c)	43.90	7	36.07	6	39.98	6	280	5	272	2	276	3
DBW 14 (c)	44.90	4	40.50	1	42.70	3	265	7	238	7	251	7
K 1114	44.10	6	32.03	7	38.07	7	253	8	233	8	243	8
HD 3118	39.37	8	31.30	8	35.33	8	276	6	261	4	269	6
HD 2733 (c)	46.60	2	39.50	2	43.05	2	310	1	279	1	294	1
DBW 107	51.60	1	39.33	3	45.47	1	292	2	254	5	273	4
NW 2036 (c)	44.83	5	39.23	4	42.03	4	292	3	251	6	271	5
Mean	45.03		37.01		41.02		282		257		270	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.16	0.96	1.89			**	0.82	4.98	1.49		
Genotype (B)	**	0.22	0.64	1.32			**	8.13	23.56	7.39		
B within A	**	0.31	0.91				N.S.	11.50	33.32			
A within B		0.33	0.96					10.79	31.25			
	Grains/earhead						**1000 Grains weight, g**					
HD 2985 (c)	44.29	3	45.05	4	44.67	3	35.43	7	31.23	7	33.33	7
HI 1563 (c)	42.12	5	42.43	6	42.27	6	37.43	6	31.27	6	34.35	6
DBW 14 (c)	41.33	6	45.67	3	43.50	4	41.07	1	37.27	1	39.17	1
K 1114	43.14	4	42.16	7	42.65	5	40.43	2	32.63	3	36.53	2
HD 3118	35.49	8	38.46	8	36.98	8	40.20	3	31.27	5	35.73	4
HD 2733 (c)	38.36	7	45.02	5	41.69	7	39.23	5	31.53	4	35.38	5
DBW 107	44.77	2	46.82	2	45.79	2	39.50	4	33.10	2	36.30	3
NW 2036 (c)	45.71	1	50.97	1	48.34	1	34.53	8	30.70	8	32.62	8
Mean	41.90		44.57		43.24		38.48		32.38		35.43	
	F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)		
Sowing (A)	**	0.12	0.75	1.40			**	0.14	0.88	1.99		
Genotype (B)	**	1.14	3.31	6.48			**	0.32	0.94	2.24		
B within A	N.S.	1.62	4.68				**	0.46	1.32			
A within B		1.52	4.39					0.45	1.31			

Date of Sowing: 15.12.2013 01.01.2014 Date of Harvesting: 04.10.2014 16.04.2014

Table 3.2.1 North Eastern Plains Zone RF-TAS-LON Coochbehar 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	27.31	2	31.62	3	34.47	3	31.13	3	269	1	274	1	270	2	271	1
HD 2888(C)	25.33	4	26.40	4	37.65	1	29.79	4	239	4	257	4	309	1	268	2
BRW 3723	26.75	3	35.56	1	34.49	2	32.27	1	246	2	267	2	263	3	259	3
C 306 (C)	29.93	1	32.27	2	32.65	4	31.62	2	242	3	259	3	247	4	249	4
Mean	27.33		31.46		34.81		31.20		249		264		272		262	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.12		0.47		1.33		N.S.		9.64		37.85		12.75	
Genotype (B)	**		0.27		0.80		2.59		N.S.		8.15		24.22		9.34	
B within A	**		0.47		1.39				N.S.		14.12		41.95			
A within B			0.42		1.25						15.57		46.27			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	26.33	4	29.63	2	32.91	1	29.63	2	38.60	3	39.43	4	39.43	4	39.15	4
HD 2888(C)	26.39	3	24.71	4	29.10	4	26.73	4	40.27	2	42.06	2	41.97	2	41.43	2
BRW 3723	28.57	1	33.58	1	32.72	2	31.62	1	38.17	4	39.83	3	40.28	3	39.43	3
C 306 (C)	27.99	2	27.90	3	29.80	3	28.56	3	44.64	1	44.79	1	46.23	1	45.22	1
Mean	27.32		28.96		31.13		29.14		40.42		41.53		41.98		41.31	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		1.35		5.29		16.03		N.S.		0.52		2.03		4.33	
Genotype (B)	*		1.00		2.96		10.26		**		0.53		1.57		3.84	
B within A	N.S.		1.73		5.13				N.S.		0.92		2.72			
A within B			2.01		5.98						0.95		2.81			

Date of Sowing: 15.11.2013 Date of Harvesting: 01.04.2014

Table 3.2.2 North Eastern Plains Zone RF-TAS-LON Faizabad 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	28.23	1	34.35	1	37.42	3	33.33	1	282	1	302	2	317	4	300	3
HD 2888(C)	25.60	3	30.95	4	35.80	4	30.78	4	268	3	286	4	323	3	292	4
BRW 3723	26.45	2	31.21	3	38.09	2	31.92	2	273	2	296	3	347	1	305	1
C 306 (C)	23.89	4	32.82	2	38.10	1	31.60	3	258	4	313	1	335	2	302	2
MEAN	26.04		32.33		37.35		31.91		270		300		331		300	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.57		2.25		6.22		*		7.34		28.80		8.47	
Genotype (B)	**		0.37		1.11		3.51		N.S.		6.08		18.08		6.08	
B within A	**		0.65		1.92				N.S.		10.54		31.31			
A within B			0.80		2.38						11.71		34.79			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	20.36	4	24.15	3	28.53	2	24.35	3	49.20	1	47.04	1	41.50	1	45.91	1
HD 2888(C)	22.60	1	26.06	1	28.03	3	25.57	1	42.61	3	41.68	3	39.65	3	41.31	3
BRW 3723	21.78	3	24.11	4	26.79	4	24.23	4	44.71	2	43.80	2	41.44	2	43.31	2
C 306 (C)	22.34	2	25.35	2	28.95	1	25.55	2	41.49	4	41.37	4	39.33	4	40.73	4
Mean	21.77		24.92		28.08		24.92		44.50		43.47		40.48		42.82	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.78		3.07		10.86		**		0.48		1.88		3.88	
Genotype (B)	N.S.		0.67		1.99		8.07		**		0.53		1.57		3.71	
B within A	N.S.		1.16		3.45				N.S.		0.92		2.72			
A within B			1.27		3.78						0.93		2.75			

Date of Sowing: 10.11.2013 Date of Harvesting: 15.04.2014

Table 3.2.3 North Eastern Plains Zone RF-TAS-LON IARI Pusa 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	50.45	2	48.49	2	49.77	2	49.57	2	330	2	319	1	315	3	321	3
HD 2888(C)	38.78	4	35.72	4	43.14	4	39.21	4	319	3	301	3	359	1	326	2
BRW 3723	52.35	1	52.17	1	54.06	1	52.86	1	297	4	295	4	308	4	300	4
C 306 (C)	48.01	3	45.96	3	49.64	3	47.87	3	348	1	315	2	317	2	326	1
Mean	47.40		45.58		49.15		47.38		323		308		325		318	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		1.05		4.11		7.65		N.S.		6.16		24.18		6.70	
Genotype (B)	**		1.26		3.73		7.96		N.S.		9.37		27.85		8.83	
B within A	N.S.		2.18		6.47				N.S.		16.24		48.25			
A within B			2.16		6.40						15.35		45.61			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	24.89	3	26.27	3	26.92	3	26.03	3	61.76	1	57.70	1	59.08	1	59.51	1
HD 2888(C)	22.78	4	22.36	4	21.72	4	22.28	4	53.35	3	53.00	3	55.46	2	53.93	3
BRW 3723	32.77	1	34.85	1	33.62	1	33.75	1	54.00	2	51.21	4	52.62	4	52.61	4
C 306 (C)	26.49	2	26.54	2	29.27	2	27.43	2	52.47	4	55.07	2	54.29	3	53.95	2
Mean	26.73		27.50		27.88		27.37		55.39		54.25		55.36		55.00	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.80		3.13		10.10		N.S.		0.99		3.88		6.22	
Genotype (B)	**		0.97		2.89		10.64		**		1.13		3.36		6.16	
B within A	N.S.		1.68		5.00				N.S.		1.96		5.82			
A within B			1.66		4.94						1.96		5.83			

Date of Sowing: 15.11.2013 Date of Harvesting: 05.04.2014

Table 3.2.4 North Eastern Plains Zone RF-TAS-LON Kalyani 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	17.33	2	19.07	2	21.10	2	19.17	2	159	2	167	2	172	2	166	2
HD 2888(C)	18.00	1	20.40	1	23.83	1	20.74	1	167	1	181	1	194	1	181	1
BRW 3723	16.67	3	18.73	3	20.07	3	18.49	3	149	3	166	3	168	3	161	3
C 306 (C)	15.97	4	18.37	4	19.40	4	17.91	4	143	4	156	4	157	4	152	4
Mean	16.99		19.14		21.10		19.08		155		167		173		165	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.40		1.59		7.34		**		2.20		8.65		4.62	
Genotype (B)	**		0.47		1.40		7.43		**		3.24		9.63		5.89	
B within A	N.S.		0.82		2.43				N.S.		5.61		16.68			
A within B			0.82		2.42						5.34		15.86			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	27.21	3	27.72	2	29.20	2	28.04	2	40.33	3	41.33	2	42.00	2	41.22	2
HD 2888(C)	26.36	4	27.14	4	29.17	3	27.55	4	41.00	1	41.67	1	42.33	1	41.67	1
BRW 3723	27.42	2	27.59	3	28.41	4	27.81	3	40.67	2	41.00	3	42.00	2	41.22	2
C 306 (C)	27.89	1	29.10	1	29.94	1	28.98	1	40.00	4	40.67	4	41.33	4	40.67	4
Mean	27.22		27.89		29.18		28.09		40.50		41.17		41.92		41.19	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.72		2.83		8.88		N.S.		0.81		3.18		6.81	
Genotype (B)	N.S.		0.85		2.54		9.12		N.S.		0.52		1.55		3.81	
B within A	N.S.		1.48		4.39				N.S.		0.91		2.69			
A within B			1.47		4.37						1.13		3.35			

Date of Sowing: 20.11.2013 Date of Harvesting: 1.4.2014

Table 3.2.5 North Eastern Plains Zone RF-TAS-LON Kanpur 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	30.39	1	35.12	1	37.62	1	34.38	1	337	2	337	2	346	1	340	2
HD 2888(C)	29.05	2	31.48	2	32.79	2	31.11	2	351	1	345	1	344	2	347	1
BRW 3723	24.56	4	27.08	4	30.83	4	27.49	4	325	4	334	4	338	3	333	4
C 306 (C)	26.18	3	30.93	3	31.43	3	29.51	3	333	3	335	3	335	4	334	3
Mean	27.55		31.15		33.17		30.62		337		338		341		338	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.31		1.22		3.53		N.S.		2.45		9.61		2.51	
Genotype (B)	**		0.59		1.76		5.79		**		2.08		6.18		1.84	
B within A	N.S.		1.02		3.04				N.S.		3.60		10.70			
A within B			0.94		2.79						3.96		11.78			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	21.59	1	24.94	1	27.72	1	24.75	1	41.87	2	41.83	1	39.27	1	40.99	1
HD 2888(C)	21.34	2	23.25	2	25.15	2	23.25	2	38.83	4	39.23	4	37.93	3	38.67	4
BRW 3723	17.64	4	19.92	4	24.74	3	20.77	4	42.93	1	40.73	2	36.93	4	40.20	2
C 306 (C)	19.73	3	22.97	3	24.16	4	22.29	3	39.87	3	40.10	3	38.90	2	39.62	3
Mean	20.07		22.77		25.44		22.76		40.88		40.48		38.26		39.87	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.35		1.36		5.25		**		0.31		1.21		2.67	
Genotype (B)	**		0.56		1.67		7.43		**		0.39		1.16		2.94	
B within A	N.S.		0.98		2.90				*		0.68		2.01			
A within B			0.91		2.71						0.66		1.97			

Date of Sowing: 9.11.2013 Date of Harvesting: 15.04.2014

Table 3.2.6 North Eastern Plains Zone RF-TAS-LON RAU Pusa 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	28.35	3	30.65	3	32.45	3	30.48	3	252	3	261	3	268	3	260	3
HD 2888(C)	30.50	1	32.45	1	35.25	1	32.73	1	263	1	271	1	278	1	271	1
BRW 3723	29.12	2	31.62	2	33.48	2	31.41	2	257	2	265	2	273	2	265	2
C 306 (C)	27.82	4	29.55	4	30.65	4	29.34	4	244	4	251	4	256	4	250	4
Mean	28.95		31.07		32.96		30.99		254		262		269		262	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		1.07		4.22		12.01		**		0.83		3.27		1.10	
Genotype (B)	N.S.		0.93		2.77		9.03		**		1.27		3.78		1.46	
B within A	N.S.		1.62		4.80				N.S.		2.20		6.55			
A within B			1.76		5.24						2.08		6.19			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	30.26	2	29.97	3	29.26	3	29.83	2	37.15	3	39.18	3	41.45	3	39.26	3
HD 2888(C)	30.08	3	29.75	4	29.31	2	29.71	3	38.65	1	40.25	1	43.25	1	40.72	1
BRW 3723	30.00	4	30.13	2	28.76	4	29.63	4	37.82	2	39.62	2	42.65	2	40.03	2
C 306 (C)	31.32	1	31.03	1	30.32	1	30.89	1	36.65	4	38.35	4	39.88	4	38.29	4
Mean	30.41		30.22		29.41		30.01		37.57		39.35		41.81		39.58	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		1.15		4.50		13.23		**		0.36		1.41		3.13	
Genotype (B)	N.S.		1.04		3.09		10.40		N.S.		0.90		2.67		6.80	
B within A	N.S.		1.80		5.36				N.S.		1.55		4.62			
A within B			1.94		5.76						1.39		4.14			

Date of Sowing: 28.11.2013 Date of Harvesting: 06.04.2014

Table 3.2.7 North Eastern Plains Zone RF-TAS-LON Ranchi 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	25.46	3	30.62	3	31.73	3	29.27	3	237	3	244	3	246	3	242	3
HD 2888(C)	26.57	2	35.05	2	35.42	2	32.35	2	245	2	248	2	251	2	248	2
BRW 3723	29.15	1	36.16	1	36.53	1	33.95	1	253	1	255	1	258	1	256	1
C 306 (C)	25.09	4	30.26	4	30.62	4	28.66	4	233	4	238	4	242	4	238	4
Mean	26.57		33.02		33.58		31.06		242		246		249		246	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.75		2.95		8.38		N.S.		3.54		13.92		4.99	
Genotype (B)	**		0.88		2.62		8.50		**		3.12		9.26		3.80	
B within A	N.S.		1.52		4.53				N.S.		5.40		16.04			
A within B			1.52		4.51						5.87		17.43			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	26.28	3	29.04	4	29.49	3	28.27	4	40.80	3	43.18	3	43.73	3	42.57	3
HD 2888(C)	25.37	4	32.24	1	31.41	1	29.67	1	42.68	2	43.70	2	44.95	2	43.78	2
BRW 3723	26.29	2	31.25	2	30.46	2	29.33	2	43.75	1	45.29	1	46.35	1	45.13	1
C 306 (C)	26.34	1	29.69	3	29.41	4	28.48	3	40.75	4	42.74	4	43.01	4	42.17	4
Mean	26.07		30.55		30.19		28.94		42.00		43.73		44.51		43.41	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.26		1.02		3.12		**		0.27		1.07		2.18	
Genotype (B)	N.S.		0.40		1.19		4.16		**		0.30		0.89		2.06	
B within A	N.S.		0.69		2.06				N.S.		0.52		1.54			
A within B			0.66		1.95						0.52		1.56			

Date of Sowing: 15.11.2013 Date of Harvesting: 12.04.2014

Table 3.2.8 North Eastern Plains Zone RF-TAS-LON Sabourt 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	23.47	3	29.25	3	28.23	3	26.98	3	201	3	209	3	207	3	206	3
HD 2888(C)	24.49	2	32.65	2	32.31	2	29.82	2	208	2	213	2	211	2	211	2
BRW 3723	26.87	1	33.67	1	33.33	1	31.29	1	215	1	219	1	217	1	217	1
C 306 (C)	23.13	4	28.23	4	27.89	4	26.42	4	198	4	205	4	202	4	202	4
Mean	24.49		30.95		30.44		28.63		206		212		209		209	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.69		2.72		8.38		N.S.		3.06		12.00		5.07	
Genotype (B)	**		0.81		2.41		8.51		**		2.57		7.63		3.69	
B within A	N.S.		1.41		4.18				N.S.		4.45		13.22			
A within B			1.40		4.16						4.92		14.61			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	31.21	2	35.56	3	34.01	4	33.59	4	37.33	3	39.33	3	40.00	2	38.89	3
HD 2888(C)	30.14	4	37.36	1	38.22	1	35.24	1	39.00	2	41.00	2	40.00	2	40.00	2
BRW 3723	31.18	3	36.27	2	37.14	2	34.86	2	40.00	1	42.33	1	41.33	1	41.22	1
C 306 (C)	31.24	1	35.25	4	35.10	3	33.86	3	37.33	3	39.00	4	39.33	4	38.56	4
Mean	30.94		36.11		36.12		34.39		38.42		40.42		40.17		39.67	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.25		0.98		2.51		**		0.24		0.95		2.12	
Genotype (B)	N.S.		0.53		1.57		4.62		**		0.28		0.84		2.14	
B within A	N.S.		0.92		2.72				N.S.		0.49		1.46			
A within B			0.83		2.47						0.49		1.45			

Date of Sowing: 10.11.2013 Date of Harvesting: 08.04.2014

Table 3.2.9 North Eastern Plains Zone RF-TAS-LON Shillongani 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	22.60	1	25.57	1	26.30	1	24.82	1	177	2	179	2	182	1	179	1
HD 2888(C)	18.63	4	18.17	4	24.60	3	20.47	4	171	3	173	4	181	2	175	3
BRW 3723	21.83	3	21.53	3	25.57	2	22.98	2	178	1	182	1	178	3	179	1
C 306 (C)	21.87	2	23.33	2	23.10	4	22.77	3	168	4	178	3	178	3	175	4
Mean	21.23		22.15		24.89		22.76		174		178		180		177	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.77		3.03		11.74		N.S.		3.89		15.28		7.62	
Genotype (B)	**		0.70		2.07		9.18		N.S.		2.47		7.34		4.19	
B within A	N.S.		1.21		3.59				N.S.		4.28		12.72			
A within B			1.30		3.86						5.38		15.97			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	33.75	1	32.16	1	29.65	4	31.85	1	37.87	4	44.50	1	48.87	1	43.74	1
HD 2888(C)	27.07	4	26.15	4	33.49	2	28.90	4	40.33	3	40.33	4	40.67	4	40.44	4
BRW 3723	29.47	3	26.73	3	35.17	1	30.46	3	41.77	1	44.37	2	40.93	3	42.36	2
C 306 (C)	31.96	2	31.51	2	31.58	3	31.68	2	40.80	2	41.70	3	41.20	2	41.23	3
Mean	30.56		29.14		32.47		30.72		40.19		42.73		42.92		41.94	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.90		3.54		10.16		N.S.		0.73		2.87		6.04	
Genotype (B)	N.S.		0.98		2.91		9.56		*		0.70		2.08		5.02	
B within A	*		1.70		5.04				**		1.22		3.61			
A within B			1.72		5.12						1.28		3.81			

Date of Sowing: 7.11.2013 Date of Harvesting: 24.03.2014

Table 3.2.10 North Eastern Plains Zone RF-TAS-LON Varanasi 2013-14

Genotype	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earheads/sq.m.**							
K 8027 (C)	32.17	2	37.20	2	39.93	2	36.43	2	280	3	299	3	263	4	281	3
HD 2888(C)	30.47	4	33.17	3	36.70	3	33.44	3	311	1	329	1	381	1	340	1
BRW 3723	32.43	1	38.87	1	40.60	1	37.30	1	281	2	246	4	275	3	267	4
C 306 (C)	30.93	3	33.13	4	35.00	4	33.02	4	243	4	301	2	339	2	295	2
Mean	31.50		35.59		38.06		35.05		279		294		315		296	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.17		0.68		1.71		*		4.33		17.00		5.07	
Genotype (B)	**		0.17		0.51		1.46		**		9.58		28.45		9.71	
B within A	**		0.30		0.88				*		16.59		49.28			
A within B			0.31		0.92						15.00		44.58			
	Grains/earhead								**1000 Grains weight, g**							
K 8027 (C)	25.17	4	26.43	4	33.58	2	28.39	2	45.63	1	47.17	1	46.77	1	46.52	1
HD 2888(C)	25.64	3	27.09	3	24.54	4	25.76	4	38.30	4	38.67	4	39.23	4	38.73	4
BRW 3723	27.04	2	36.42	1	34.45	1	32.63	1	42.77	2	43.40	2	42.93	2	43.03	2
C 306 (C)	32.45	1	27.40	2	25.27	3	28.38	3	39.20	3	40.17	3	40.87	3	40.08	3
Mean	27.58		29.33		29.46		28.79		41.48		42.35		42.45		42.09	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.71		2.77		8.49		N.S.		0.27		1.06		2.22	
Genotype (B)	**		1.11		3.31		11.59		**		0.23		0.69		1.66	
B within A	**		1.93		5.73				N.S.		0.40		1.20			
A within B			1.81		5.38						0.44		1.31			

Date of Sowing: Date of Harvesting:

Table 4.1.1. Central Zone IR-TS-TAD-DOS Bilaspur 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	47.86	1	39.41	2	43.63	1	321	6	297	6	309	6
HI 1544 (c)	42.52	3	35.94	3	39.23	3	331	3	313	2	322	3
MPO 1215 (dc)	39.79	6	33.24	6	36.52	6	343	2	303	4	323	2
GW 322 (c)	45.33	2	41.06	1	43.19	2	352	1	318	1	335	1
HI 8737 (d)	40.71	5	34.67	5	37.69	5	320	7	298	5	309	5
MP 3382	36.82	7	30.30	7	33.56	7	328	4	305	3	317	4
HI 8498 (dc)	41.75	4	34.81	4	38.28	4	322	5	280	7	301	7
Mean	42.11		35.63		38.87		331		302		317	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.35	2.12	4.11			**	0.97	5.91	1.41	
Genotype (B)		**	0.70	2.03	4.39			**	1.88	5.50	1.46	
B within A		N.S.	0.99	2.88				**	2.66	7.77		
A within B			0.98	2.85					2.65	7.73		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	29.11	3	25.70	2	27.41	2	51.28	2	51.54	3	51.41	2
HI 1544 (c)	29.50	2	23.88	3	26.69	3	43.61	6	48.08	5	45.85	5
MPO 1215 (dc)	23.12	7	21.79	6	22.45	7	50.11	3	50.37	4	50.24	3
GW 322 (c)	29.53	1	30.59	1	30.06	1	43.57	7	42.15	7	42.86	7
HI 8737 (d)	27.70	4	22.50	5	25.10	4	45.92	4	51.70	2	48.81	4
MP 3382	24.75	5	21.75	7	23.25	6	45.41	5	45.64	6	45.53	6
HI 8498 (dc)	23.81	6	23.42	4	23.62	5	54.50	1	53.18	1	53.84	1
Mean	26.79		24.23		25.51		47.77		48.95		48.36	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.20	1.21	3.57			N.S.	0.84	5.10	7.94	
Genotype (B)		**	0.38	1.12	3.69			**	0.66	1.94	3.36	
B within A		**	0.54	1.59				**	0.94	2.74		
A within B			0.54	1.58					1.21	3.52		
Date of sowing	17.11.2013		09.12.2013		Date of harvesting:		04.03.2014		01.04.2014			

Table 4.1.2. Central Zone IR-TS-TAD-DOS Gwalior 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	45.86	7	33.95	7	39.91	7	433	7	361	4	397	5
HI 1544 (c)	48.40	5	47.60	3	48.00	3	465	2	367	2	416	1
MPO 1215 (dc)	49.48	3	43.82	5	46.65	5	440	5	373	1	406	2
GW 322 (c)	51.30	2	47.98	2	49.64	2	434	6	365	3	400	4
HI 8737 (d)	56.23	1	53.88	1	55.06	1	446	4	348	5	397	6
MP 3382	47.98	6	45.59	4	46.79	4	467	1	342	6	405	3
HI 8498 (dc)	49.43	4	35.03	6	42.23	6	447	3	318	7	382	7
Mean	49.81		43.98		46.90		447		353		400	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.07	0.40	0.64			**	0.76	4.64	0.87	
Genotype (B)		**	0.63	1.84	3.29			N.S.	8.70	25.40	5.32	
B within A		**	0.89	2.60				N.S.	12.30	35.92		
A within B			0.83	2.41					11.42	33.33		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	24.22	7	23.05	7	23.63	7	43.75	1	40.83	2	42.29	2
HI 1544 (c)	28.05	3	35.10	3	31.57	3	37.33	6	37.13	6	37.23	6
MPO 1215 (dc)	26.80	4	29.79	5	28.29	5	42.10	4	39.50	3	40.80	4
GW 322 (c)	33.63	1	37.94	1	35.78	1	35.23	7	34.77	7	35.00	7
HI 8737 (d)	29.35	2	37.38	2	33.36	2	43.17	2	41.50	1	42.33	1
MP 3382	26.45	5	34.53	4	30.49	4	38.87	5	38.67	5	38.77	5
HI 8498 (dc)	25.69	6	28.32	6	27.01	6	43.10	3	39.03	4	41.07	3
Mean	27.74		32.30		30.02		40.51		38.78		39.64	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.24	1.49	3.74			N.S.	0.36	2.18	4.15	
Genotype (B)		**	0.87	2.54	7.09			**	0.64	1.87	3.95	
B within A		**	1.23	3.59				N.S.	0.90	2.64		
A within B			1.16	3.40					0.91	2.66		
Date of sowing	11.11.2013		09.12.2011		Date of harvesting:		11.04.2012		16.04.2012			

Table 4.1.3. Central Zone IR-TS-TAD-DOS Indore 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	55.70	1	49.70	1	52.70	1	343	5	352	5	348	5
HI 1544 (c)	42.07	6	41.67	6	41.87	6	443	1	387	1	415	1
MPO 1215 (dc)	53.07	2	44.63	2	48.85	2	280	7	329	7	305	7
GW 322 (c)	46.33	5	42.03	5	44.18	5	360	3	368	4	364	4
HI 8737 (d)	52.03	3	44.47	3	48.25	3	350	4	382	2	366	3
MP 3382	37.97	7	39.37	7	38.67	7	385	2	377	3	381	2
HI 8498 (dc)	49.23	4	43.17	4	46.20	4	295	6	333	6	314	6
Mean	48.06		43.58		45.82		351		361		356	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.67	4.08	6.71			N.S.	6.69	40.69	8.61	
Genotype (B)		**	0.88	2.56	4.70			**	6.80	19.85	4.68	
B within A		**	1.24	3.63				**	9.62	28.07		
A within B			1.33	3.89					11.13	32.50		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	29.17	3	27.02	2	28.10	3	55.63	2	52.33	2	53.98	2
HI 1544 (c)	22.54	6	25.69	4	24.12	6	42.27	6	42.00	6	42.13	6
MPO 1215 (dc)	34.94	1	26.24	3	30.59	1	54.30	3	52.13	3	53.22	3
GW 322 (c)	31.09	2	27.36	1	29.22	2	41.43	7	41.93	7	41.68	7
HI 8737 (d)	27.82	5	22.46	7	25.14	5	53.63	4	51.87	4	52.75	4
MP 3382	21.97	7	23.68	6	22.82	7	45.03	5	44.10	5	44.57	5
HI 8498 (dc)	28.52	4	24.45	5	26.48	4	58.53	1	53.20	1	55.87	1
Mean	28.01		25.27		26.64		50.12		48.22		49.17	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.87	5.31	15.00			**	0.10	0.62	0.95	
Genotype (B)		**	0.73	2.13	6.72			**	0.39	1.15	1.96	
B within A		**	1.03	3.02				**	0.56	1.62		
A within B			1.29	3.78					0.53	1.53		

Date of sowing: 07.11.2013 03.12.2013 Date of harvesting: 24.03.2014 05.04.2014

Table 4.1.4. Central Zone IR-TS-TAD-DOS Junagarh 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	51.39	3	39.10	6	45.25	4	333	6	346	2	339	3
HI 1544 (c)	47.01	4	46.10	1	46.56	3	377	2	366	1	372	1
MPO 1215 (dc)	45.95	6	36.80	7	41.38	7	335	5	319	3	327	5
GW 322 (c)	51.67	1	46.00	2	48.84	1	394	1	316	4	355	2
HI 8737 (d)	51.63	2	41.53	4	46.58	2	362	3	310	5	336	4
MP 3382	39.69	7	43.16	3	41.43	6	360	4	274	7	317	7
HI 8498 (dc)	46.91	5	39.69	5	43.30	5	329	7	309	6	319	6
Mean	47.75		41.77		44.76		356		320		338	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	1.22	7.41	12.46			*	4.38	26.63	5.94	
Genotype (B)		**	1.25	3.64	6.83			**	7.60	22.19	5.51	
B within A		**	1.76	5.15				**	10.75	31.38		
A within B			2.04	5.95					10.87	31.74		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	26.96	4	23.77	7	25.37	7	57.50	1	47.63	3	52.57	1
HI 1544 (c)	25.20	6	30.29	3	27.74	3	49.57	4	41.80	6	45.68	5
MPO 1215 (dc)	28.19	2	24.74	6	26.47	6	48.97	5	46.60	4	47.78	4
GW 322 (c)	30.92	1	38.81	1	34.86	1	42.37	7	37.53	7	39.95	7
HI 8737 (d)	26.45	5	26.81	4	26.63	4	53.93	2	49.97	1	51.95	2
MP 3382	24.28	7	35.05	2	29.67	2	45.67	6	45.13	5	45.40	6
HI 8498 (dc)	27.21	3	26.02	5	26.61	5	52.93	3	49.63	2	51.28	3
Mean	27.03		29.35		28.19		50.13		45.47		47.80	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.93	5.65	15.09			**	0.23	1.39	2.20	
Genotype (B)		**	0.94	2.74	8.16			**	0.95	2.78	4.88	
B within A		**	1.33	3.88				*	1.35	3.93		
A within B			1.54	4.50					1.27	3.70		

Date of sowing: 11.11.2013 03.12.2013 Date of harvesting: 10.03.2014 18.03.2014

Table 4.1.5. Central Zone IR-TS-TAD-DOS Kota 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	55.47	5	44.30	2	49.88	4	401	3	366	3	383	3
HI 1544 (c)	55.00	6	42.33	5	48.67	5	419	1	374	2	397	1
MPO 1215 (dc)	56.27	4	40.47	7	48.37	6	361	7	333	7	347	7
GW 322 (c)	60.80	2	44.43	1	52.62	1	387	4	348	4	368	4
HI 8737 (d)	61.00	1	42.43	4	51.72	2	376	6	342	6	359	6
MP 3382	58.30	3	44.20	3	51.25	3	404	2	376	1	390	2
HI 8498 (dc)	54.67	7	40.90	6	47.78	7	383	5	346	5	365	5
Mean	57.36		42.72		50.04		390		355		373	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.30	1.80	2.71			**	0.74	4.51	0.91	
Genotype (B)		*	1.09	3.18	5.33			**	3.28	9.58	2.16	
B within A		N.S.	1.54	4.49				N.S.	4.64	13.55		
A within B			1.46	4.25					4.36	12.73		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	24.59	6	23.40	5	24.00	6	56.27	1	51.73	3	54.00	2
HI 1544 (c)	23.64	7	20.13	7	21.88	7	55.50	2	56.20	1	55.85	1
MPO 1215 (dc)	28.24	4	23.77	4	26.01	4	55.27	3	51.13	4	53.20	4
GW 322 (c)	35.41	1	31.23	1	33.32	1	44.33	6	40.93	7	42.63	7
HI 8737 (d)	32.36	3	27.27	2	29.81	2	50.20	5	45.47	5	47.83	5
MP 3382	32.86	2	26.39	3	29.62	3	43.97	7	44.60	6	44.28	6
HI 8498 (dc)	25.86	5	22.72	6	24.29	5	55.27	3	52.07	2	53.67	3
Mean	28.99		24.99		26.99		51.54		48.88		50.21	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.27	1.65	4.60			**	0.11	0.66	0.99	
Genotype (B)		**	0.66	1.92	5.95			**	0.22	0.64	1.06	
B within A		N.S.	0.93	2.71				**	0.31	0.90		
A within B			0.90	2.63					0.31	0.89		
Date of sowing	17.11.2013		03.12.2013		Date of harvesting:		10.04.2012		10.04.2012			

Table 4.1.6. Central Zone IR-TS-TAD-DOS Powarkheda 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	56.86	7	48.81	5	52.84	6	346	5	340	5	343	5
HI 1544 (c)	65.23	3	54.62	3	59.92	3	377	3	360	3	369	3
MPO 1215 (dc)	58.77	6	47.25	6	53.01	5	305	7	310	6	308	7
GW 322 (c)	64.19	4	53.89	4	59.04	4	375	4	354	4	364	4
HI 8737 (d)	60.13	5	42.93	7	51.53	7	336	6	290	7	313	6
MP 3382	66.09	2	56.09	2	61.09	2	386	1	375	2	381	1
HI 8498 (dc)	66.30	1	56.67	1	61.48	1	383	2	378	1	381	1
Mean	62.51		51.47		56.99		358		344		351	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.22	1.32	1.74			**	0.54	3.30	0.71	
Genotype (B)		**	0.83	2.41	3.55			**	2.90	8.48	2.03	
B within A		*	1.17	3.41				**	4.11	11.99		
A within B			1.10	3.22					3.84	11.21		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	40.82	3	36.19	5	38.50	5	40.33	6	39.80	5	40.07	5
HI 1544 (c)	40.24	4	37.38	4	38.81	3	43.03	3	40.80	3	41.92	3
MPO 1215 (dc)	49.71	1	39.91	2	44.81	1	38.80	7	38.27	6	38.54	7
GW 322 (c)	39.98	5	37.59	3	38.79	4	43.02	4	40.60	4	41.81	4
HI 8737 (d)	41.99	2	40.95	1	41.47	2	42.73	5	36.23	7	39.48	6
MP 3382	38.02	7	34.69	6	36.36	6	45.00	2	43.20	2	44.10	2
HI 8498 (dc)	38.35	6	33.66	7	36.00	7	45.11	1	44.60	1	44.85	1
Mean	41.30		37.20		39.25		42.57		40.50		41.54	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.44	2.68	5.14			N.S.	0.34	2.10	3.80	
Genotype (B)		**	0.81	2.37	5.07			**	0.47	1.38	2.79	
B within A		*	1.15	3.35				**	0.67	1.95		
A within B			1.15	3.36					0.71	2.07		
Date of sowing	20.11.2013		11.12.2013		Date of harvesting:		24.03.2014		13.04.2014			

Table 4.1.7. Central Zone IR-TS-TAD-DOS Sagar 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	xc	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha							**Earhead/sq.m.**					
HI 8736 (d)	56.44	3	49.30	3	52.87	3		374	3	323	3	349	3
HI 1544 (c)	58.14	2	52.02	2	55.08	2		378	2	334	2	356	2
MPO 1215 (dc)	53.04	6	46.92	4	49.98	5		357	5	289	5	323	5
GW 322 (c)	61.20	1	54.06	1	57.63	1		395	1	349	1	372	1
HI 8737 (d)	54.06	5	43.18	6	48.62	6		346	6	270	6	308	6
MP 3382	55.25	4	45.22	5	50.24	4		364	4	305	4	335	4
HI 8498 (dc)	51.68	7	41.48	7	46.58	7		326	7	259	7	293	7
Mean	55.69		47.45		51.57			363		304		334	
		F. Test	S.E.m	C.D.	C.V.(%)				F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.26	1.61	2.35				**	0.88	5.34	1.21	
Genotype (B)		**	0.64	1.88	3.06				**	3.14	9.16	2.30	
B within A		*	0.91	2.66					**	4.44	12.95		
A within B			0.88	2.58						4.20	12.26		
	Grains/earhead							**1000 Grains weight, g**					
HI 8736 (d)	28.80	6	29.57	7	29.18	7		52.40	1	51.57	1	51.98	1
HI 1544 (c)	36.01	1	37.52	1	36.76	1		42.70	7	41.53	7	42.12	7
MPO 1215 (dc)	28.69	7	32.59	5	30.64	6		51.80	2	49.87	2	50.83	2
GW 322 (c)	35.69	2	36.18	2	35.94	2		43.43	6	42.87	6	43.15	6
HI 8737 (d)	30.58	5	32.56	6	31.57	5		51.10	3	49.10	3	50.10	3
MP 3382	32.62	3	33.04	3	32.83	3		46.53	5	44.93	5	45.73	5
HI 8498 (dc)	31.95	4	32.80	4	32.37	4		49.70	4	48.93	4	49.32	4
Mean	32.05		33.47		32.76			48.24		46.97		47.60	
		F. Test	S.E.m	C.D.	C.V.(%)				F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.29	1.75	4.02				N.S.	0.22	1.37	2.16	
Genotype (B)		**	0.72	2.09	5.35				**	0.54	1.59	2.80	
B within A		N.S.	1.01	2.95					N.S.	0.77	2.25		
A within B			0.98	2.86						0.75	2.18		
Date of sowing	08.11.2013		05.12.2013				Date of harvesting:	16.04.2014		21.04.2014			

Table 4.1.8. Central Zone IR-TS-TAD-DOS Udaipur 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	60.62	1	43.20	1	51.91	1	490	3	420	1	455	2
HI 1544 (c)	47.18	5	33.59	6	40.38	6	482	4	400	3	441	4
MPO 1215 (dc)	56.49	2	37.57	2	47.03	2	498	1	400	3	449	3
GW 322 (c)	55.68	3	37.32	3	46.50	3	492	2	420	1	456	1
HI 8737 (d)	55.23	4	36.99	4	46.11	4	400	6	400	3	400	5
MP 3382	47.12	6	30.92	7	39.02	7	440	5	350	6	395	6
HI 8498 (dc)	46.05	7	34.92	5	40.49	5	378	7	325	7	352	7
Mean	52.62		36.36		44.49		454		388		421	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.28	1.71	2.89			**	2.31	14.08	2.52	
Genotype (B)		**	0.71	2.07	3.90			**	6.68	19.51	3.89	
B within A		**	1.00	2.93				**	9.45	27.59		
A within B			0.97	2.83					9.05	26.42		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	21.64	4	18.09	5	19.86	5	57.20	3	56.90	2	57.05	2
HI 1544 (c)	23.58	3	21.47	1	22.53	2	41.55	7	39.38	7	40.47	7
MPO 1215 (dc)	20.97	6	17.93	6	19.45	6	54.28	4	52.40	4	53.34	4
GW 322 (c)	25.17	1	20.43	2	22.80	1	45.02	6	43.55	6	44.28	6
HI 8737 (d)	23.91	2	16.68	7	20.29	4	57.85	2	55.52	3	56.68	3
MP 3382	21.24	5	20.19	3	20.72	3	50.45	5	43.83	5	47.14	5
HI 8498 (dc)	20.20	7	18.33	4	19.26	7	60.60	1	58.79	1	59.70	1
Mean	22.39		19.02		20.70		52.42		50.05		51.24	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		**	0.24	1.44	5.25			*	0.21	1.30	1.90	
Genotype (B)		**	0.59	1.71	6.95			**	0.68	1.99	3.25	
B within A		*	0.83	2.42				N.S.	0.96	2.81		
A within B			0.80	2.35					0.92	2.67		
Date of sowing	11.11.2013		04.12.2013				Date of harvesting:	02.04.2014		07.04.2014		

Table 4.1.9. Central Zone IR-TS-TAD-DOS Vijapur 2013-14

Genotype	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
HI 8736 (d)	42.04	3	41.23	2	41.63	3	308	3	287	4	297	4
HI 1544 (c)	45.71	2	40.07	3	42.89	2	324	1	321	2	323	2
MPO 1215 (dc)	28.57	6	35.10	5	31.84	5	215	7	246	7	230	7
GW 322 (c)	47.70	1	42.55	1	45.13	1	321	2	349	1	335	1
HI 8737 (d)	28.57	6	34.83	6	31.70	6	235	6	258	6	247	6
MP 3382	37.59	4	36.90	4	37.25	4	283	4	312	3	298	3
HI 8498 (dc)	28.84	5	33.57	7	31.21	7	237	5	259	5	248	5
Mean	37.00		37.75		37.38		275		290		283	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.79	4.81	9.68			N.S.	4.70	28.58	7.62	
Genotype (B)		**	1.32	3.84	8.63			**	5.53	16.14	4.80	
B within A		**	1.86	5.44				*	7.82	22.83		
A within B			1.90	5.54					8.63	25.19		
	Grains/earhead						**1000 Grains weight, g**					
HI 8736 (d)	25.12	6	26.91	4	26.02	4	54.47	2	53.52	1	53.99	2
HI 1544 (c)	26.24	5	25.52	5	25.88	5	53.80	3	49.16	4	51.48	3
MPO 1215 (dc)	29.27	1	31.09	1	30.18	1	45.48	5	45.96	7	45.72	7
GW 322 (c)	24.18	7	24.41	6	24.29	7	61.43	1	50.17	2	55.80	1
HI 8737 (d)	27.08	3	28.30	2	27.69	2	44.68	7	47.73	6	46.21	6
MP 3382	26.79	4	23.74	7	25.26	6	49.55	4	49.84	3	49.69	4
HI 8498 (dc)	27.11	2	27.01	3	27.06	3	45.20	6	48.11	5	46.65	5
Mean	26.54		26.71		26.63		50.66		49.21		49.94	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.31	1.89	5.34			N.S.	0.41	2.52	3.80	
Genotype (B)		*	1.04	3.04	9.58			**	0.76	2.23	3.75	
B within A		N.S.	1.47	4.30				**	1.08	3.16		
A within B			1.40	4.08					1.08	3.16		

Date of sowing	08.11.2013	04.12.2013	Date of harvesting:	15.03.2014	23.03.2014

Table 4.2.1. Central Zone **RIR-TS-TAD** **Bilaspur** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	18.83	4	21.29	4	26.84	4	22.32	4	213	4	228	5	251	4	231	4
DBW 110	19.00	3	22.23	3	28.50	2	23.24	3	217	3	234	3	261	3	238	3
A-9-30-1(c)	17.51	5	20.03	5	24.57	5	20.70	5	211	5	230	4	240	5	227	5
HI 1500(c)	19.32	2	22.54	2	29.89	1	23.91	2	220	2	257	2	279	2	252	2
MP 3288(c)	20.40	1	23.94	1	27.91	3	24.08	1	270	1	258	1	286	1	271	1
Mean	19.01		22.01		27.54		22.85		226		241		263		244	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.47		1.84		7.96		**		0.97		3.80		1.54	
Genotype (B)	**		0.52		1.51		6.78		**		0.85		2.48		1.05	
B within A	N.S.		0.89		2.61				**		1.47		4.30			
A within B			0.93		2.71						1.63		4.77			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	20.22	3	19.61	4	20.64	3	20.16	4	43.73	2	47.76	2	51.72	2	47.74	2
DBW 110	20.94	1	19.85	3	19.92	5	20.23	3	41.77	4	47.80	1	54.87	1	48.15	1
A-9-30-1(c)	18.55	5	18.99	5	20.10	4	19.21	5	44.81	1	45.90	3	51.04	3	47.25	3
HI 1500(c)	20.81	2	23.02	1	22.11	1	21.98	1	42.31	3	38.10	5	48.43	4	42.95	5
MP 3288(c)	18.76	4	21.98	2	20.82	2	20.52	2	40.32	5	42.15	4	46.95	5	43.14	4
Mean	19.86		20.69		20.72		20.42		42.59		44.34		50.60		45.84	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.30		1.18		5.70		**		0.41		1.62		3.48	
Genotype (B)	**		0.45		1.32		6.63		**		0.52		1.52		3.41	
B within A	N.S.		0.78		2.28				**		0.90		2.64			
A within B			0.76		2.22						0.91		2.65			

Date of sowing: 30.10.2013 Date of harvesting: 06.03.2014

Table 4.2.2. Central Zone **RIR-TS-TAD** **Gwalior** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	22.87	2	33.93	2	37.43	2	31.41	2	226	4	276	2	324	3	276	4
DBW 110	25.37	1	35.00	1	39.63	1	33.33	1	259	1	287	1	343	1	296	1
A-9-30-1(c)	17.40	5	23.50	4	26.93	5	22.61	5	246	2	259	4	323	4	276	3
HI 1500(c)	22.33	3	31.93	3	35.07	3	29.78	3	242	3	260	3	331	2	278	2
MP 3288(c)	20.67	4	22.37	5	28.23	4	23.76	4	226	5	243	5	306	5	258	5
Mean	21.73		29.35		33.46		28.18		240		265		326		277	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.51		1.99		6.98		**		2.94		11.53		4.11	
Genotype (B)	**		0.43		1.26		4.59		**		3.85		11.25		4.18	
B within A	**		0.75		2.18				N.S.		6.68		19.49			
A within B			0.84		2.45						6.66		19.43			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	23.48	4	35.85	1	33.31	1	30.88	1	43.20	1	34.28	4	34.76	4	37.41	3
DBW 110	25.00	2	32.11	3	31.84	2	29.65	3	39.59	2	38.29	1	36.33	2	38.07	2
A-9-30-1(c)	23.06	5	30.07	4	28.98	4	27.37	4	30.74	5	30.23	5	28.84	5	29.94	5
HI 1500(c)	26.03	1	35.53	2	30.34	3	30.63	2	35.49	4	34.66	3	34.92	3	35.02	4
MP 3288(c)	24.65	3	24.69	5	23.35	5	24.23	5	37.36	3	37.33	2	39.56	1	38.08	1
Mean	24.44		31.65		29.56		28.55		37.28		34.96		34.88		35.71	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.63		2.46		8.48		N.S.		0.61		2.38		6.57	
Genotype (B)	**		0.71		2.06		7.41		**		0.47		1.37		3.94	
B within A	**		1.22		3.56				**		0.81		2.37			
A within B			1.26		3.67						0.95		2.76			

Date of sowing: 13.11.2013 Date of harvesting: 11.04.2014

Table 4.2.3. Central Zone **RIR-TS-TAD** **Indore** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	25.63	3	40.07	3	46.27	2	37.32	3	205	2	232	5	281	4	239	4
DBW 110	29.23	1	45.90	1	43.97	3	39.70	2	203	3	268	4	231	5	234	5
A-9-30-1(c)	13.10	5	27.37	5	28.50	5	22.99	5	189	4	299	2	313	2	267	2
HI 1500(c)	20.43	4	29.10	4	28.90	4	26.14	4	188	5	290	3	311	3	263	3
MP 3288(c)	27.90	2	43.50	2	49.33	1	40.24	1	263	1	380	1	378	1	340	1
Mean	23.26		37.19		39.39		33.28		210		294		303		269	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.55		2.18		6.45		**		2.72		10.66		3.91	
Genotype (B)	**		0.50		1.46		4.52		**		6.66		19.43		7.43	
B within A	**		0.87		2.54				**		11.53		33.66			
A within B			0.95		2.79						10.67		31.13			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	23.39	4	31.80	2	29.95	2	28.38	2	53.60	1	54.40	1	54.97	1	54.32	1
DBW 110	28.89	1	33.60	1	36.43	1	32.98	1	50.00	2	51.07	2	52.57	2	51.21	2
A-9-30-1(c)	14.87	5	20.56	5	19.94	5	18.46	5	46.77	3	44.70	3	46.13	3	45.87	3
HI 1500(c)	24.45	2	23.87	4	20.88	4	23.06	4	44.53	4	42.20	5	44.67	4	43.80	4
MP 3288(c)	24.34	3	26.78	3	29.73	3	26.95	3	43.57	5	42.90	4	44.17	5	43.54	5
Mean	23.19		27.32		27.39		25.96		47.69		47.05		48.50		47.75	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.55		2.15		8.16		N.S.		0.42		1.66		3.43	
Genotype (B)	**		0.73		2.14		8.47		**		0.32		0.92		1.99	
B within A	**		1.27		3.71				*		0.55		1.60			
A within B			1.26		3.68						0.65		1.89			
Date of sowing:			29.10.2013						Date of harvesting:				13.3.2014			

Table 4.2.4. Central Zone **RIR-TS-TAD** **Junagarh** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	6.70	5	15.98	2	21.77	3	14.82	5	187	2	220	2	231	5	213	4
DBW 110	15.56	1	15.90	3	22.52	2	17.99	2	171	4	179	5	274	1	208	5
A-9-30-1(c)	10.74	4	16.24	1	18.67	5	15.22	4	189	1	196	4	259	3	215	2
HI 1500(c)	13.67	3	15.01	5	21.68	4	16.79	3	176	3	217	3	262	2	218	1
MP 3288(c)	15.43	2	15.45	4	26.69	1	19.19	1	157	5	223	1	259	4	213	3
Mean	12.42		15.72		22.27		16.80		176		207		257		213	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.25		0.98		5.74		**		4.72		18.53		8.57	
Genotype (B)	**		0.46		1.35		8.28		N.S.		6.30		18.38		8.85	
B within A	**		0.80		2.34				*		10.91		31.83			
A within B			0.76		2.22						10.84		31.63			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	10.59	5	21.14	3	25.38	2	19.04	5	34.23	2	34.33	5	37.27	5	35.28	3
DBW 110	29.05	2	25.58	1	20.60	4	25.08	2	31.53	3	34.73	3	40.10	2	35.46	2
A-9-30-1(c)	16.14	4	23.84	2	17.48	5	19.15	4	35.17	1	34.93	1	41.63	1	37.24	1
HI 1500(c)	26.83	3	19.94	5	21.36	3	22.71	3	29.20	4	34.87	2	39.00	3	34.36	4
MP 3288(c)	34.99	1	20.00	4	27.01	1	27.33	1	28.17	5	34.63	4	38.70	4	33.83	5
Mean	23.52		22.10		22.37		22.66		31.66		34.70		39.34		35.23	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.58		2.28		9.93		**		0.39		1.52		4.26	
Genotype (B)	**		0.74		2.17		9.85		**		0.49		1.42		4.14	
B within A	**		1.29		3.76				**		0.84		2.46			
A within B			1.29		3.77						0.85		2.48			
Date of sowing:			26.11.2013						Date of harvesting:				11.03.2014			

Table 4.2.5. Central Zone **RIR-TS-TAD** **Kota** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	27.27	4	38.63	2	39.63	3	35.18	3	277	4	276	4	308	3	287	4
DBW 110	28.07	3	40.40	1	43.50	1	37.32	1	284	3	289	3	300	4	291	3
A-9-30-1(c)	28.17	2	35.23	4	38.73	4	34.04	4	313	2	343	1	308	2	321	2
HI 1500(c)	22.73	5	34.73	5	36.80	5	31.42	5	265	5	276	4	277	5	273	5
MP 3288(c)	32.00	1	37.87	3	40.20	2	36.69	2	322	1	320	2	350	1	331	1
Mean	27.65		37.37		39.77		34.93		292		301		309		301	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.64		2.50		7.05		N.S.		12.01		47.14		15.48	
Genotype (B)	**		0.65		1.89		5.56		*		12.06		35.21		12.04	
B within A	*		1.12		3.27				N.S.		20.90		60.99			
A within B			1.19		3.47						22.21		64.84			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	18.22	5	26.33	3	22.96	5	22.50	5	54.00	1	54.60	1	56.20	1	54.93	1
DBW 110	20.53	3	28.43	1	28.38	3	25.78	2	48.20	2	49.33	2	52.00	2	49.84	2
A-9-30-1(c)	20.67	2	24.08	5	28.60	2	24.45	3	43.60	4	44.07	5	45.27	5	44.31	5
HI 1500(c)	19.96	4	28.34	2	29.80	1	26.03	1	43.33	5	44.30	4	45.60	4	44.41	4
MP 3288(c)	21.95	1	25.32	4	24.54	4	23.94	4	45.60	3	47.53	3	48.00	3	47.04	3
Mean	20.27		26.50		26.86		24.54		46.95		47.97		49.41		48.11	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		1.10		4.33		17.39		**		0.04		0.14		0.30	
Genotype (B)	N.S.		1.16		3.40		14.24		**		0.08		0.25		0.53	
B within A	N.S.		2.02		5.89				**		0.15		0.43			
A within B			2.11		6.17						0.14		0.40			
Date of sowing:			26.10.2013						Date of harvesting:				31.03.2014			

Table 4.2.6. Central Zone **RIR-TS-TAD** **Powarkheda** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	29.55	2	37.98	2	39.13	2	35.55	2	227	3	315	2	193	5	245	4
DBW 110	27.85	3	40.19	1	45.25	1	37.76	1	102	5	145	5	300	1	182	5
A-9-30-1(c)	21.73	5	21.15	5	24.17	5	22.35	5	203	4	295	3	282	4	260	3
HI 1500(c)	25.81	4	31.69	4	31.65	4	29.72	4	295	2	210	4	283	3	263	2
MP 3288(c)	32.27	1	33.39	3	38.03	3	34.56	3	468	1	365	1	285	2	373	1
Mean	27.44		32.88		35.65		31.99		259		266		269		265	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	*		1.09		4.29		13.23		N.S.		3.39		13.30		4.96	
Genotype (B)	**		0.83		2.44		7.82		**		3.60		10.52		4.09	
B within A	**		1.44		4.22				**		6.24		18.21			
A within B			1.69		4.94						6.53		19.06			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	29.30	2	22.48	4	39.43	1	30.40	2	44.50	4	53.67	1	51.43	3	49.87	2
DBW 110	61.12	1	52.10	1	26.56	2	46.60	1	45.20	2	53.33	2	56.83	1	51.79	1
A-9-30-1(c)	28.68	3	15.84	5	16.83	5	20.45	5	37.33	5	45.10	4	51.00	4	44.48	5
HI 1500(c)	19.64	4	31.43	3	23.06	4	24.71	4	44.73	3	48.00	3	48.83	5	47.19	3
MP 3288(c)	14.86	5	34.37	2	25.96	3	25.06	3	46.50	1	38.50	5	51.50	2	45.50	4
Mean	30.72		31.24		26.37		29.44		43.65		47.72		51.92		47.76	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		1.90		7.47		25.03		*		1.54		6.06		12.51	
Genotype (B)	**		2.81		8.21		28.65		N.S.		1.84		5.36		11.53	
B within A	**		4.87		14.21				N.S.		3.18		9.28			
A within B			4.75		13.87						3.23		9.44			
Date of sowing:			13.11.2013						Date of harvesting:				21.03.2014			

Table 4.2.7. Central Zone **RIR-TS-TAD** **Sagar** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	26.35	2	34.17	2	37.40	2	32.64	2	261	4	336	2	376	2	324	2
DBW 110	27.54	1	36.89	1	40.63	1	35.02	1	294	1	339	1	381	1	338	1
A-9-30-1(c)	20.74	5	24.82	5	27.03	5	24.20	5	209	5	281	5	325	5	271	5
HI 1500(c)	22.27	4	26.52	4	29.92	4	26.24	4	266	3	307	4	346	4	306	4
MP 3288(c)	25.67	3	30.60	3	34.85	3	30.37	3	267	2	311	3	352	3	310	3
Mean	24.51		30.60		33.97		29.69		259		315		356		310	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.14		0.55		1.82		**		1.91		7.51		2.39	
Genotype (B)	**		0.84		2.47		8.53		**		3.77		10.99		3.64	
B within A	N.S.		1.46		4.27				N.S.		6.52		19.04			
A within B			1.32		3.84						6.14		17.92			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	22.07	3	20.09	4	19.37	3	20.51	3	45.93	2	50.63	2	51.40	2	49.32	2
DBW 110	19.90	5	21.12	2	20.30	2	20.44	4	47.07	1	51.53	1	52.60	1	50.40	1
A-9-30-1(c)	25.36	1	20.35	3	18.42	5	21.38	2	39.20	5	43.67	5	45.20	5	42.69	5
HI 1500(c)	21.11	4	19.68	5	18.44	4	19.74	5	39.73	4	43.97	4	46.93	4	43.54	4
MP 3288(c)	22.28	2	21.13	1	21.11	1	21.51	1	43.23	3	46.60	3	46.97	3	45.60	3
Mean	22.14		20.48		19.53		20.72		43.03		47.28		48.62		46.31	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.24		0.94		4.50		**		0.29		1.14		2.44	
Genotype (B)	N.S.		0.63		1.83		9.08		**		0.42		1.22		2.72	
B within A	N.S.		1.09		3.17				N.S.		0.73		2.12			
A within B			1.00		2.92						0.71		2.08			
Date of sowing:	08.11.2013								Date of harvesting:	16.04.2014						

Table 4.2.8. Central Zone **RIR-TS-TAD** **Udaipur** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	28.46	1	38.25	1	43.45	2	36.72	1	330	1	430	2	453	2	404	2
DBW 110	24.07	3	32.23	3	38.83	3	31.71	3	308	2	335	3	338	3	327	3
A-9-30-1(c)	22.68	4	30.36	4	34.20	4	29.08	4	278	5	332	4	317	4	309	4
HI 1500(c)	21.66	5	24.14	5	32.91	5	26.24	5	290	4	310	5	312	5	304	5
MP 3288(c)	26.28	2	34.58	2	43.83	1	34.90	2	307	3	460	1	468	1	412	1
Mean	24.63		31.91		38.64		31.73		303		373		378		351	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.71		2.81		8.72		**		7.44		29.21		8.21	
Genotype (B)	**		0.53		1.55		5.01		**		5.95		17.36		5.08	
B within A	**		0.92		2.68				**		10.30		30.07			
A within B			1.09		3.18						11.84		34.57			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	18.74	1	17.41	3	16.99	5	17.71	5	46.41	4	51.24	1	56.50	1	51.38	1
DBW 110	16.22	5	19.35	1	20.83	3	18.80	2	48.24	1	49.80	2	55.35	2	51.13	2
A-9-30-1(c)	17.26	3	18.60	2	21.08	2	18.98	1	47.32	2	49.38	3	51.50	3	49.40	3
HI 1500(c)	16.95	4	16.35	4	21.67	1	18.32	3	44.41	5	47.73	4	48.83	4	46.99	4
MP 3288(c)	18.47	2	16.12	5	19.89	4	18.16	4	46.44	3	46.64	5	47.19	5	46.76	5
Mean	17.53		17.57		20.09		18.40		46.56		48.96		51.87		49.13	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	N.S.		0.78		3.08		16.50		*		0.79		3.11		6.25	
Genotype (B)	N.S.		0.44		1.30		7.25		**		0.41		1.20		2.52	
B within A	**		0.77		2.25				**		0.71		2.09			
A within B			1.04		3.05						1.02		2.97			
Date of sowing:	31.10.2013								Date of harvesting:	28.03.2014						

Table 4.2.9. Central Zone **RIR-TS-TAD** **Vijapur** **2013-14**

Genotype	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk	Number of irrigations: No	Rk	One	Rk	Two	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
HI 8627(dc)	6.97	4	18.89	4	18.97	5	14.94	5	90	2	141	5	155	4	129	4
DBW 110	6.71	5	19.56	2	23.22	4	16.50	4	78	3	150	4	144	5	124	5
A-9-30-1(c)	8.49	3	17.94	5	25.50	1	17.31	3	77	4	153	3	168	2	133	3
HI 1500(c)	9.29	1	21.27	1	23.60	3	18.05	1	96	1	166	2	167	3	143	2
MP 3288(c)	9.26	2	19.51	3	23.91	2	17.56	2	74	5	179	1	187	1	147	1
Mean	8.15		19.43		23.04		16.87		83		158		164		135	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.31		1.21		7.05		**		1.49		5.84		4.27	
Genotype (B)	**		0.47		1.38		8.43		**		1.06		3.09		2.35	
B within A	*		0.82		2.40				**		1.83		5.35			
A within B			0.80		2.32						2.21		6.46			
	Grains/earhead								**1000 Grains weight, g**							
HI 8627(dc)	17.71	5	31.32	2	26.86	5	25.30	5	44.07	1	42.80	2	45.76	2	44.21	1
DBW 110	19.50	4	33.33	1	35.65	1	29.50	2	43.61	2	39.28	4	45.21	4	42.70	3
A-9-30-1(c)	27.03	2	31.30	3	33.27	2	30.53	1	41.24	4	37.53	5	45.57	3	41.45	5
HI 1500(c)	22.63	3	29.76	4	31.63	3	28.01	4	42.68	3	43.12	1	44.70	5	43.50	2
MP 3288(c)	31.56	1	27.01	5	27.31	4	28.63	3	39.81	5	40.31	3	46.91	1	42.34	4
Mean	23.69		30.54		30.94		28.39		42.28		40.61		45.63		42.84	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Irrigation (A)	**		0.87		3.40		11.81		**		0.44		1.73		3.97	
Genotype (B)	*		0.97		2.84		10.27		*		0.61		1.78		4.26	
B within A	**		1.68		4.91				*		1.05		3.08			
A within B			1.74		5.07						1.04		3.04			

Date of sowing: 12.11.2013 Date of harvesting: 18.04.2014

Table 4.3.1. Central Zone **RF-TAS-LON** **Bilaspur** **2013-14**

Genotype	Nitrogen levels, kg/ha: 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha: 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	16.81	5	17.54	5	20.49	5	18.28	5	183	3	241	1	292	1	239	1
WH 1142	17.68	3	19.81	3	22.23	3	19.91	3	186	2	233	2	230	5	216	3
MP 3288 (c)	16.83	4	18.84	4	20.87	4	18.85	4	193	1	218	3	239	4	217	2
PBW 689	20.85	1	22.39	1	25.44	1	22.90	1	179	5	200	5	263	2	214	5
HI 1500 (c)	17.82	2	21.28	2	24.49	2	21.20	2	180	4	214	4	248	3	214	4
Mean	18.00		19.97		22.70		20.22		184		221		254		220	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.94		3.67		17.91		**		0.85		3.34		1.50	
Genotype (B)	**		0.51		1.48		7.54		**		1.25		3.66		1.71	
B within A	N.S.		0.88		2.57				**		2.17		6.34			
A within B			1.22		3.57						2.12		6.19			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	24.16	3	17.62	5	17.51	5	19.76	5	38.01	3	41.45	3	40.13	4	39.86	3
WH 1142	26.33	1	22.01	3	22.20	1	23.51	1	36.08	5	38.70	5	43.55	3	39.45	5
MP 3288 (c)	23.52	4	20.28	4	22.13	2	21.97	3	37.22	4	42.54	2	39.42	5	39.73	4
PBW 689	25.69	2	22.77	2	19.59	3	22.68	2	45.32	2	49.19	1	49.43	2	47.98	1
HI 1500 (c)	21.21	5	24.29	1	19.21	4	21.57	4	46.77	1	40.89	4	51.45	1	46.37	2
Mean	24.18		21.39		20.13		21.90		40.68		42.55		44.80		42.68	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.75		2.94		13.23		**		0.39		1.53		3.53	
Genotype (B)	*		0.72		2.09		9.81		**		0.68		1.97		4.75	
B within A	*		1.24		3.62				**		1.17		3.41			
A within B			1.34		3.91						1.12		3.26			

Date of sowing: 31.10.2013 Date of harvesting: 05.03.2014

Table 4.3.2. Central Zone **RF-TAS-LON** **Gwalior** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	21.79	2	25.37	2	23.77	2	23.64	2	220	5	272	2	263	2	252	2
WH 1142	22.82	1	26.17	1	25.23	1	24.74	1	252	1	279	1	274	1	268	1
MP 3288 (c)	21.55	3	24.15	3	23.50	3	23.06	3	235	2	258	3	249	4	247	3
PBW 689	19.48	4	22.54	4	22.34	4	21.45	4	224	3	256	4	251	3	244	4
HI 1500 (c)	16.40	5	22.17	5	22.13	5	20.23	5	222	4	239	5	232	5	231	5
Mean	20.41		24.08		23.39		22.63		231		261		254		248	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.26		1.02		4.44		**		2.87		11.29		4.48	
Genotype (B)	**		0.29		0.84		3.82		**		2.81		8.20		3.39	
B within A	*		0.50		1.46				*		4.87		14.20			
A within B			0.52		1.51						5.22		15.22			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	25.75	1	24.77	2	23.33	4	24.62	2	38.59	3	37.74	4	38.77	3	38.37	4
WH 1142	25.09	2	25.24	1	26.86	1	25.73	1	36.22	5	37.41	5	34.33	5	35.99	5
MP 3288 (c)	23.26	3	22.85	4	24.53	2	23.55	3	39.44	2	41.10	2	38.71	4	39.75	2
PBW 689	18.93	5	18.35	5	18.77	5	18.68	5	45.93	1	48.05	1	47.43	1	47.14	1
HI 1500 (c)	19.50	4	23.44	3	23.84	3	22.26	4	37.87	4	39.77	3	40.14	2	39.26	3
Mean	22.51		22.93		23.46		22.97		39.61		40.81		39.88		40.10	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.65		2.54		10.90		N.S.		0.80		3.13		7.69	
Genotype (B)	**		0.48		1.41		6.33		**		0.43		1.25		3.20	
B within A	*		0.84		2.45				N.S.		0.74		2.16			
A within B			0.99		2.89						1.04		3.02			

Date of sowing: 13.11.2013 Date of harvesting: 10.04.2014

Table 4.3.3. Central Zone **RF-TAS-LON** **Indore** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	21.13	3	26.93	1	28.97	1	25.68	2	233	4	259	2	293	1	262	2
WH 1142	21.73	2	23.03	3	27.37	3	24.04	3	203	5	203	5	230	4	212	5
MP 3288 (c)	24.63	1	25.87	2	28.07	2	26.19	1	280	1	299	1	288	2	289	1
PBW 689	18.77	4	19.90	4	20.03	5	19.57	4	270	2	258	3	248	3	259	3
HI 1500 (c)	17.80	5	18.53	5	22.20	4	19.51	5	245	3	226	4	229	5	233	4
Mean	20.81		22.85		25.33		23.00		246		249		258		251	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.28		1.10		4.73		N.S.		3.25		12.74		5.01	
Genotype (B)	**		0.64		1.88		8.41		**		7.32		21.38		8.76	
B within A	N.S.		1.12		3.26				N.S.		12.69		37.03			
A within B			1.04		3.03						11.80		34.45			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	19.56	3	21.63	2	21.65	4	20.94	3	46.43	2	48.33	2	45.77	2	46.84	2
WH 1142	25.44	1	26.80	1	29.01	1	27.08	1	42.30	4	42.20	5	41.30	5	41.93	5
MP 3288 (c)	20.35	2	19.74	3	22.89	3	21.00	2	43.37	3	44.00	3	42.73	3	43.37	3
PBW 689	13.51	5	15.00	5	15.78	5	14.76	5	51.77	1	51.47	1	51.17	1	51.47	1
HI 1500 (c)	17.37	4	19.26	4	23.16	2	19.93	4	42.00	5	42.67	4	42.27	4	42.31	4
Mean	19.24		20.48		22.50		20.74		45.17		45.73		44.65		45.18	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.23		0.90		4.28		N.S.		0.32		1.26		2.75	
Genotype (B)	**		0.78		2.28		11.30		**		0.25		0.73		1.65	
B within A	N.S.		1.35		3.95				N.S.		0.43		1.26			
A within B			1.23		3.59						0.50		1.46			

Date of sowing: 13.11.2013 Date of harvesting: 10.04.2014

Table 4.3.4. Central Zone **RF-TAS-LON** **Kota** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	28.03	2	30.43	5	32.43	5	30.30	4	280	2	260	5	286	1	275	3
WH 1142	29.77	1	33.53	1	36.30	1	33.20	1	248	5	285	2	266	4	267	5
MP 3288 (c)	28.00	3	32.60	3	35.97	2	32.19	2	279	3	288	1	278	3	282	2
PBW 689	25.97	4	33.17	2	34.93	3	31.36	3	293	1	285	3	281	2	287	1
HI 1500 (c)	24.63	5	30.67	4	32.57	4	29.29	5	269	4	269	4	262	5	267	4
Mean	27.28		32.08		34.44		31.27		274		277		275		275	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.09		0.34		1.08		N.S.		9.55		37.49		13.43	
Genotype (B)	*		0.75		2.19		7.21		N.S.		6.89		20.10		7.50	
B within A	N.S.		1.30		3.80				N.S.		11.93		34.82			
A within B			1.17		3.41						14.32		41.80			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	22.67	3	25.83	2	23.17	4	23.89	4	44.27	3	45.30	4	49.33	2	46.30	2
WH 1142	26.33	1	25.73	3	29.81	1	27.29	1	45.60	2	45.70	3	47.00	4	46.10	3
MP 3288 (c)	24.33	2	23.99	4	26.48	3	24.93	3	41.20	5	47.60	2	48.93	3	45.91	4
PBW 689	16.74	5	20.82	5	22.60	5	20.05	5	53.00	1	56.13	1	55.40	1	54.84	1
HI 1500 (c)	21.45	4	25.91	1	28.50	2	25.29	2	43.20	4	44.43	5	44.20	5	43.94	5
Mean	22.31		24.46		26.11		24.29		45.45		47.83		48.97		47.42	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.81		3.18		12.90		*		0.48		1.88		3.91	
Genotype (B)	**		1.00		2.91		12.32		**		0.51		1.49		3.23	
B within A	N.S.		1.73		5.04				**		0.88		2.58			
A within B			1.74		5.09						0.92		2.70			

Date of sowing: 20.10.2013 Date of harvesting: 30-.03.2014

Table 4.3.5. Central Zone **RF-TAS-LON** **Powarkheda** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	16.66	4	22.10	3	22.91	4	20.55	4	285	2	295	2	288	1	289	1
WH 1142	20.56	1	24.48	1	25.66	2	23.57	1	215	4	275	3	262	4	251	4
MP 3288 (c)	17.66	3	23.98	2	22.10	5	21.25	3	287	1	197	4	270	2	251	3
PBW 689	18.28	2	20.09	4	26.90	1	21.76	2	213	5	175	5	177	5	188	5
HI 1500 (c)	15.81	5	16.32	5	25.50	3	19.21	5	222	3	303	1	263	3	263	2
Mean	17.80		21.39		24.61		21.27		244		249		252		248	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.59		2.31		10.74		N.S.		21.48		84.34		33.49	
Genotype (B)	**		0.51		1.49		7.19		**		4.66		13.61		5.63	
B within A	**		0.88		2.58				**		8.08		23.58			
A within B			0.99		2.88						22.66		66.16			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	14.66	4	16.91	4	18.65	4	16.74	5	39.83	3	44.33	3	44.83	3	43.00	3
WH 1142	26.58	1	20.60	3	23.22	3	23.47	2	36.00	4	43.33	4	43.50	4	40.94	4
MP 3288 (c)	14.38	5	27.02	1	17.77	5	19.72	4	42.67	2	45.17	1	47.50	2	45.11	2
PBW 689	16.85	3	25.73	2	32.87	1	25.15	1	51.17	1	44.83	2	50.17	1	48.72	1
HI 1500 (c)	20.27	2	15.43	5	24.70	2	20.13	3	35.17	5	35.00	5	40.83	5	37.00	5
Mean	18.55		21.14		23.44		21.04		40.97		42.53		45.37		42.96	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		2.34		9.17		43.00		*		0.54		2.13		4.90	
Genotype (B)	**		0.94		2.74		13.38		**		0.30		0.88		2.09	
B within A	**		1.63		4.75				**		0.52		1.52			
A within B			2.75		8.03						0.72		2.09			

Date of sowing: 07.11.2013 Date of harvesting: 19.03.2014

Table 4.3.6. Central Zone **RF-TAS-LON** **Sagar** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	24.48	2	31.11	2	32.98	2	29.52	2	226	5	255	2	260	2	247	2
WH 1142	25.84	1	32.47	1	34.51	1	30.94	1	248	1	272	1	276	1	265	1
MP 3288 (c)	20.06	5	24.14	5	25.84	5	23.35	5	229	4	231	5	238	5	232	5
PBW 689	20.57	4	25.16	4	28.39	4	24.71	4	231	3	235	4	242	4	236	4
HI 1500 (c)	23.80	3	30.26	3	31.62	3	28.56	3	233	2	240	3	247	3	240	3
Mean	22.95		28.63		30.67		27.42		233		247		252		244	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.40		1.56		5.63		**		1.06		4.15		1.68	
Genotype (B)	**		0.40		1.16		4.34		**		3.45		10.07		4.24	
B within A	N.S.		0.69		2.00				N.S.		5.97		17.44			
A within B			0.73		2.14						5.45		15.90			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	24.54	1	25.90	2	26.84	2	25.76	2	44.50	2	47.20	2	47.37	2	46.36	2
WH 1142	22.68	3	23.99	5	25.18	5	23.95	4	45.90	1	49.73	1	49.97	1	48.53	1
MP 3288 (c)	21.62	4	25.09	3	25.92	3	24.21	3	40.57	5	41.80	5	42.03	5	41.47	5
PBW 689	20.62	5	24.56	4	25.70	4	23.63	5	43.30	4	43.60	4	45.83	4	44.24	4
HI 1500 (c)	23.16	2	28.46	1	27.73	1	26.45	1	44.13	3	44.30	3	46.27	3	44.90	3
Mean	22.52		25.60		26.27		24.80		43.68		45.33		46.29		45.10	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.73		2.87		11.40		N.S.		0.60		2.35		5.15	
Genotype (B)	**		0.53		1.54		6.38		**		0.45		1.33		3.02	
B within A	N.S.		0.91		2.66				N.S.		0.79		2.30			
A within B			1.10		3.20						0.92		2.70			

Date of sowing: 02.11.2013 Date of harvesting: 02.04.2014

Table 4.3.7. Central Zone **RF-TAS-LON** **Udaipur** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	24.31	1	28.59	1	35.26	1	29.39	1	268	3	270	4	293	3	277	4
WH 1142	20.13	5	25.09	4	27.06	5	24.09	5	288	2	295	2	297	2	293	2
MP 3288 (c)	24.04	2	26.72	3	34.85	2	28.54	2	253	4	292	3	288	4	278	3
PBW 689	22.03	4	22.00	5	30.26	3	24.76	4	315	1	307	1	333	1	318	1
HI 1500 (c)	22.75	3	28.53	2	29.68	4	26.98	3	250	5	268	5	285	5	268	5
Mean	22.65		26.19		31.42		26.75		275		286		299		287	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.48		1.87		6.91		*		3.34		13.11		4.51	
Genotype (B)	**		0.48		1.42		5.44		**		5.19		15.14		5.42	
B within A	**		0.84		2.45				N.S.		8.98		26.22			
A within B			0.89		2.60						8.70		25.40			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	20.35	2	23.61	1	24.43	1	22.80	1	44.58	4	44.86	5	49.19	4	46.21	5
WH 1142	15.00	5	18.01	4	19.05	4	17.36	4	46.61	2	47.51	3	47.84	5	47.32	2
MP 3288 (c)	20.93	1	19.79	3	24.40	2	21.71	2	45.65	3	46.40	4	49.63	2	47.22	4
PBW 689	15.74	4	15.14	5	18.38	5	16.42	5	44.45	5	47.83	2	49.40	3	47.23	3
HI 1500 (c)	18.32	3	21.11	2	19.49	3	19.64	3	50.00	1	50.40	1	53.44	1	51.28	1
Mean	18.07		19.53		21.15		19.58		46.26		47.40		49.90		47.85	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.52		2.06		10.36		**		0.43		1.70		3.50	
Genotype (B)	**		0.44		1.28		6.73		**		0.49		1.42		3.06	
B within A	**		0.76		2.22				N.S.		0.85		2.47			
A within B			0.86		2.51						0.87		2.54			

Date of sowing: 31.10.2013 Date of harvesting: 27.03.2014

Table 4.3.8. Central Zone **RF-TAS-LON** **Vijapur** **2013-14**

Genotype	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen levels, kg/ha 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NIAW 1885	10.46	5	12.98	2	11.73	5	11.72	5	136	5	126	5	141	5	134	5
WH 1142	12.41	3	12.41	4	12.79	4	12.54	3	154	4	143	4	154	4	151	4
MP 3288 (c)	14.46	2	11.60	5	14.29	2	13.45	2	186	3	174	2	164	3	175	3
PBW 689	11.60	4	12.41	3	13.50	3	12.51	4	197	2	168	3	170	2	179	2
HI 1500 (c)	17.47	1	18.20	1	17.31	1	17.66	1	220	1	180	1	206	1	202	1
Mean	13.28		13.52		13.93		13.57		179		158		167		168	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.80		3.13		22.75		N.S.		6.29		24.70		14.50	
Genotype (B)	**		0.68		1.97		14.95		**		10.75		31.38		19.19	
B within A	N.S.		1.17		3.42				N.S.		18.62		54.35			
A within B			1.32		3.84						17.80		51.97			
	Grains/earhead								**1000 Grains weight, g**							
NIAW 1885	20.68	3	26.46	1	20.74	4	22.63	2	38.00	3	39.30	3	40.03	2	39.11	3
WH 1142	24.12	1	25.92	3	24.26	2	24.77	1	33.40	5	33.17	5	35.47	5	34.01	5
MP 3288 (c)	22.58	2	18.34	4	24.32	1	21.75	4	35.97	4	36.77	4	37.37	4	36.70	4
PBW 689	15.13	5	17.69	5	19.23	5	17.35	5	41.53	1	42.77	1	42.33	1	42.21	1
HI 1500 (c)	20.11	4	25.97	2	21.15	3	22.41	3	41.43	2	40.50	2	39.60	3	40.51	2
Mean	20.52		22.88		21.94		21.78		38.07		38.50		38.96		38.51	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.73		2.85		12.92		**		0.08		0.31		0.79	
Genotype (B)	N.S.		1.70		4.97		23.44		**		0.19		0.57		1.51	
B within A	N.S.		2.95		8.60				**		0.34		0.98			
A within B			2.73		7.98						0.31		0.91			

Date of sowing: 03.11.2013 Date of harvesting: 01.04.2014

Table 5.1.1 **Peninsular zone** **RF-TAD-LON** **Ambajogai** **2013-14**

Genotype	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	15.17	6	18.60	5	14.69	6	16.15	6	187	6	269	2	275	5	244	5
UAS 347	20.88	4	19.21	3	22.78	2	20.96	3	277	2	266	3	330	3	291	2
NIAW 1994	23.16	1	25.30	2	21.66	3	23.37	2	209	5	261	4	308	4	259	4
NIAW 1415 (c)	22.85	2	25.33	1	23.73	1	23.97	1	235	4	255	5	370	1	286	3
UAS 446 (d)	19.57	5	16.80	6	17.04	5	17.80	5	320	1	316	1	369	2	335	1
AKDW 2997-16 (dc)	21.53	3	18.88	4	20.91	4	20.44	4	255	3	213	6	247	6	238	6
Mean	20.53		20.69		20.14		20.45		247		263		317		276	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.23		0.92		4.85		**		4.56		17.89		7.02	
Genotype (B)	**		0.37		1.06		5.41		**		7.07		20.43		7.70	
B within A	**		0.64		1.84				**		12.25		35.38			
A within B			0.63		1.81						12.08		34.88			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	21.39	3	18.15	5	13.57	5	17.70	5	38.00	5	38.33	4	39.67	3	38.67	6
UAS 347	19.55	5	18.89	4	17.78	3	18.74	4	38.67	3	38.33	4	39.67	3	38.89	5
NIAW 1994	28.50	1	23.91	2	17.87	2	23.43	1	39.00	2	40.67	1	39.67	3	39.78	1
NIAW 1415 (c)	25.63	2	24.91	1	15.66	4	22.06	2	38.00	5	40.00	2	41.00	1	39.67	2
UAS 446 (d)	16.04	6	13.91	6	11.55	6	13.83	6	38.33	4	38.33	4	40.00	2	38.89	4
AKDW 2997-16 (dc)	21.38	4	22.94	3	21.52	1	21.95	3	39.67	1	39.00	3	39.67	3	39.44	3
Mean	22.08		20.45		16.32		19.62		38.61		39.11		39.94		39.22	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.45		1.77		9.74		*		0.32		1.25		3.45	
Genotype (B)	**		0.64		1.85		9.79		N.S.		0.37		1.08		2.86	
B within A	**		1.11		3.20				N.S.		0.65		1.87			
A within B			1.11		3.20						0.67		1.94			

Date of Sowing: 29.10.2013 Date of Harvesting: 14.3.2014

Table 5.1.2 **Peninsular Zone** **RF-TAD-LON** **Annigeri** **2013-14**

Genotype	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	12.88	2	13.48	2	14.07	2	13.48	2	184	2	184	2	185	2	184	2
UAS 347	13.60	1	14.23	1	15.01	1	14.28	1	186	1	187	1	187	1	187	1
NIAW 1994	12.59	3	12.67	3	13.33	3	12.86	3	183	3	183	3	185	3	184	3
NIAW 1415 (c)	11.50	5	11.29	5	12.28	5	11.69	5	176	5	179	5	180	5	178	5
UAS 446 (d)	11.54	4	12.36	4	12.33	4	12.08	4	181	4	181	4	181	4	181	4
AKDW 2997-16 (dc)	9.40	6	10.35	6	10.93	6	10.23	6	175	6	179	5	178	6	177	6
Mean	11.92		12.40		12.99		12.44		181		182		183		182	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.06		0.23		1.99		N.S.		1.17		4.60		2.74	
Genotype (B)	**		0.52		1.50		12.52		**		1.57		4.53		2.59	
B within A	N.S.		0.90		2.59				N.S.		2.72		7.85			
A within B			0.82		2.37						2.74		7.93			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	17.67	4	18.22	2	18.93	2	18.27	3	39.81	4	40.18	3	40.18	3	40.06	3
UAS 347	18.07	2	19.02	1	20.42	1	19.17	1	40.47	3	40.04	4	39.46	4	39.99	4
NIAW 1994	16.18	5	16.27	5	17.32	5	16.59	5	42.59	1	42.35	1	41.80	1	42.25	1
NIAW 1415 (c)	17.94	3	17.22	4	18.17	4	17.78	4	36.42	5	36.73	6	37.79	5	36.98	5
UAS 446 (d)	18.96	1	18.00	3	18.22	3	18.39	2	33.69	6	38.07	5	37.58	6	36.45	6
AKDW 2997-16 (dc)	13.16	6	13.69	6	14.91	6	13.92	6	40.82	2	42.25	2	41.11	2	41.39	2
Mean	17.00		17.07		17.99		17.35		38.97		39.94		39.65		39.52	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.17		0.68		4.21		*		0.14		0.56		1.53	
Genotype (B)	**		0.78		2.26		13.55		**		0.26		0.76		2.00	
B within A	N.S.		1.36		3.92				**		0.46		1.32			
A within B			1.25		3.61						0.44		1.27			

Date of Sowing: 23.10.2013 Date of Harvesting: 25.02.2014

Table 5.1.3 **Peninsular zone** **RF-TAD-LON** **Bagalkot** **2013-14**

Genotype	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	17.21	2	18.49	2	18.91	2	18.20	2	220	1	220	2	224	2	221	2
UAS 347	18.38	1	19.77	1	19.55	1	19.23	1	220	1	224	1	230	1	225	1
NIAW 1994	16.55	4	17.09	4	17.38	4	17.01	4	200	4	208	4	206	4	205	4
NIAW 1415 (c)	14.41	5	16.24	5	16.55	5	15.73	5	196	5	208	4	204	5	203	5
UAS 446 (d)	16.83	3	18.27	3	18.86	3	17.99	3	216	3	216	3	212	3	215	3
AKDW 2997-16 (dc)	13.77	6	14.24	6	15.10	6	14.37	6	196	5	198	6	200	6	198	6
Mean	16.19		17.35		17.73		17.09		208		212		213		211	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	*		0.27		1.04		6.58		N.S.		4.90		19.22		9.84	
Genotype (B)	**		0.52		1.51		9.20		**		3.81		10.99		5.41	
B within A	N.S.		0.91		2.62				N.S.		6.59		19.04			
A within B			0.87		2.51						7.76		22.41			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	20.39	4	21.05	4	21.70	3	21.05	3	38.37	3	40.23	1	38.91	4	39.17	3
UAS 347	22.00	1	24.04	1	21.74	2	22.59	1	38.35	4	36.85	5	39.19	3	38.13	4
NIAW 1994	20.99	3	20.68	5	20.92	5	20.87	4	39.51	2	39.89	3	40.42	1	39.94	2
NIAW 1415 (c)	19.47	5	21.72	3	21.01	4	20.73	5	37.93	5	36.09	6	38.69	5	37.57	5
UAS 446 (d)	21.58	2	23.02	2	23.15	1	22.58	2	36.32	6	36.91	4	38.48	6	37.24	6
AKDW 2997-16 (dc)	17.28	6	17.97	6	18.98	6	18.08	6	40.72	1	40.08	2	40.02	2	40.27	1
Mean	20.29		21.41		21.25		20.98		38.53		38.34		39.29		38.72	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.95		3.73		19.21		N.S.		0.58		2.29		6.40	
Genotype (B)	**		0.67		1.95		9.64		**		0.46		1.33		3.56	
B within A	N.S.		1.17		3.37				N.S.		0.80		2.30			
A within B			1.43		4.12						0.93		2.69			

Date of Sowing: 31.10.2013 Date of Harvesting: 24.2.2014

Table 5.1.4 **Peninsular zone** **RF-TAD-LON** **Bijapur** **2013-14**

Genotype	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	11.18	3	11.02	3	11.15	3	11.12	3	169	3	159	3	164	2	164	3
UAS 347	12.27	1	12.77	1	13.25	1	12.76	1	176	1	165	1	169	1	170	1
NIAW 1994	10.82	4	10.93	4	10.87	4	10.87	4	168	4	159	4	162	4	163	4
NIAW 1415 (c)	10.62	5	10.30	5	10.50	5	10.47	5	168	4	159	4	159	5	162	5
UAS 446 (d)	12.00	2	11.58	2	11.73	2	11.77	2	175	2	163	2	164	2	168	2
AKDW 2997-16 (dc)	10.32	6	9.68	6	9.95	6	9.98	6	167	6	158	6	158	6	161	6
Mean	11.20		11.05		11.24		11.16		171		161		163		165	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.18		0.70		6.82		*		1.78		6.98		4.58	
Genotype (B)	**		0.28		0.82		7.62		*		2.02		5.82		3.68	
B within A	N.S.		0.49		1.42				N.S.		3.49		10.08			
A within B			0.48		1.39						3.65		10.54			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	16.59	3	17.89	3	17.65	3	17.38	3	39.93	3	38.60	5	38.50	6	39.01	4
UAS 347	17.70	1	20.32	1	20.33	1	19.45	1	39.47	4	38.10	6	38.57	5	38.71	6
NIAW 1994	15.42	5	17.66	4	16.94	4	16.67	4	41.90	1	39.13	2	39.57	2	40.20	2
NIAW 1415 (c)	16.35	4	16.74	5	16.84	5	16.64	5	38.67	6	38.73	4	39.40	3	38.93	5
UAS 446 (d)	17.48	2	18.14	2	18.37	2	17.99	2	39.40	5	39.07	3	39.00	4	39.16	3
AKDW 2997-16 (dc)	14.96	6	15.18	6	15.64	6	15.26	6	41.40	2	40.40	1	40.27	1	40.69	1
Mean	16.41		17.66		17.63		17.23		40.13		39.01		39.22		39.45	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	**		0.16		0.64		3.99		*		0.18		0.72		1.97	
Genotype (B)	**		0.45		1.31		7.88		**		0.41		1.17		3.08	
B within A	N.S.		0.78		2.26				N.S.		0.70		2.03			
A within B			0.73		2.12						0.67		1.92			

Date of Sowing: 29.10.2013 Date of Harvesting: 26.2.2014

Table 5.1.5 **Peninsular zone** RF-TAS-LON **Dharwad** **2013-14**

Varieties	N level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	N level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	14.25	5	15.26	5	15.91	4	15.14	5	198	5	208	5	196	5	201	5
UAS 347	18.83	1	20.27	1	19.24	2	19.44	1	218	1	220	1	226	1	221	1
NIAW 1994	16.48	3	18.09	3	18.58	3	17.72	3	210	3	214	3	220	3	215	3
NIAW 1415 (c)	17.91	2	18.79	2	19.43	1	18.71	2	216	2	218	2	224	2	219	2
UAS 446 (d)	14.54	4	15.47	4	15.55	5	15.18	4	202	4	210	4	206	4	206	4
AKDW 2997-16 (dc)	12.31	6	13.33	6	12.59	6	12.74	6	190	6	196	6	192	6	193	6
Mean	15.72		16.87		16.88		16.49		206		211		211		209	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.43		1.70		11.15		N.S.		2.98		11.71		6.05	
Variety (B)	**		0.44		1.27		7.99		**		4.98		14.38		7.14	
B within A	N.S.		0.76		2.20				N.S.		8.62		24.90			
A within B			0.82		2.36						8.42		24.31			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	18.02	5	18.29	5	20.27	5	18.86	5	40.09	3	40.15	3	40.15	3	40.13	3
UAS 347	21.72	2	23.69	2	22.24	2	22.55	2	40.51	1	38.85	4	38.37	4	39.24	4
NIAW 1994	19.76	4	21.10	3	20.78	4	20.55	4	39.76	4	40.19	2	40.93	1	40.29	2
NIAW 1415 (c)	22.48	1	24.68	1	23.28	1	23.48	1	36.93	5	35.30	6	37.69	5	36.64	5
UAS 446 (d)	20.11	3	20.73	4	21.47	3	20.77	3	35.82	6	35.71	5	35.22	6	35.58	6
AKDW 2997-16 (dc)	16.04	6	16.77	6	16.08	6	16.30	6	40.47	2	40.86	1	40.82	2	40.72	1
Mean	19.69		20.88		20.68		20.42		38.93		38.51		38.86		38.77	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.69		2.69		14.24		N.S.		0.30		1.18		3.30	
Variety (B)	**		0.80		2.30		11.69		**		0.49		1.41		3.78	
B within A	N.S.		1.38		3.98				N.S.		0.85		2.44			
A within B			1.43		4.14						0.83		2.39			

Date of Sowing: 25.10.2013 Date of Harvesting: 14.02.2014

Table 5.1.6 **Peninsular zone** **RF-TAD-LON** **Washim** **2013-14**

Genotype	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk	Nitrogen level (kg/ha) 40	Rk	60	Rk	80	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
NI 5439 (c)	11.05	5	12.54	2	9.96	6	11.18	5	148	1	108	4	124	5	127	4
UAS 347	13.16	2	12.24	3	14.31	2	13.24	3	112	6	102	5	115	6	110	6
NIAW 1994	11.14	4	12.17	4	15.27	1	12.86	4	116	5	95	6	133	1	114	5
NIAW 1415 (c)	12.95	3	17.14	1	13.23	3	14.44	1	129	4	132	2	131	3	131	2
UAS 446 (d)	15.98	1	11.52	5	13.16	4	13.55	2	130	3	136	1	131	3	132	1
AKDW 2997-16 (dc)	11.02	6	8.63	6	10.37	5	10.01	6	131	2	122	3	132	2	129	3
Mean	12.55		12.37		12.72		12.55		128		116		128		124	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		0.82		3.23		27.85		*		2.14		8.38		7.32	
Genotype (B)	**		0.62		1.80		14.89		**		4.04		11.66		9.79	
B within A	**		1.08		3.11				*		6.99		20.20			
A within B			1.28		3.71						6.73		19.44			
	Grains/earhead								**1000 Grains weight, g**							
NI 5439 (c)	18.68	5	29.27	4	21.25	5	23.07	5	40.23	4	39.87	2	38.03	4	39.38	3
UAS 347	29.09	2	31.70	3	35.00	1	31.93	1	40.53	3	37.87	3	35.47	6	37.96	5
NIAW 1994	24.21	4	32.00	2	29.52	2	28.58	3	40.63	2	40.33	1	39.50	3	40.16	2
NIAW 1415 (c)	28.97	3	37.15	1	26.91	3	31.01	2	34.77	6	35.57	6	37.50	5	35.94	6
UAS 446 (d)	33.17	1	23.37	5	24.48	4	27.01	4	37.33	5	36.57	4	42.23	2	38.71	4
AKDW 2997-16 (dc)	18.58	6	19.64	6	17.68	6	18.63	6	45.40	1	36.30	5	43.87	1	41.86	1
Mean	25.45		28.85		25.81		26.70		39.82		37.75		39.43		39.00	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Nitrogen (A)	N.S.		2.02		7.95		32.17		**		0.22		0.88		2.44	
Genotype (B)	**		1.66		4.81		18.70		**		0.20		0.58		1.53	
B within A	*		2.88		8.33				**		0.34		1.00			
A within B			3.32		9.59						0.39		1.12			

Date of Sowing: 29.10.2013 Date of Harvesting: 24.2.2014

Table 5.2.1 **Peninsular Zone** **IR-TS-DIC-DOS** **Dharwad** **2013-14**

Treatment	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
MACS 2496 (c)	48.05	3	35.63	3	41.84	2	264	2	256	3	260	3
HW 1098 (I)	47.49	4	32.75	6	40.12	6	264	2	257	2	261	2
MACS 2971 (c)	52.49	1	34.42	4	43.45	1	267	1	261	1	264	1
DDK 1029 (c)	49.51	2	32.86	5	41.19	4	252	6	243	6	248	6
MACS 5022	43.87	6	38.83	1	41.35	3	259	4	253	4	256	4
DDK 1042	45.38	5	36.62	2	41.00	5	255	5	251	5	253	5
Mean	47.80		35.19		41.49		260		254		257	

	F. Test	S.E.m	C.D.	C.V.(%)	F. Test	S.E.m	C.D.	C.V.(%)
Sowing (A)	**	0.18	1.09	1.83	*	0.78	4.78	1.30
Genotype (B)	N.S.	0.77	2.27	4.54	**	1.89	5.56	1.80
B within A	**	1.09	3.21		N.S.	2.67	7.87	
A within B		1.01	2.98			2.56	7.55	

	Grains/earhead						**1000 Grains weight, g**					
MACS 2496 (c)	36.76	5	33.45	4	35.10	5	49.83	1	41.67	4	45.75	3
HW 1098 (I)	36.69	6	29.56	6	33.13	6	49.10	3	43.07	1	46.08	1
MACS 2971 (c)	45.16	1	33.74	3	39.45	1	43.60	6	39.17	6	41.38	6
DDK 1029 (c)	39.92	2	31.75	5	35.83	4	49.40	2	42.63	2	46.02	2
MACS 5022	37.54	4	36.33	1	36.93	2	45.10	5	42.40	3	43.75	5
DDK 1042	37.87	3	35.64	2	36.76	3	47.07	4	40.97	5	44.02	4
Mean	38.99		33.41		36.20		47.35		41.65		44.50	

	F. Test	S.E.m	C.D.	C.V.(%)	F. Test	S.E.m	C.D.	C.V.(%)
Sowing (A)	**	0.18	1.10	2.12	**	0.30	1.83	2.87
Genotype (B)	*	1.11	3.28	7.53	**	0.88	2.60	4.84
B within A	*	1.57	4.64		N.S.	1.24	3.67	
A within B		1.45	4.27			1.18	3.47	

Date of sowing: 08.11.2013 29.11.2013 Date of harvesting: 18.3.2014 24.3.2014

Table 5.2.2 **Peninsular Zone** **IR-TS-DIC-DOS** **Akola** **2013-14**

Treatment	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
MACS 2496 (c)	26.60	4	34.19	3	30.40	4	399	1	372	3	386	1
HW 1098 (I)	22.52	6	39.80	1	31.16	2	364	4	377	2	371	2
MACS 2971 (c)	27.54	3	29.72	6	28.63	6	385	3	355	5	370	3
DDK 1029 (c)	28.36	1	31.40	5	29.88	5	293	6	385	1	339	6
MACS 5022	25.29	5	39.59	2	32.44	1	363	5	358	4	360	4
DDK 1042	28.25	2	32.56	4	30.41	3	389	2	327	6	358	5
Mean	26.43		34.54		30.49		366		362		364	

	F. Test	S.E.m	C.D.	C.V.(%)	F. Test	S.E.m	C.D.	C.V.(%)
Sowing (A)	N.S.	1.36	8.27	18.91	N.S.	3.95	24.03	4.60
Genotype (B)	N.S.	2.07	6.10	16.61	**	5.56	16.39	3.74
B within A	N.S.	2.92	8.63		**	7.86	23.18	
A within B		3.00	8.84			8.19	24.15	

	Grains/earhead						**1000 Grains weight, g**					
MACS 2496 (c)	14.02	5	20.61	4	17.31	6	47.53	3	44.72	2	46.13	3
HW 1098 (I)	12.76	6	23.20	2	17.98	5	48.46	1	45.92	1	47.19	1
MACS 2971 (c)	16.05	3	19.92	5	17.99	4	44.62	5	41.83	5	43.23	5
DDK 1029 (c)	20.31	1	18.52	6	19.41	2	47.93	2	44.58	3	46.26	2
MACS 5022	16.70	2	28.45	1	22.58	1	41.64	6	38.95	6	40.30	6
DDK 1042	15.48	4	22.92	3	19.20	3	47.26	4	43.59	4	45.43	4
Mean	15.89		22.27		19.08		46.24		43.27		44.75	

	F. Test	S.E.m	C.D.	C.V.(%)	F. Test	S.E.m	C.D.	C.V.(%)
Sowing (A)	*	0.66	4.01	14.64	*	0.22	1.34	2.08
Genotype (B)	N.S.	1.42	4.20	18.28	**	0.51	1.50	2.78
B within A	*	2.01	5.94		N.S.	0.72	2.12	
A within B		1.95	5.76			0.69	2.04	

Date of sowing: 11.11.2013 26.11.2013 Date of harvesting: 18.3.2014 29.3.2014

Table 5.2.3 Peninsular Zone IR-TS-DIC-DOS Niphad 2013-14

Treatment	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
MACS 2496 (c)	31.72	4	29.87	3	30.80	4	398	5	410	6	404	5
HW 1098 (I)	39.94	2	34.78	2	37.36	2	319	6	415	3	367	6
MACS 2971 (c)	30.52	6	29.23	4	29.88	5	401	3	421	1	411	2
DDK 1029 (c)	35.07	3	29.20	5	32.13	3	400	4	412	4	406	4
MACS 5022	40.60	1	39.54	1	40.07	1	414	1	418	2	416	1
DDK 1042	31.16	5	28.41	6	29.79	6	404	2	412	4	408	3
Mean	34.84		31.84		33.34		389		415		402	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.47	2.87	6.00			N.S.	7.04	42.84	7.43	
Genotype (B)		**	0.88	2.58	6.43			N.S.	18.48	54.53	11.26	
B within A		N.S.	1.24	3.65				N.S.	26.14	77.11		
A within B			1.22	3.61					24.88	73.39		
	Grains/earhead						**1000 Grains weight, g**					
MACS 2496 (c)	17.00	4	15.83	3	16.41	4	46.88	2	46.09	1	46.48	1
HW 1098 (I)	33.84	1	18.45	2	26.15	1	46.98	1	45.46	2	46.22	2
MACS 2971 (c)	16.56	6	15.35	6	15.95	6	45.92	3	45.25	3	45.59	3
DDK 1029 (c)	19.26	3	15.76	4	17.51	3	45.51	6	44.99	4	45.25	4
MACS 5022	21.49	2	21.14	1	21.31	2	45.64	5	44.71	5	45.18	6
DDK 1042	16.87	5	15.47	5	16.17	5	45.79	4	44.62	6	45.21	5
Mean	20.84		17.00		18.92		46.12		45.19		45.65	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	1.16	7.06	26.00			*	0.12	0.73	1.12	
Genotype (B)		N.S.	2.81	8.28	36.35			**	0.23	0.67	1.22	
B within A		N.S.	3.97	11.71				N.S.	0.32	0.95		
A within B			3.81	11.23					0.32	0.93		

Date of sowing: 07.11.2013 26.11.2013 Date of harvesting: 13.3.2014 30.3.2014

Table 5.2.4 Peninsular Zone IR-TS-DIC-DOS Pune 2013-14

Treatment	Sowing time: Timely	Rk	Late	Rk	Mean	Rk	Sowing time: Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
MACS 2496 (c)	54.36	1	45.96	2	50.16	1	436	3	501	1	469	1
HW 1098 (I)	51.94	2	39.24	5	45.59	4	436	4	406	4	421	4
MACS 2971 (c)	44.99	5	43.51	4	44.25	5	401	5	393	5	397	5
DDK 1029 (c)	49.76	4	46.35	1	48.05	2	437	2	457	3	447	3
MACS 5022	44.52	6	38.36	6	41.44	6	310	6	326	6	318	6
DDK 1042	49.93	3	45.67	3	47.80	3	451	1	484	2	468	2
Mean	49.25		43.18		46.22		412		428		420	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		*	0.96	5.85	8.83			*	2.11	12.86	2.13	
Genotype (B)		**	0.75	2.21	3.97			**	13.62	40.18	7.94	
B within A		**	1.06	3.12				N.S.	19.26	56.82		
A within B			1.36	4.02					17.71	52.24		
	Grains/earhead						**1000 Grains weight, g**					
MACS 2496 (c)	28.58	4	24.21	6	26.40	6	43.67	2	38.00	1	40.83	1
HW 1098 (I)	29.29	3	28.04	4	28.67	3	41.00	3	35.00	4	38.00	4
MACS 2971 (c)	31.47	2	32.95	2	32.21	2	35.67	5	33.67	5	34.67	5
DDK 1029 (c)	26.08	6	28.62	3	27.35	4	44.00	1	35.67	2	39.83	2
MACS 5022	40.84	1	36.05	1	38.45	1	35.33	6	32.67	6	34.00	6
DDK 1042	27.37	5	26.46	5	26.91	5	40.67	4	35.67	2	38.17	3
Mean	30.61		29.39		30.00		40.06		35.11		37.58	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.48	2.91	6.77			**	0.10	0.63	1.17	
Genotype (B)		**	1.08	3.19	8.83			**	0.57	1.68	3.70	
B within A		N.S.	1.53	4.51				**	0.80	2.37		
A within B			1.48	4.35					0.74	2.19		

Date of sowing: 10.11.2013 1.12.2013 Date of harvesting: 3.3.2014 18.3.2014

Table 5.2.5	Peninsular Zone				IR-TS-DIC-DOS				Washim	2013-14
	Sowing time						Sowing time			
Treatment	Timely	Rk	Late	Rk	Mean	Rk	Timely	Rk	Late	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
MACS 2496 (c)	50.88	3	53.04	2	51.96	2	393	2	395	1	394	1
HW 1098 (I)	53.25	2	43.90	6	48.58	3	373	4	374	3	374	3
MACS 2971 (c)	44.65	5	47.28	4	45.96	6	362	5	373	4	368	4
DDK 1029 (c)	39.89	6	52.34	3	46.11	5	399	1	372	5	386	2
MACS 5022	59.87	1	56.03	1	57.95	1	331	6	379	2	355	6
DDK 1042	47.31	4	47.01	5	47.16	4	386	3	329	6	358	5
Mean	49.31		49.93		49.62		374		371		372	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.71	4.32	6.07			N.S.	3.49	21.25	3.98	
Genotype (B)		**	1.04	3.07	5.13			N.S.	12.16	35.88	8.00	
B within A		**	1.47	4.34				N.S.	17.20	50.75		
A within B			1.52	4.48					16.09	47.46		
	Grains/earhead						**1000 Grains weight, g**					
MACS 2496 (c)	27.97	5	29.29	5	28.63	5	46.30	2	45.83	1	46.07	1
HW 1098 (I)	36.34	2	26.71	6	31.53	4	39.67	3	44.13	3	41.90	3
MACS 2971 (c)	32.30	4	34.01	3	33.16	3	38.47	5	37.27	5	37.87	5
DDK 1029 (c)	21.41	6	31.06	4	26.24	6	46.60	1	45.37	2	45.98	2
MACS 5022	46.34	1	41.88	1	44.11	1	39.40	4	35.83	6	37.62	6
DDK 1042	33.34	3	34.55	2	33.94	2	36.63	6	41.43	4	39.03	4
Mean	32.95		32.92		32.93		41.18		41.64		41.41	
		F. Test	S.E.m	C.D.	C.V.(%)			F. Test	S.E.m	C.D.	C.V.(%)	
Sowing (A)		N.S.	0.62	3.79	8.03			N.S.	0.20	1.22	2.06	
Genotype (B)		**	1.44	4.26	10.73			**	0.28	0.82	1.64	
B within A		**	2.04	6.02				**	0.39	1.16		
A within B			1.96	5.79					0.41	1.21		
Date of sowing:		11.11.2013		27.11.2013		Date of harvesting:		8.3.2014		22.3.2014		

Table 7.1.1. Northern Hills Zone **SPL-1** **Bajaura** **2013-14**

Nutrient Management	Tillage Option ZT	Rk	CT	Rk	Mean	Rk	Tillage Option ZT	Rk	CT	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
NPK 150:60:40 AI	55.18	2	61.31	1	58.25	1	449	1	428	1	438	1
NPK 150:60:40 BI	51.65	4	56.61	2	54.13	4	380	4	400	3	390	3
SSNM-Nutrient Expert	55.61	1	53.46	4	54.53	3	404	2	409	2	406	2
SSNM + GreenSeeker	55.11	3	55.19	3	55.15	2	391	3	385	4	388	4
Mean	54.39		56.64		55.51		406		405		406	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		1.04	6.35	6.51		N.S.		7.26	44.20	6.20	
Nutrient (B)	*		0.86	2.66	3.81		*		11.42	35.19	6.90	
B within A	*		1.22	3.76			N.S.		16.15	49.77		
A within B			1.48	4.58					15.76	48.57		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	29.48	4	34.95	1	32.22	3	41.72	4	41.10	4	41.41	4
NPK 150:60:40 BI	32.45	2	34.17	2	33.31	1	42.18	2	41.52	3	41.85	3
SSNM-Nutrient Expert	33.15	1	30.84	4	32.00	4	41.98	3	42.45	2	42.22	2
SSNM + GreenSeeker	32.06	3	32.58	3	32.32	2	44.00	1	43.98	1	43.99	1
Mean	31.79		33.14		32.46		42.47		42.26		42.37	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.46	2.83	4.96		N.S.		0.45	2.76	3.70	
Nutrient (B)	N.S.		0.94	2.89	7.07		N.S.		0.67	2.05	3.85	
B within A	N.S.		1.33	4.09			N.S.		0.94	2.90		
A within B			1.24	3.82					0.93	2.87		

Date of Sowing: 14.11.2013 Date of Harvesting: 06.6.2014

Table 7.1.2. Northern Hills Zone **SPL-1** **Malan** **2013-14**

Nutrient Management	Tillage Option ZT	Rk	CT	Rk	Mean	Rk	Tillage Option ZT	Rk	CT	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
NPK 150:60:40 AI	42.79	2	41.93	2	42.36	2	317	2	338	2	327	2
NPK 150:60:40 BI	43.90	1	44.29	1	44.10	1	336	1	347	1	341	1
SSNM-Nutrient Expert	38.27	4	38.65	4	38.46	4	299	4	293	3	296	3
SSNM + GreenSeeker	38.66	3	39.44	3	39.05	3	305	3	280	4	293	4
Mean	40.91		41.08		40.99		314		314		314	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.82	4.99	6.93		N.S.		4.07	24.76	4.49	
Nutrient (B)	**		1.07	3.30	6.40		*		10.71	32.99	8.35	
B within A	N.S.		1.51	4.66			N.S.		15.14	46.66		
A within B			1.55	4.76					13.73	42.31		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	32.14	1	30.02	4	31.08	2	42.13	3	41.48	4	41.80	4
NPK 150:60:40 BI	30.40	2	30.06	3	30.23	3	43.19	2	42.65	3	42.92	2
SSNM-Nutrient Expert	29.05	4	30.23	2	29.64	4	44.32	1	43.67	1	43.99	1
SSNM + GreenSeeker	30.19	3	33.01	1	31.60	1	42.00	4	42.76	2	42.38	3
Mean	30.44		30.83		30.64		42.91		42.64		42.77	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.45	2.72	5.06		N.S.		0.54	3.26	4.34	
Nutrient (B)	N.S.		1.09	3.37	8.75		**		0.32	0.98	1.81	
B within A	N.S.		1.55	4.77			N.S.		0.45	1.38		
A within B			1.41	4.36					0.66	2.04		

Date of Sowing: 22.11.2013 Date of Harvesting: 02.06.2014

Table 7.2.1. North Western Plains Zone **SPL-1** **Durgapura** **2013-14**

Fertlizers	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
NPK 150:60:40 AI	50.09	4	51.63	4	50.86	4	393	4	403	4	398	4
NPK 150:60:40 BI	53.05	3	53.55	3	53.30	3	409	3	414	3	412	3
SSNM-Nutrient Expert	57.55	1	58.29	1	57.92	1	443	1	442	1	443	1
SSNM + GreenSeeker	56.05	2	56.74	2	56.40	2	429	2	431	2	430	2
Mean	54.19		55.05		54.62		418		423		421	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.60	3.63	3.78		N.S.		1.89	11.47	1.55	
Nutrient (B)	*		1.59	4.90	7.14		*		10.09	31.08	5.87	
B within A	N.S.		2.25	6.94			N.S.		14.27	43.96		
A within B			2.04	6.28					12.50	38.51		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	32.74	1	31.58	4	32.16	3	38.53	4	39.27	4	38.90	4
NPK 150:60:40 BI	32.12	4	32.36	2	32.24	2	39.97	3	39.53	3	39.75	3
SSNM-Nutrient Expert	32.15	3	31.74	3	31.95	4	40.87	1	43.00	1	41.93	1
SSNM + GreenSeeker	32.49	2	34.02	1	33.25	1	40.23	2	40.03	2	40.13	2
Mean	32.38		32.42		32.40		39.90		40.46		40.18	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.13	0.79	1.39		N.S.		0.67	4.06	5.76	
Nutrient (B)	N.S.		0.92	2.83	6.94		N.S.		1.27	3.93	7.77	
B within A	N.S.		1.30	4.00			N.S.		1.80	5.55		
A within B			1.13	3.49					1.70	5.23		
Date of Sowing:	28.11.2013				Date of harvesting:		14.04.2014					

Table 7.2.2. North Western Plains Zone **SPL-1** **Karnal** **2013-14**

Fertlizers	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
NPK 150:60:40 AI	52.31	2	50.13	3	51.22	2	446	2	437	4	441	4
NPK 150:60:40 BI	55.40	1	53.44	1	54.42	1	467	1	483	1	475	1
SSNM-Nutrient Expert	49.78	3	49.13	4	49.46	3	445	3	471	2	458	2
SSNM + GreenSeeker	47.37	4	51.19	2	49.28	4	419	4	471	2	445	3
Mean	51.22		50.97		51.09		444		466		455	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.27	1.63	1.81		*		3.40	20.72	2.59	
Nutrient (B)	**		0.88	2.72	4.23		N.S.		8.73	26.91	4.70	
B within A	N.S.		1.25	3.84			N.S.		12.35	38.06		
A within B			1.11	3.43					11.23	34.59		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	28.91	2	28.04	1	28.47	2	40.97	1	41.03	1	41.00	1
NPK 150:60:40 BI	30.75	1	27.78	2	29.26	1	38.65	4	39.96	2	39.30	4
SSNM-Nutrient Expert	27.60	4	26.20	4	26.90	4	40.58	3	39.86	3	40.22	2
SSNM + GreenSeeker	27.80	3	27.66	3	27.73	3	40.70	2	39.49	4	40.09	3
Mean	28.77		27.42		28.09		40.22		40.09		40.15	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.53	3.22	6.53		N.S.		0.34	2.05	2.90	
Nutrient (B)	N.S.		1.05	3.24	9.17		N.S.		0.62	1.91	3.79	
B within A	N.S.		1.49	4.59			N.S.		0.88	2.70		
A within B			1.39	4.29					0.83	2.56		
Date of Sowing:	12.11.2013				Date of harvesting:		23.04.2014					

Table 7.2.3. North Western Plains Zone **SPL-1** **Ludhiana** **2013-14**

Fertlizers	Tillage ZT	Rk	CT	Rk	Mean	Rk	Tillage ZT	Rk	CT	Rk	Mean	Rk
	Yield, q/ha						**Earhead/sq.m.**					
NPK 150:60:40 AI	71.06	1	68.29	3	69.68	2	286	3	287	4	287	4
NPK 150:60:40 BI	70.14	2	68.29	4	69.21	3	291	2	292	3	291	2
SSNM-Nutrient Expert	69.21	4	68.87	2	69.04	4	285	4	292	1	288	3
SSNM + GreenSeeker	69.91	3	71.30	1	70.60	1	302	1	292	1	297	1
Mean	70.08		69.18		69.63		291		291		291	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.66	4.01	3.28		N.S.		9.12	55.51	10.87	
Nutrient (B)	N.S.		1.06	3.26	3.72		N.S.		8.80	27.13	7.42	
B within A	N.S.		1.50	4.61			N.S.		12.45	38.37		
A within B			1.45	4.48					14.12	43.52		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	58.52	1	54.64	3	56.58	1	42.46	4	43.50	3	42.98	4
NPK 150:60:40 BI	51.75	4	53.96	4	52.86	4	46.73	1	43.74	2	45.23	1
SSNM-Nutrient Expert	55.06	2	55.43	2	55.25	3	44.87	2	42.67	4	43.77	2
SSNM + GreenSeeker	55.04	3	55.67	1	55.36	2	42.74	3	44.13	1	43.43	3
Mean	55.10		54.93		55.01		44.20		43.51		43.85	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		2.51	15.29	15.83		N.S.		0.38	2.31	3.00	
Nutrient (B)	N.S.		2.18	6.72	9.71		N.S.		0.99	3.04	5.51	
B within A	N.S.		3.08	9.50			N.S.		1.40	4.30		
A within B			3.67	11.30					1.27	3.90		
Date of Sowing:	15.11.2013					Date of harvesting:			29.04.2014			

Table 7.2.4. North Western Plains Zone **SPL-1** **Pantnagar** **2013-14**

Fertlizers	Tillage ZT	Rk	CT	Rk	Mean	Rk	Tillage ZT	Rk	CT	Rk	Mean	Rk
	Yield,q/ha						**Earhead/sqm**					
NPK 150:60:40 AI	45.70	2	47.50	3	46.60	2	322	2	317	2	320	2
NPK 150:60:40 BI	45.90	1	51.27	1	48.58	1	334	1	356	1	345	1
SSNM-Nutrient Expert	42.67	3	48.10	2	45.38	3	306	3	301	3	303	3
SSNM + GreenSeeker	41.23	4	44.53	4	42.88	4	299	4	257	4	278	4
Mean	43.88		47.85		45.86		315		308		311	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	**		0.27	1.63	2.03		N.S.		5.24	31.87	5.83	
Nutrient (B)	*		0.99	3.05	5.28		**		9.74	30.01	7.66	
B within A	N.S.		1.40	4.31			N.S.		13.77	42.44		
A within B			1.24	3.82					13.03	40.14		
	Grains/earhead						**1000 Grains weight, g**					
NPK 150:60:40 AI	36.59	3	39.43	4	38.01	4	39.03	1	38.23	1	38.63	1
NPK 150:60:40 BI	35.98	4	40.04	3	38.01	3	38.47	2	36.10	3	37.28	3
SSNM-Nutrient Expert	36.76	2	43.57	2	40.16	2	38.03	3	36.83	2	37.43	2
SSNM + GreenSeeker	40.42	1	49.23	1	44.82	1	34.57	4	35.37	4	34.97	4
Mean	37.44		43.07		40.25		37.53		36.63		37.08	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	**		0.24	1.49	2.10		N.S.		0.54	3.26	5.01	
Nutrient (B)	*		1.51	4.64	9.17		**		0.33	1.00	2.15	
B within A	N.S.		2.13	6.57			*		0.46	1.42		
A within B			1.86	5.74					0.67	2.06		
Date of Sowing:	29.11.2013					Date of harvesting:			21.04.2014			

Table 7.3.1 North Eastern Plain Zone **SPL 1** IARI Pusa 2013-14

Nutrient Management	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk
	Yield, q/ha						Earhead/sq.m.					
NPK 150:60:40 AI	53.30	2	43.83	3	48.56	2	357	3	345	2	351	3
NPK 150:60:40 BI	49.34	3	46.46	2	47.90	3	373	2	344	3	359	2
SSNM-Nutrient Expert	58.56	1	53.49	1	56.03	1	409	1	389	1	399	1
SSNM + GreenSeeker	44.95	4	42.48	4	43.72	4	293	4	326	4	310	4
Mean	51.54		46.57		49.05		358		351		354	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	*		0.52	3.19	3.70		N.S.		14.68	89.34	14.35	
Nutrient (B)	**		1.47	4.54	7.36		**		12.92	39.81	8.93	
B within A	N.S.		2.08	6.42			N.S.		18.27	56.31		
A within B			1.88	5.79					21.59	66.52		
	Grains/earhead						1000 Grains weight, g					
NPK 150:60:40 AI	30.24	2	26.90	4	28.57	3	49.45	3	47.76	3	48.60	2
NPK 150:60:40 BI	27.11	4	29.84	1	28.48	4	49.74	1	45.61	4	47.67	4
SSNM-Nutrient Expert	29.93	3	28.17	2	29.05	2	48.10	4	48.89	1	48.49	3
SSNM + GreenSeeker	31.52	1	26.95	3	29.23	1	49.56	2	48.36	2	48.96	1
Mean	29.70		27.96		28.83		49.21		47.65		48.43	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		1.50	9.11	17.98		N.S.		0.26	1.56	1.84	
Nutrient (B)	N.S.		1.51	4.65	12.83		N.S.		1.39	4.27	7.01	
B within A	N.S.		2.14	6.58			N.S.		1.96	6.04		
A within B			2.38	7.33					1.72	5.29		

Date of Sowing: Date of Harvesting: 11.04.2014

Table 7.3.2 North Eastern Plain Zone **SPL 1** Ranchi 2013-14

Nutrient Management	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk	Tillage ZT	Rk	Tillage CT	Rk	Mean	Rk
	Yield, q/ha						Earhead/sq.m.					
NPK 150:60:40 AI	37.80	3	39.49	3	38.65	3	295	3	304	3	299	3
NPK 150:60:40 BI	36.96	4	38.86	4	37.91	4	287	4	295	4	291	4
SSNM-Nutrient Expert	39.70	2	40.76	2	40.23	2	301	2	311	2	306	2
SSNM + GreenSeeker	41.39	1	43.29	1	42.34	1	313	1	317	1	315	1
Mean	38.97		40.60		39.78		299		307		303	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.30	1.81	2.59		N.S.		1.84	11.19	2.10	
Nutrient (B)	*		0.96	2.94	5.88		**		3.33	10.25	2.69	
B within A	N.S.		1.35	4.16			N.S.		4.71	14.50		
A within B			1.21	3.72					4.47	13.78		
	Grains/earhead						1000 Grains weight, g					
NPK 150:60:40 AI	33.86	3	32.80	4	33.33	4	37.90	3	39.62	3	38.76	3
NPK 150:60:40 BI	34.89	1	33.83	1	34.36	1	36.99	4	38.92	4	37.96	4
SSNM-Nutrient Expert	34.77	2	32.81	3	33.79	2	38.00	2	39.96	2	38.98	2
SSNM + GreenSeeker	33.84	4	33.26	2	33.55	3	39.03	1	41.04	1	40.03	1
Mean	34.34		33.18		33.76		37.98		39.89		38.93	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.26	1.61	2.72		*		0.23	1.39	2.03	
Nutrient (B)	N.S.		0.44	1.34	3.16		N.S.		0.59	1.83	3.73	
B within A	N.S.		0.62	1.90			N.S.		0.84	2.58		
A within B			0.60	1.84					0.76	2.34		

Date of Sowing: Date of Harvesting: 16.04.2014

Table 7.3.3 North Eastern Plain Zone **SPL 1** Sabour 2013-14

Nutrient Management	Tillage ZT	Rk	CT	Rk	Mean	Rk	Tillage ZT	Rk	CT	Rk	Mean	Rk
	Yield, q/ha						Earhead/sq.m.					
NPK 150:60:40 AI	41.44	3	43.29	3	42.36	3	260	3	268	3	264	3
NPK 150:60:40 BI	40.51	4	42.59	4	41.55	4	253	4	260	4	257	4
SSNM-Nutrient Expert	43.52	2	44.68	2	44.10	2	265	2	275	2	270	2
SSNM + GreenSeeker	45.37	1	47.45	1	46.41	1	277	1	280	1	279	1
Mean	42.71		44.50		43.61		264		271		267	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.33	1.99	2.60		N.S.		1.64	10.00	2.13	
Nutrient (B)	*		1.05	3.23	5.88		**		2.94	9.05	2.69	
B within A	N.S.		1.48	4.56			N.S.		4.15	12.80		
A within B			1.32	4.08					3.95	12.19		
	Grains/earhead						1000 Grains weight, g					
NPK 150:60:40 AI	43.07	4	41.74	3	42.41	4	37.00	2	38.67	3	37.83	3
NPK 150:60:40 BI	44.52	1	43.05	1	43.79	1	36.00	4	38.00	4	37.00	4
SSNM-Nutrient Expert	44.41	2	41.68	4	43.04	2	37.00	2	39.00	2	38.00	2
SSNM + GreenSeeker	43.09	3	42.39	2	42.74	3	38.00	1	40.00	1	39.00	1
Mean	43.77		42.21		42.99		37.00		38.92		37.96	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.33	1.98	2.63		*		0.21	1.29	1.94	
Nutrient (B)	N.S.		0.55	1.69	3.13		N.S.		0.58	1.80	3.76	
B within A	N.S.		0.78	2.40			N.S.		0.82	2.54		
A within B			0.75	2.31					0.75	2.30		

Date of Sowing: Date of Harvesting: 15.04.2014

Table 7.3.4 North Eastern Plain Zone **SPL 1** Varanasi 2013-14

Nutrient Management	Tillage ZT	Rk	CT	Rk	Mean	Rk	Tillage ZT	Rk	CT	Rk	Mean	Rk
	Yield, q/ha						Earhead/sq.m.					
NPK 150:60:40 AI	31.80	4	35.00	4	33.40	4	253	4	291	3	272	4
NPK 150:60:40 BI	36.07	3	43.77	3	39.92	3	270	2	300	2	285	3
SSNM-Nutrient Expert	36.77	2	44.43	2	40.60	2	268	3	312	1	290	1
SSNM + GreenSeeker	39.70	1	46.97	1	43.33	1	290	1	282	4	286	2
Mean	36.08		42.54		39.31		270		296		283	
	F. Test	S.E	C.D.	C.V.(%)			F. Test	S.E.	C.D.	C.V.(%)		
Tillage (A)	**	0	1.69	2.44			N.S.	6.1	36.86	7.41		
Nutrient (B)	**	0	0.67	1.35			N.S.	6.8	20.94	5.88		
B within A	**	0	0.94				N.S.	9.6	29.61			
A within B		0	1.18					10	31.72			
	Grains/earhead						1000 Grains weight, g					
NPK 150:60:40 AI	33.31	4	30.84	4	32.08	4	37.80	2	39.23	1	38.52	2
NPK 150:60:40 BI	41.40	1	41.15	3	41.27	1	32.53	4	35.60	3	34.07	4
SSNM-Nutrient Expert	36.96	2	41.57	2	39.26	3	37.13	3	34.30	4	35.72	3
SSNM + GreenSeeker	34.21	3	45.15	1	39.68	2	40.17	1	36.93	2	38.55	1
Mean	36.47		39.67		38.07		36.91		36.52		36.71	
	F. Test		S.E.m	C.D.	C.V.(%)		F. Test		S.E.m	C.D.	C.V.(%)	
Tillage (A)	N.S.		0.93	5.67	8.47		**		0.02	0.14	0.22	
Nutrient (B)	**		0.98	3.01	6.28		**		0.36	1.11	2.41	
B within A	**		1.38	4.26			**		0.51	1.57		
A within B			1.52	4.67					0.44	1.36		

Date of Sowing: Date of Harvesting: 15.04.2014

Table 7.9.1. North Western Plain Zone **SPL-2** **Gurdaspur** **2013-14**

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	26.98	4	31.75	4	30.56	4	29.77	4	250	4	226	4	232	4	236	4
75 kg N/ha	63.04	1	57.47	3	54.95	3	58.49	3	328	2	303	3	291	3	307	3
150 kg N/ha	60.28	2	63.32	1	59.84	2	61.15	1	339	1	350	2	319	2	336	2
LCC based N	59.13	3	61.61	2	61.67	1	60.80	2	318	3	364	1	335	1	339	1
Mean	52.36		53.54		51.75		52.55		309		311		294		304	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	N.S.		1.53		6.00		10.08		N.S.		9.25		36.33		10.53	
Nitrogen (B)	**		1.58		4.70		9.03		**		4.02		11.94		3.96	
B within A	N.S.		2.74		8.14				**		6.96		20.68			
A within B			2.82		8.39						11.04		32.81			
	Grains/earhead								**1000 Grains weight, g**							
No N control	25.58	4	32.40	4	29.98	4	29.32	4	42.39	1	43.29	2	44.16	1	43.28	1
75 kg N/ha	46.89	2	42.98	2	44.51	3	44.79	3	41.53	2	44.18	1	42.58	2	42.76	2
150 kg N/ha	46.86	3	48.66	1	46.38	2	47.30	1	38.44	3	37.12	4	40.49	3	38.69	3
LCC based N	51.47	1	41.76	3	48.63	1	47.29	2	37.04	4	40.78	3	37.87	4	38.56	4
Mean	42.70		41.45		42.38		42.17		39.85		41.34		41.28		40.82	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	N.S.		2.57		10.09		21.11		*		0.32		1.25		2.70	
Nitrogen (B)	**		1.60		4.74		11.35		**		0.36		1.07		2.65	
B within A	N.S.		2.76		8.21				**		0.62		1.86			
A within B			3.51		10.43						0.63		1.86			

Date of Sowing: 05.11.2013 Date of Harvesting: 25.04.2014

Table 7.9.2. North Western Plain Zone **SPL-2** **Karnal** **2013-14**

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	20.93	4	18.27	4	15.35	4	18.18	4	225	4	240	4	227	4	231	4
75 kg N/ha	43.10	3	41.88	3	31.38	3	38.78	3	300	3	298	3	267	3	288	3
150 kg N/ha	55.69	2	56.31	1	50.92	1	54.31	2	370	1	390	1	367	1	376	1
LCC based N	58.65	1	56.05	2	50.23	2	54.98	1	328	2	338	2	335	2	334	2
Mean	44.59		43.12		36.97		41.56		306		317		299		307	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	*		1.23		4.84		10.28		N.S.		5.42		21.27		6.11	
Nitrogen (B)	**		1.14		3.38		8.22		**		13.32		39.59		13.02	
B within A	N.S.		1.97		5.86				N.S.		23.08		68.56			
A within B			2.11		6.26						20.71		61.52			
	Grains/earhead								**1000 Grains weight, g**							
No N control	21.40	4	18.49	4	16.93	4	18.94	4	43.24	1	40.99	1	40.39	4	41.54	1
75 kg N/ha	34.53	3	34.67	3	29.25	3	32.82	3	41.62	2	40.55	2	40.67	2	40.95	2
150 kg N/ha	37.71	2	37.30	2	34.36	2	36.46	2	41.34	3	39.93	3	40.60	3	40.62	3
LCC based N	43.75	1	41.57	1	37.09	1	40.81	1	41.06	4	39.86	4	40.79	1	40.57	4
Mean	34.35		33.01		29.41		32.26		41.81		40.33		40.61		40.92	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	*		0.80		3.13		8.57		*		0.23		0.92		1.98	
Nitrogen (B)	**		1.60		4.75		14.88		N.S.		0.35		1.03		2.55	
B within A	N.S.		2.77		8.23				N.S.		0.60		1.79			
A within B			2.53		7.51						0.57		1.70			

Date of Sowing: 04.11.2013 Date of Harvesting: 21.04.2014

Table 7.9.3. North Western Plain Zone SPL-2 Pantnagar 2013-14

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	13.80	4	15.37	4	17.33	4	15.50	4	268	4	307	4	296	4	290	4
75 kg N/ha	35.00	3	28.67	3	39.40	3	34.36	3	328	3	312	3	298	3	312	3
150 kg N/ha	51.07	2	35.40	2	49.70	2	45.39	2	356	2	312	2	351	2	340	2
LCC based N	53.30	1	39.57	1	52.07	1	48.31	1	384	1	364	1	381	1	377	1
Mean	38.29		29.75		39.63		35.89		334		324		332		330	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.47		1.86		4.58		N.S.		7.21		28.29		7.57	
Nitrogen (B)	**		0.73		2.17		6.10		**		7.62		22.65		6.93	
B within A	**		1.26		3.75				N.S.		13.20		39.22			
A within B			1.19		3.54						13.51		40.16			
	Grains/earhead								**1000 Grains weight, g**							
No N control	13.56	4	13.87	4	15.60	4	14.34	4	37.97	4	36.23	4	37.97	4	37.39	4
75 kg N/ha	27.12	3	24.52	3	34.72	2	28.79	3	39.33	3	37.87	3	38.23	3	38.48	3
150 kg N/ha	36.37	1	29.44	1	36.62	1	34.14	1	39.47	2	38.53	2	38.80	2	38.93	2
LCC based N	35.07	2	27.48	2	34.46	3	32.34	2	39.80	1	39.67	1	39.77	1	39.74	1
Mean	28.03		23.83		30.35		27.40		39.14		38.08		38.69		38.64	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.45		1.76		5.67		N.S.		0.22		0.88		2.01	
Nitrogen (B)	**		0.93		2.77		10.22		N.S.		0.61		1.80		4.71	
B within A	N.S.		1.62		4.80				N.S.		1.05		3.12			
A within B			1.47		4.37						0.94		2.78			

Date of Sowing: 29.11.2013 Date of Harvesting: 24.04.2014

Table 7.10.1. North Western Plain Zone SPL-2 Rice Gurdaspur 2013-14

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	53.78	4	50.55	4	40.08	4	48.14	4	212	3	141	4	252	3	202	4
75 kg N/ha	59.01	2	57.85	2	45.29	3	54.05	3	192	4	175	3	271	1	213	3
150 kg N/ha	58.20	3	60.29	1	47.15	1	55.21	1	217	2	269	1	235	4	240	2
LCC based N	62.05	1	55.97	3	47.05	2	55.02	2	232	1	239	2	254	2	242	1
Mean	58.26		56.16		44.89		53.11		213		206		253		224	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		1.23		4.81		8.00		**		4.16		16.35		6.44	
Nitrogen (B)	N.S.		1.90		5.66		10.76		**		5.75		17.08		7.70	
B within A	N.S.		3.30		9.80				**		9.96		29.59			
A within B			3.11		9.24						9.58		28.46			
	Grains/earhead								**1000 Grains weight, g**							
No N control	88.26	4	127.39	1	63.77	4	93.14	2	28.86	3	28.18	4	24.83	4	27.29	4
75 kg N/ha	105.16	1	115.86	2	67.48	3	96.17	1	29.41	2	28.67	3	24.85	3	27.64	3
150 kg N/ha	90.08	3	76.59	4	80.36	1	82.34	3	30.11	1	29.36	2	24.88	2	28.12	1
LCC based N	94.30	2	77.77	3	73.59	2	81.89	4	28.39	4	30.10	1	25.45	1	27.98	2
Mean	94.45		99.40		71.30		88.38		29.19		29.08		25.00		27.76	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.48		1.89		1.89		**		0.48		1.89		6.00	
Nitrogen (B)	N.S.		4.17		12.39		14.16		N.S.		0.31		0.93		3.37	
B within A	**		7.22		21.47				N.S.		0.54		1.61			
A within B			6.28		18.65						0.67		1.99			

Date of Sowing: 15.06.2013 25.06.2013 Date of Harvesting: 09.10.2013

Table 7.10.2. North Western Plain Zone **SPL-2 Rice** **Karnal** **2013-14**

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	86.35	2	77.24	2	66.11	1	76.57	1	412	4	363	4	418	2	398	4
75 kg N/ha	85.00	3	74.54	3	65.77	2	75.11	3	415	3	442	1	385	4	414	3
150 kg N/ha	84.33	4	74.21	4	63.75	3	74.09	4	430	2	420	2	413	3	421	2
LCC based N	88.37	1	78.59	1	61.73	4	76.23	2	440	1	390	3	453	1	428	1
Mean	86.01		76.15		64.34		75.50		424		404		418		415	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		1.97		7.73		9.04		N.S.		5.91		23.21		4.93	
Nitrogen (B)	N.S.		1.87		5.55		7.42		N.S.		11.42		33.95		8.26	
B within A	N.S.		3.24		9.61				N.S.		19.79		58.80			
A within B			3.42		10.18						18.13		53.86			
	Grains/earhead								**1000 Grains weight, g**							
No N control	91.72	1	88.42	1	67.98	2	82.71	1	23.03	4	24.15	1	23.36	3	23.51	2
75 kg N/ha	87.77	2	71.53	4	71.36	1	76.89	3	23.34	2	23.62	3	24.13	1	23.70	1
150 kg N/ha	83.73	4	76.40	3	66.01	3	75.38	4	23.47	1	23.03	4	23.55	2	23.35	4
LCC based N	87.70	3	85.14	2	58.68	4	77.18	2	23.08	3	23.85	2	23.29	4	23.41	3
Mean	87.73		80.38		66.01		78.04		23.23		23.66		23.59		23.49	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		1.76		6.91		7.82		N.S.		0.24		0.93		3.49	
Nitrogen (B)	N.S.		2.19		6.51		8.42		N.S.		0.20		0.61		2.61	
B within A	N.S.		3.80		11.28				N.S.		0.35		1.05			
A within B			3.73		11.08						0.39		1.15			

Date of Sowing: 12.06.2013 07.07.2013 Date of Harvesting: 04.10.2013

Table 7.10.3. North Western Plain Zone **SPL-2 Rice** **Pantnagar** **2013-14**

N Treatments in Wheat	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk	Rice establishment methods: PTR	Rk	ZTTR	Rk	DDSR	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
No N control	52.63	4	45.23	4	43.83	4	47.23	4	322	4	279	4	287	4	296	4
75 kg N/ha	53.63	3	47.67	3	44.60	3	48.63	3	324	3	305	3	393	1	341	1
150 kg N/ha	53.97	2	49.33	2	45.40	2	49.57	2	325	2	318	2	296	3	313	3
LCC based N	56.93	1	49.83	1	45.57	1	50.78	1	352	1	349	1	315	2	339	2
Mean	54.29		48.02		44.85		49.05		331		313		323		322	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.78		3.06		5.50		N.S.		5.63		22.12		6.06	
Nitrogen (B)	*		0.69		2.06		4.23		**		6.17		18.32		5.74	
B within A	N.S.		1.20		3.56				**		10.68		31.73			
A within B			1.30		3.86						10.83		32.18			
	Grains/earhead								**1000 Grains weight, g**							
No N control	68.93	2	68.73	1	70.36	1	69.34	1	23.73	4	23.60	4	21.87	4	23.07	4
75 kg N/ha	69.08	1	65.37	2	51.22	4	61.89	3	24.10	3	23.90	3	22.60	3	23.53	3
150 kg N/ha	68.69	3	62.90	3	65.95	2	65.85	2	24.27	2	24.73	2	23.27	2	24.09	2
LCC based N	63.74	4	56.41	4	59.57	3	59.91	4	25.47	1	25.33	1	24.37	1	25.06	1
Mean	67.61		63.35		61.77		64.25		24.39		24.39		23.03		23.94	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	N.S.		1.35		5.28		7.26		N.S.		0.42		1.65		6.07	
Nitrogen (B)	**		1.83		5.43		8.54		N.S.		0.49		1.46		6.16	
B within A	N.S.		3.17		9.41				N.S.		0.85		2.53			
A within B			3.06		9.08						0.85		2.52			

Date of Sowing: 15.06.2013 09.07.2013 Date of Harvesting: 14.11.2013

Table 7.12.1. Peninsular Zone **SPL-3** **Dharwad** **2013-14**

Varieties	Time of Sowing D_1	Rk	D_2	Rk	D_3	Rk	Mean	Rk	Time of Sowing D_1	Rk	D_2	Rk	D_3	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
GW 322	46.68	2	52.58	2	41.13	1	46.79	2	248	4	251	3	235	2	245	4
MACS 6222	45.48	3	51.99	3	33.42	3	43.63	3	251	2	257	1	241	1	249	1
HI 8663	45.42	4	47.92	4	33.12	4	42.15	4	257	1	255	2	234	4	249	2
UAS 415	51.83	1	56.94	1	33.57	2	47.45	1	249	3	251	3	235	2	245	3
Mean	47.35		52.36		35.31		45.01		252		254		236		247	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)	**		1.13		4.44		8.71		**		1.94		7.63		2.72	
Variety (B)	**		0.90		2.68		6.01		*		1.35		4.00		1.64	
B within A	*		1.56		4.64				N.S.		2.33		6.93			
A within B			1.76		5.24						2.80		8.33			
	Grains/earhead								**1000 Grains weight, g**							
GW 322	43.40	1	48.67	1	42.24	1	44.77	1	43.41	4	43.03	4	41.68	3	42.71	4
MACS 6222	40.76	3	43.86	3	35.68	2	40.10	2	44.52	3	46.17	3	38.93	4	43.21	3
HI 8663	35.56	4	37.89	4	31.71	3	35.05	4	49.64	2	49.52	2	44.59	2	47.92	2
UAS 415	41.89	2	45.63	2	31.69	4	39.74	3	49.65	1	49.77	1	45.16	1	48.19	1
Mean	40.40		44.01		35.33		39.92		46.81		47.12		42.59		45.51	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)	*		1.26		4.96		10.97		**		0.52		2.05		3.97	
Variety (B)	**		0.98		2.92		7.39		**		0.48		1.42		3.15	
B within A	N.S.		1.70		5.06				N.S.		0.83		2.46			
A within B			1.94		5.77						0.89		2.63			
Date of sowing:			31.10.2013				08.11.2013				16.11.2013					
Date of harvesting:			10.03.2014				18.03.2014				27.03.2013					

D_1: 29 Oct to 4 November D_2: 5 to 11 November D_3: 12 to18 November

Table 7.12.2. Peninsular Zone **SPL-3** **Niphad** **2013-14**

Varieties	Time of Sowing D_1	Rk	D_2	Rk	D_3	Rk	Mean	Rk	Time of Sowing D_1	Rk	D_2	Rk	D_3	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
GW 322	42.02	2	38.45	3	36.71	3	39.06	3	398	3	407	4	409	4	405	4
MACS 6222	40.58	4	36.06	4	36.60	4	37.75	4	405	2	411	2	409	3	408	2
HI 8663	42.90	1	39.37	1	38.29	1	40.18	1	390	4	413	1	413	1	405	3
UAS 415	41.38	3	38.98	2	36.86	2	39.07	2	415	1	410	3	411	2	412	1
Mean	41.72		38.22		37.12		39.02		402		410		411		408	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)	N.S.		1.39		5.47		12.37		N.S.		2.70		10.61		2.30	
Variety (B)	N.S.		0.61		1.82		4.71		N.S.		2.90		8.63		2.14	
B within A	N.S.		1.06		3.15				N.S.		5.03		14.95			
A within B			1.67		4.96						5.13		15.23			
	Grains/earhead								**1000 Grains weight, g**							
GW 322	23.57	1	21.52	1	19.65	1	21.58	1	44.85	4	43.92	4	45.62	4	44.80	4
MACS 6222	21.42	2	19.00	2	19.49	2	19.97	2	46.83	3	46.13	3	45.80	3	46.25	3
HI 8663	20.01	3	17.45	4	17.04	4	18.17	4	54.98	1	54.57	1	54.46	1	54.67	1
UAS 415	18.93	4	18.16	3	17.89	3	18.32	3	52.72	2	52.41	2	50.20	2	51.78	2
Mean	20.98		19.03		18.52		19.51		49.85		49.26		49.02		49.38	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)	N.S.		0.63		2.47		11.17		N.S.		0.55		2.18		3.89	
Variety (B)	**		0.32		0.96		4.96		**		0.61		1.82		3.72	
B within A	N.S.		0.56		1.66				N.S.		1.06		3.15			
A within B			0.79		2.36						1.07		3.19			
Date of sowing:			1.11.2013				7.11.2013				12.11.2013					
Date of harvesting:			5.3.2014				13.3.2014				22.3.2014					

D_1: 29 Oct to 4 November D_2: 5 to 11 November D_3: 12 to18 November

Table 7.13.1. Northern Hills Zone **SPL-4** **Almora** **2013-14**

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
	Yield, q/ha									
VL 804	59.40	2	64.07	3	66.47	1	59.70	2	62.41	1
VL 907	56.80	3	65.13	1	64.50	2	60.67	1	61.78	2
HS 507	61.67	1	64.97	2	60.10	3	58.30	3	61.26	3
HS 240	51.60	4	47.40	4	41.47	4	40.00	4	45.12	4
MEAN	57.37		60.39		58.13		54.67		57.64	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		2.15		7.46		12.95			
Variety(B)	**		1.31		3.81		7.84			
B with A	N.S.		2.61		7.62					
A with B			3.12		9.12					
	Grains/earhead									
VL 804	30.63	1	34.69	1	35.19	1	33.77	1	33.57	1
VL 907	23.86	4	30.00	4	32.74	2	31.80	2	29.60	3
HS 507	26.88	3	30.73	2	31.65	3	31.07	3	30.08	2
HS 240	29.95	2	30.03	3	28.27	4	25.69	4	28.48	4
MEAN	27.83		31.36		31.96		30.58		30.43	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		0.94		3.25		10.68			
Variety(B)	**		0.68		2.00		7.78			
B with A	*		1.37		3.99					
A with B			1.51		4.41					

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
	Earhead/sd.m.									
VL 804	425	4	428	4	437	2	433	2	431	4
VL 907	457	2	447	2	423	4	398	4	431	3
HS 507	445	3	452	1	430	3	422	3	437	2
HS 240	463	1	437	3	440	1	453	1	448	1
MEAN	448		441		433		427		437	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	N.S.		9.46		32.74		7.50			
Variety(B)	N.S.		8.45		24.67		6.70			
B with A	N.S.		16.90		49.33					
A with B			17.43		50.87					
	1000 Grains weight, g									
VL 804	45.51	3	43.17	3	43.29	3	40.98	3	43.24	3
VL 907	52.17	1	48.60	1	46.51	1	47.89	1	48.79	1
HS 507	51.61	2	47.01	2	44.32	2	44.79	2	46.93	2
HS 240	37.17	4	36.35	4	33.52	4	34.28	4	35.33	4
MEAN	46.61		43.78		41.91		41.99		43.57	
	F. Test		S.E.m		C.D.		C.V.(%)			
Sowing (A)	**		0.59		2.05		4.72			
Variety(B)	**		0.43		1.27		3.45			
B with A	N.S.		0.87		2.53					
A with B			0.96		2.79					

Date of Harvesting: 16.05, 17.05, 19.05 & 22.05.2014

Table 7.13.2. Northern Hills Zone **SPL-4** **Bajaura** **2013-14**

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
	Yield, q/ha									
VL 804	49.87	3	49.11	3	47.23	3	45.03	3	47.81	3
VL 907	52.97	2	52.23	2	49.68	2	51.27	1	51.54	2
HS 507	59.68	1	57.13	1	57.49	1	50.63	2	56.23	1
HS 240	39.08	4	36.35	4	33.45	4	31.32	4	35.05	4
MEAN	50.40		48.71		46.96		44.56		47.66	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.44		1.52		3.19			
Variety(B)	**		0.73		2.13		5.30			
B with A	N.S.		1.46		4.26					
A with B			1.34		3.90					
	Grains/earhead									
VL 804	26.81	3	31.81	3	29.94	3	33.34	1	30.47	3
VL 907	30.40	2	32.79	2	33.47	1	30.91	3	31.89	2
HS 507	35.96	1	39.30	1	33.33	2	32.81	2	35.35	1
HS 240	26.77	4	26.63	4	25.08	4	23.80	4	25.57	4
MEAN	29.98		32.63		30.46		30.22		30.82	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	N.S.		1.00		3.46		11.25			
Variety(B)	**		1.21		3.53		13.60			
B with A	N.S.		2.42		7.06					
A with B			2.32		6.78					

Date of Sowing: 26.10, 08.11, 18.11 & 28.11.2013

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
	Earhead/sd.m.									
VL 804	387	2	367	3	383	3	333	4	367	3
VL 907	371	4	377	2	349	4	373	2	367	3
HS 507	373	3	346	4	396	2	365	3	370	2
HS 240	418	1	433	1	464	1	478	1	448	1
MEAN	387		380		398		387		388	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	N.S.		11.61		40.18		10.36			
Variety(B)	**		11.18		32.63		9.97			
B with A	N.S.		22.35		65.25					
A with B			22.57		65.89					
	1000 Grains weight,g									
VL 804	48.27	1	42.67	2	41.60	3	41.33	3	43.47	2
VL 907	47.47	2	42.93	1	42.73	2	45.33	1	44.62	1
HS 507	44.80	3	42.40	3	43.75	1	42.67	2	43.40	3
HS 240	35.33	4	32.07	4	29.13	4	27.73	4	31.07	4
MEAN	43.97		40.02		39.30		39.27		40.64	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	*		1.00		3.46		8.51			
Variety(B)	**		1.00		2.92		8.54			
B with A	N.S.		2.00		5.85					
A with B			2.00		5.84					

Date of Harvesting: 25.05, 30.05, 05.06 & 09.06.2014

Table 7.13.3. Northern Hills Zone **SPL-4** **Imphal** **2013-14**

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
VL 804	34.03	1	33.99	1	34.01	1	30.70	1	33.18	1
VL 907	31.02	2	31.08	2	32.23	2	30.13	2	31.11	2
HS 507	30.88	3	30.14	3	30.13	4	27.93	4	29.77	3
HS 240	30.15	4	29.73	4	30.27	3	28.20	3	29.59	4
MEAN	31.52		31.23		31.66		29.24		30.91	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	*		0.37		1.28		4.15			
Variety(B)	**		0.17		0.50		1.91			
B with A	*		0.34		1.00					
A with B			0.47		1.38					
Grains/earhead										
VL 804	27.27	3	26.21	3	27.30	4	30.54	2	27.83	3
VL 907	25.04	4	23.89	4	27.81	3	28.11	4	26.21	4
HS 507	27.68	2	26.35	2	30.63	2	29.63	3	28.58	2
HS 240	28.37	1	29.26	1	34.58	1	30.60	1	30.70	1
MEAN	27.09		26.43		30.08		29.72		28.33	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.51		1.76		6.23			
Variety(B)	**		0.64		1.88		7.87			
B with A	N.S.		1.29		3.76					
A with B			1.23		3.58					

Date of Sowing: 30.10, 05.11, 15.11 & 25.11.2013

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sd.m.										
VL 804	287	1	298	1	322	1	271	1	294	1
VL 907	268	2	284	2	279	2	255	2	272	2
HS 507	255	4	251	3	255	3	246	3	252	3
HS 240	258	3	251	3	243	4	235	4	247	4
MEAN	267		271		275		252		266	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	N.S.		6.08		21.04		7.92			
Variety(B)	**		5.64		16.47		7.35			
B with A	N.S.		11.29		32.95					
A with B			11.51		33.60					
1000 Grains weight,g										
VL 804	43.49	3	43.56	3	38.75	2	37.90	4	40.93	3
VL 907	46.23	1	45.87	1	41.69	1	42.06	1	43.97	1
HS 507	43.86	2	45.75	2	38.66	3	38.33	3	41.65	2
HS 240	41.24	4	40.47	4	36.53	4	39.24	2	39.37	4
MEAN	43.71		43.91		38.91		39.38		41.48	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.45		1.57		3.80			
Variety(B)	**		0.26		0.75		2.14			
B with A	**		0.51		1.50					
A with B			0.64		1.86					

Date of Harvesting: 11.04, 11.04, 30.04 & 30.04.2014

Table 7.13.4. Northern Hills Zone **SPL-4** **Khudwani** **2013-14**

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
VL 804	28.00	1	27.23	1	24.67	1	23.00	1	25.73	1
VL 907	25.80	4	24.77	4	22.70	4	21.33	4	23.65	4
HS 507	27.23	2	25.97	2	23.97	2	22.73	2	24.98	2
HS 240	26.73	3	25.70	3	23.57	3	22.20	3	24.55	3
MEAN	26.94		25.92		23.73		22.32		24.73	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.51		1.77		7.17			
Variety(B)	**		0.19		0.55		2.64			
B with A	N.S.		0.38		1.10					
A with B			0.61		1.77					
Grains/earhead										
VL 804	24.68	3	23.99	4	23.68	4	23.24	4	23.90	4
VL 907	26.27	1	26.02	1	25.17	1	24.92	1	25.60	1
HS 507	24.39	4	24.60	3	24.17	3	24.01	3	24.29	3
HS 240	24.96	2	24.70	2	24.51	2	24.45	2	24.65	2
MEAN	25.07		24.83		24.38		24.16		24.61	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	N.S.		0.61		2.11		8.60			
Variety(B)	*		0.37		1.09		5.27			
B with A	N.S.		0.75		2.18					
A with B			0.89		2.60					

Date of Sowing: 27.10, 07.11, 17.11 & 27.11.2012

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sd.m.										
VL 804	297	1	294	1	289	1	285	1	291	1
VL 907	283	4	280	4	273	4	269	4	276	4
HS 507	292	2	289	2	283	2	281	2	286	2
HS 240	289	3	285	3	280	3	275	3	282	3
MEAN	290		287		281		278		284	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	*		2.19		7.58		2.67			
Variety(B)	**		1.05		3.06		1.28			
B with A	N.S.		2.10		6.12					
A with B			2.85		8.30					
1000 Grains weight,g										
VL 804	38.33	1	38.66	1	36.10	1	34.77	1	36.97	1
VL 907	34.75	4	33.99	4	33.02	4	31.80	4	33.39	4
HS 507	38.31	2	36.63	2	35.13	2	33.83	2	35.98	2
HS 240	37.11	3	36.57	3	34.36	3	33.09	3	35.28	3
MEAN	37.12		36.46		34.65		33.37		35.40	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.17		0.58		1.65			
Variety(B)	**		0.38		1.11		3.72			
B with A	N.S.		0.76		2.22					
A with B			0.68		1.99					

Date of Harvesting: 23.06, 24.06, 27.06 & 29.06.2014

Table 7.13.5. Northern Hills Zone **SPL-4** **Malan** **2013-14**

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
VL 804	59.38	4	56.99	3	48.79	1	48.88	3	53.51	4
VL 907	64.88	2	58.05	2	44.97	3	50.90	1	54.70	1
HS 507	63.09	3	56.04	4	45.49	2	50.24	2	53.72	3
HS 240	65.89	1	60.90	1	42.11	4	46.70	4	53.90	2
MEAN	63.31		58.00		45.34		49.18		53.96	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.66		2.30		4.27			
Variety(B)	N.S.		1.47		4.30		9.45			
B with A	N.S.		2.94		8.59					
A with B			2.63		7.69					
Grains/earhead										
VL 804	38.70	4	39.72	3	36.55	2	37.67	3	38.16	3
VL 907	43.85	1	41.57	1	34.42	3	38.29	1	39.53	1
HS 507	42.14	2	39.39	4	36.85	1	38.12	2	39.12	2
HS 240	40.87	3	40.79	2	33.03	4	34.03	4	37.18	4
MEAN	41.39		40.37		35.21		37.03		38.50	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.91		3.16		8.21			
Variety(B)	*		0.51		1.50		4.61			
B with A	*		1.03		2.99					
A with B			1.27		3.72					

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Variety	Time of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sd.m.										
VL 804	362	2	341	2	326	2	327	2	339	2
VL 907	301	4	290	4	278	4	284	4	288	4
HS 507	323	3	309	3	294	3	308	3	309	3
HS 240	406	1	387	1	368	1	371	1	383	1
MEAN	348		332		316		322		330	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	N.S.		7.01		24.24		7.36			
Variety(B)	**		7.50		21.88		7.88			
B with A	N.S.		14.99		43.77					
A with B			14.75		43.07					
1000 Grains weight,g										
VL 804	42.42	3	42.14	3	41.12	3	39.65	3	41.33	3
VL 907	49.13	1	48.16	1	47.16	1	46.68	1	47.78	1
HS 507	46.33	2	46.21	2	41.81	2	42.98	2	44.33	2
HS 240	39.66	4	38.73	4	34.66	4	37.01	4	37.52	4
MEAN	44.39		43.81		41.19		41.58		42.74	
	F. Test		S.E.m		C.D.		C.V.(%)			
Nitrogen (A)	**		0.41		1.40		3.29			
Variety(B)	**		0.32		0.94		2.62			
B with A	N.S.		0.65		1.88					
A with B			0.69		2.02					

Date of Harvesting: 08.05, 12.05, 16.05 & 16.05.2014

Table 7.14.1. North Western Plain Zone **SPL-4** **Agra** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	45.56	1	51.00	1	42.84	1	40.80	1	45.05	1
PBW 550	39.10	3	43.52	3	35.34	3	33.66	3	37.91	3
HD 2967	42.16	2	44.88	2	38.42	2	35.02	2	40.12	2
WH 1105	38.08	4	40.80	4	34.00	4	32.98	4	36.47	4
Mean	41.23		45.05		37.65		35.62		39.89	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.26		0.90		2.25	
Variety (B)			**		0.16		0.48		1.43	
B within A			**		0.33		0.96			
A within B					0.38		1.12			
Grains/earhead										
DPW 621-50	24.05	2	23.25	1	23.23	1	22.33	1	23.21	1
PBW 550	22.77	4	22.75	2	21.51	3	21.12	3	22.04	3
HD 2967	24.06	1	22.13	3	22.49	2	21.14	2	22.46	2
WH 1105	22.82	3	21.51	4	20.89	4	21.09	4	21.58	4
Mean	23.43		22.41		22.03		21.42		22.32	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.16		0.56		2.51	
Variety (B)			**		0.18		0.53		2.83	
B within A			N.S.		0.36		1.06			
A within B					0.35		1.03			

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	467	1	532	1	463	1	462	1	481	1
PBW 550	443	3	488	3	430	3	420	3	445	3
HD 2967	451	2	494	2	445	2	434	2	456	2
WH 1105	437	4	486	4	427	4	413	4	441	4
Mean	449		500		442		432		456	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.79		2.72		0.60	
Variety (B)			**		0.97		2.83		0.74	
B within A			**		1.94		5.67			
A within B					1.86		5.42			
1000 Grains weight, g										
DPW 621-50	40.59	1	41.26	1	39.83	1	39.57	1	40.31	1
PBW 550	38.81	3	39.26	3	38.22	3	37.91	3	38.55	3
HD 2967	38.89	2	41.07	2	38.37	2	38.15	2	39.12	2
WH 1105	38.17	4	39.05	4	38.08	4	37.88	4	38.30	4
Mean	39.12		40.16		38.63		38.38		39.07	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.17		0.58		1.49	
Variety (B)			**		0.27		0.78		2.38	
B within A			N.S.		0.54		1.56			
A within B					0.49		1.44			

Date of Harvesting: 26.03, 30.03, 02.04 & 06.04.2014

Table 7.14.2. North Western Plain Zone **SPL-4** **Gurdaspur** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	47.45	4	39.62	4	49.12	3	54.69	2	47.72	4
PBW 550	51.83	2	48.06	2	50.31	2	52.88	3	50.77	2
HD 2967	51.59	3	40.73	3	50.64	1	48.22	4	47.80	3
WH 1105	51.84	1	50.80	1	47.70	4	54.90	1	51.31	1
Mean	50.68		44.80		49.44		52.67		49.40	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.77		2.66		5.39	
Variety (B)			**		0.88		2.56		6.15	
B within A			**		1.75		5.12			
A within B					1.70		4.97			
Grains/earhead										
DPW 621-50	36.62	3	33.16	3	42.84	2	43.69	2	39.08	2
PBW 550	36.36	4	35.42	2	42.20	3	41.94	3	38.98	3
HD 2967	37.40	2	31.96	4	41.52	4	39.12	4	37.50	4
WH 1105	39.62	1	49.97	1	49.26	1	46.35	1	46.30	1
Mean	37.50		37.63		43.96		42.78		40.47	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		1.09		3.79		9.37	
Variety (B)			**		1.10		3.21		9.42	
B within A			N.S.		2.20		6.43			
A within B					2.20		6.42			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	381	3	372	2	342	1	360	1	364	2
PBW 550	392	2	371	3	341	2	353	3	364	1
HD 2967	344	4	382	1	341	3	351	4	354	3
WH 1105	397	1	310	4	273	4	356	2	334	4
Mean	378		359		324		355		354	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		9.32		32.26		9.12	
Variety (B)			*		6.64		19.40		6.50	
B within A			**		13.29		38.79			
A within B					14.81		43.23			
1000 Grains weight, g										
DPW 621-50	34.13	3	32.48	4	33.51	4	34.77	3	33.73	4
PBW 550	36.52	2	36.80	1	35.09	3	35.75	1	36.04	2
HD 2967	40.41	1	33.73	2	35.95	1	35.45	2	36.38	1
WH 1105	33.77	4	33.15	3	35.53	2	33.33	4	33.95	3
Mean	36.21		34.04		35.02		34.83		35.02	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		0.96		3.32		9.48	
Variety (B)			**		0.37		1.09		3.68	
B within A			**		0.74		2.17			
A within B					1.16		3.37			

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Date of Harvesting: 26.04, 07.05, 07.05 & 08.05.2014

Table 7.14.3. North Western Plain Zone **SPL-4** **Hisar** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	54.29	4	50.24	4	46.93	4	42.45	4	48.48	4
PBW 550	62.90	1	54.33	2	49.29	3	44.88	3	52.85	2
HD 2967	56.81	3	52.74	3	50.93	2	46.14	2	51.65	3
WH 1105	61.76	2	56.86	1	54.05	1	49.19	1	55.46	1
Mean	58.94		53.54		50.30		45.67		52.11	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		1.29		4.47		8.59	
Variety (B)			**		1.08		3.15		7.17	
B within A			N.S.		2.16		6.30			
A within B					2.27		6.63			
Grains/earhead										
DPW 621-50	28.86	4	29.81	4	29.59	3	28.79	3	29.26	4
PBW 550	33.36	1	31.14	2	30.41	2	29.65	2	31.14	2
HD 2967	30.22	3	30.00	3	29.22	4	28.63	4	29.52	3
WH 1105	32.91	2	32.88	1	33.04	1	32.24	1	32.77	1
Mean	31.34		30.96		30.56		29.83		30.67	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		0.99		3.43		11.19	
Variety (B)			*		0.76		2.23		8.64	
B within A			N.S.		1.53		4.46			
A within B					1.65		4.83			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	442	4	405	4	395	4	385	4	407	4
PBW 550	467	1	447	1	427	2	410	2	438	1
HD 2967	452	3	437	2	430	1	413	1	433	2
WH 1105	455	2	430	3	417	3	392	3	423	3
Mean	454		430		417		400		425	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		6.33		21.92		5.16	
Variety (B)			*		6.47		18.88		5.27	
B within A			N.S.		12.94		37.77			
A within B					12.87		37.57			
1000 Grains weight, g										
DPW 621-50	42.57	1	41.60	1	40.45	2	38.33	3	40.74	1
PBW 550	40.63	4	39.10	4	38.12	4	36.90	4	38.69	4
HD 2967	41.68	2	40.55	2	40.67	1	39.12	1	40.51	2
WH 1105	41.28	3	40.16	3	39.32	3	38.99	2	39.94	3
Mean	41.54		40.35		39.64		38.34		39.97	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.33		1.13		2.83	
Variety (B)			**		0.41		1.20		3.56	
B within A			N.S.		0.82		2.40			
A within B					0.78		2.28			

Date of Sowing: 26.10, 05.11, 15.11 & 25.11.2013

Date of Harvesting: 09.04, 16.04, 20.04 & 26.04.2014

Table 7.14.4. North Western Plain Zone **SPL-4** **Jammu** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	47.68	3	46.99	2	46.96	1	45.36	1	46.75	1
PBW 550	46.82	4	45.84	4	45.00	4	41.53	4	44.80	4
HD 2967	48.23	2	46.89	3	45.65	3	43.01	3	45.95	3
WH 1105	48.79	1	47.60	1	46.43	2	43.19	2	46.50	2
Mean	47.88		46.83		46.01		43.27		46.00	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		0.82		2.83		6.15	
Variety (B)			*		0.50		1.45		3.75	
B within A			N.S.		1.00		2.91			
A within B					1.19		3.47			
Grains/earhead										
DPW 621-50	33.21	2	30.68	3	21.30	3	32.32	2	29.38	3
PBW 550	27.89	4	22.99	4	20.57	4	30.52	3	25.49	4
HD 2967	28.40	3	34.50	2	27.66	2	28.25	4	29.70	2
WH 1105	38.30	1	36.25	1	35.39	1	35.60	1	36.38	1
Mean	31.95		31.10		26.23		31.67		30.24	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		1.12		3.88		12.84	
Variety (B)			**		1.25		3.65		14.32	
B within A			N.S.		2.50		7.30			
A within B					2.44		7.12			

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	401	2	388	2	373	2	354	2	379	2
PBW 550	396	3	384	3	367	3	343	3	373	3
HD 2967	382	4	368	4	349	4	338	4	359	4
WH 1105	405	1	389	1	377	1	360	1	383	1
Mean	396		382		366		349		373	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		9.20		31.83		8.53	
Variety (B)			*		5.50		16.07		5.11	
B within A			N.S.		11.01		32.13			
A within B					13.25		38.67			
1000 Grains weight, g										
DPW 621-50	39.40	3	39.05	3	38.83	3	38.92	2	39.05	3
PBW 550	40.26	2	39.23	2	38.99	2	38.67	3	39.29	2
HD 2967	42.11	1	42.24	1	41.76	1	41.19	1	41.83	1
WH 1105	38.39	4	38.80	4	38.03	4	37.31	4	38.13	4
Mean	40.04		39.83		39.40		39.02		39.57	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		0.37		1.28		3.25	
Variety (B)			**		0.31		0.90		2.70	
B within A			N.S.		0.62		1.80			
A within B					0.65		1.90			

Date of Harvesting: 13.04, 15.04, 25.04 & 25.04.2014

Table 7.14.5. North Western Plain Zone **SPL-4** **Karnal** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	60.03	4	59.74	4	60.29	3	55.24	4	58.83	4
PBW 550	63.42	2	62.12	2	60.15	4	57.45	3	60.79	2
HD 2967	61.22	3	60.65	3	61.79	2	57.52	2	60.30	3
WH 1105	63.95	1	65.49	1	62.97	1	58.66	1	62.77	1
Mean	62.16		62.00		61.30		57.22		60.67	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.66		2.27		3.75	
Variety (B)			*		0.91		2.66		5.20	
B within A			N.S.		1.82		5.32			
A within B					1.71		4.99			
Grains/earhead										
DPW 621-50	35.42	3	36.58	3	38.72	3	38.58	3	37.33	3
PBW 550	38.14	1	39.10	1	41.73	1	41.66	2	40.16	1
HD 2967	32.14	4	33.01	4	33.91	4	37.01	4	34.02	4
WH 1105	35.90	2	37.16	2	40.72	2	41.97	1	38.94	2
Mean	35.40		36.46		38.77		39.80		37.61	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		0.91		3.13		8.34	
Variety (B)			**		1.18		3.45		10.88	
B within A			N.S.		2.36		6.90			
A within B					2.24		6.53			

Date of Sowing: 26.10, 05.11, 14.11 & 25.11.2013

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	450	2	445	3	433	2	439	1	442	2
PBW 550	433	4	423	4	398	4	395	4	412	4
HD 2967	470	1	465	1	456	1	434	2	456	1
WH 1105	448	3	457	2	408	3	407	3	430	3
Mean	450		448		424		419		435	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		13.76		47.61		10.95	
Variety (B)			*		10.51		30.67		8.36	
B within A			N.S.		21.01		61.33			
A within B					22.81		66.59			
1000 Grains weight, g										
DPW 621-50	37.77	4	36.89	4	35.94	4	32.93	4	35.88	4
PBW 550	38.76	3	37.83	3	36.55	3	34.99	2	37.03	3
HD 2967	40.65	1	40.11	1	40.24	1	35.85	1	39.21	1
WH 1105	40.01	2	38.69	2	38.89	2	34.48	3	38.02	2
Mean	39.30		38.38		37.91		34.56		37.54	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.31		1.06		2.82	
Variety (B)			**		0.49		1.42		4.48	
B within A			N.S.		0.97		2.83			
A within B					0.89		2.61			

Date of Harvesting: 14.04, 14.04, 24.04 & 24.04.2014

Table 7.14.6. North Western Plain Zone **SPL-4** **Ludhiana** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	62.20	4	62.80	3	67.56	3	65.48	3	64.51	4
PBW 550	63.39	3	70.24	1	69.79	2	65.48	3	67.22	2
HD 2967	63.54	2	62.20	4	64.43	4	69.64	1	64.96	3
WH 1105	68.30	1	69.35	2	69.79	1	66.07	2	68.38	1
Mean	64.36		66.15		67.89		66.67		66.27	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		0.82		2.84		4.29	
Variety (B)			**		0.84		2.44		4.38	
B within A			*		1.67		4.89			
A within B					1.67		4.86			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	365	1	358	1	364	1	348	2	359	1
PBW 550	327	4	331	4	331	4	327	4	329	4
HD 2967	351	2	349	2	356	2	354	1	353	2
WH 1105	327	3	341	3	348	3	338	3	339	3
Mean	343		345		350		342		345	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		12.75		44.14		12.81	
Variety (B)			*		6.34		18.50		6.37	
B within A			N.S.		12.68		37.00			
A within B					16.83		49.12			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Grains/earhead										
DPW 621-50	44.81	3	46.28	3	50.21	3	53.08	2	48.59	3
PBW 550	46.54	2	49.98	2	50.78	2	48.95	4	49.06	2
HD 2967	42.09	4	42.76	4	43.18	4	52.30	3	45.08	4
WH 1105	55.52	1	52.13	1	52.62	1	56.16	1	54.10	1
Mean	47.24		47.79		49.19		52.62		49.21	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		2.05		7.08		14.40	
Variety (B)			**		1.37		4.00		9.65	
B within A			N.S.		2.74		8.00			
A within B					3.13		9.15			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
1000 Grains weight, g										
DPW 621-50	38.13	3	37.97	4	37.73	4	35.96	3	37.45	4
PBW 550	41.87	2	42.51	1	41.97	2	41.09	1	41.86	1
HD 2967	43.08	1	41.67	2	42.17	1	37.94	2	41.21	2
WH 1105	38.06	4	39.23	3	38.40	3	34.91	4	37.65	3
Mean	40.28		40.35		40.06		37.47		39.54	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		0.51		1.76		4.45	
Variety (B)			**		0.45		1.31		3.92	
B within A			N.S.		0.89		2.61			
A within B					0.93		2.70			

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Date of Harvesting: 23.04, 23.04, 24.04 & 25.04.2014

Table 7.14.7. North Western Plain Zone **SPL-4** **Pantnagar** **2013-14**

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Yield, q/ha										
DPW 621-50	52.20	2	52.80	1	45.80	2	47.47	3	49.57	2
PBW 550	48.73	3	42.17	4	38.17	4	48.30	2	44.34	4
HD 2967	47.33	4	51.43	3	45.60	3	46.27	4	47.66	3
WH 1105	53.97	1	51.50	2	49.47	1	53.80	1	52.18	1
Mean	50.56		49.48		44.76		48.96		48.44	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		0.80		2.76		5.71	
Variety (B)			**		1.00		2.93		7.17	
B within A			N.S.		2.01		5.85			
A within B					1.91		5.58			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Earhead/sq.m.										
DPW 621-50	383	2	402	2	501	1	360	3	411	2
PBW 550	377	3	447	1	463	2	397	1	421	1
HD 2967	384	1	317	4	407	3	380	2	372	3
WH 1105	334	4	343	3	393	4	357	4	357	4
Mean	369		377		441		374		390	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			**		8.10		28.02		7.19	
Variety (B)			**		9.50		27.73		8.43	
B within A			*		19.00		55.45			
A within B					18.34		53.52			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
Grains/earhead										
DPW 621-50	33.21	2	30.68	3	21.30	3	32.32	2	29.38	3
PBW 550	27.89	4	22.99	4	20.57	4	30.52	3	25.49	4
HD 2967	28.40	3	34.50	2	27.66	2	28.25	4	29.70	2
WH 1105	38.30	1	36.25	1	35.39	1	35.60	1	36.38	1
Mean	31.95		31.10		26.23		31.67		30.24	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			*		1.12		3.88		12.84	
Variety (B)			**		1.25		3.65		14.32	
B within A			N.S.		2.50		7.30			
A within B					2.44		7.12			

Variety	Dates of sowing: 25 Oct.	Rk	5 Nov.	Rk	15 Nov.	Rk	25 Nov.	Rk	Mean	Rk
1000 Grains weight, g										
DPW 621-50	41.13	4	43.27	2	43.47	1	41.27	3	42.28	2
PBW 550	46.67	1	41.23	4	40.23	3	39.87	4	42.00	3
HD 2967	44.07	2	47.23	1	40.77	2	43.40	1	43.87	1
WH 1105	42.23	3	42.90	3	37.27	4	42.40	2	41.20	4
Mean	43.53		43.66		40.43		41.73		42.34	
			F. Test		S.E.m		C.D.		C.V.(%)	
Sowing (A)			N.S.		0.83		2.86		6.77	
Variety (B)			N.S.		0.88		2.56		7.16	
B within A			N.S.		1.75		5.11			
A within B					1.73		5.04			

Date of Sowing: 25.10, 05.11, 15.11 & 25.11.2013

Date of Harvesting: 18.04, 18.04, 21.04 & 21.04.2014

Table 7.15.1. North Western Plain Zone **SPL-5** **Durgapura** **2013-14**

Irrigation Schedules	Irrigation Methods								Irrigation Methods							
	Conv.	Rk	Drip	Rk	Sprinkle	Rk	Mean	Rk	Conv.	Rk	Drip	Rk	Sprinkle	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
IW/CPE-1.20	51.90	1	56.63	1	47.61	1	52.05	1	378	1	416	1	366	1	387	1
IW/CPE-1.00	47.96	2	52.21	2	44.55	2	48.24	2	364	2	387	2	350	2	367	2
IW/CPE-0.80	42.04	3	47.61	3	36.56	3	42.07	3	342	3	362	3	329	3	344	3
IW/CPE-0.60	36.19	4	37.44	4	30.61	4	34.75	4	326	4	331	4	310	4	322	4
Mean	44.52		48.47		39.83		44.28		353		374		339		355	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.78		3.07		6.11		**		3.22		12.66		3.15	
Schedule (B)	**		1.01		3.01		6.87		**		5.25		15.59		4.43	
B within A	N.S.		1.76		5.22				N.S.		9.09		27.00			
A within B			1.71		5.08						8.50		25.26			
	Grains/earhead								**1000 Grains weight, g**							
IW/CPE-1.20	31.58	2	29.48	3	31.61	2	30.89	2	43.23	1	46.03	1	40.93	1	43.40	1
IW/CPE-1.00	31.74	1	29.77	2	31.94	1	31.15	1	41.67	2	45.07	2	40.63	2	42.46	2
IW/CPE-0.80	31.03	3	29.98	1	27.68	3	29.56	3	41.43	3	43.83	3	39.30	3	41.52	3
IW/CPE-0.60	27.31	4	28.59	4	27.61	4	27.84	4	41.27	4	41.33	4	35.77	4	39.46	4
Mean	30.42		29.45		29.71		29.86		41.90		44.07		39.16		41.71	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	N.S.		0.24		0.93		2.76		**		0.34		1.34		2.84	
Schedule (B)	*		0.71		2.10		7.10		N.S.		1.18		3.51		8.49	
B within A	N.S.		1.22		3.64				N.S.		2.04		6.07			
A within B			1.09		3.23						1.80		5.36			
Date of sowing:			20.11.2013						Date of harvestin		02.04.2014					

Table 7.15.2. North Western Plain Zone **SPL-5** **Karnal** **2013-14**

Irrigation Schedules	Irrigation Methods								Irrigation Methods							
	Conv	Rk	Drip	Rk	Sprinkle	Rk	Mean	Rk	Conv	Rk	Drip	Rk	Sprinkle	Rk	Mean	Rk
	Yield, q/ha								**Earhead/sq.m.**							
IW/CPE-1.20	52.27	4	55.63	4	49.39	4	52.43	4	532	4	548	4	463	4	515	4
IW/CPE-1.00	56.00	1	61.04	1	58.05	1	58.36	1	601	2	572	3	472	3	548	3
IW/CPE-0.80	55.38	2	56.59	3	54.83	3	55.60	3	617	1	583	2	519	2	573	2
IW/CPE-0.60	54.87	3	59.63	2	55.33	2	56.61	2	586	3	605	1	537	1	576	1
Mean	54.63		58.22		54.40		55.75		584		577		498		553	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.37		1.47		2.33		**		2.43		9.54		1.52	
Schedule (B)	**		0.49		1.47		2.66		**		5.19		15.41		2.81	
B within A	N.S.		0.86		2.55				**		8.98		26.69			
A within B			0.83		2.47						8.15		24.22			
	Grains/earhead								**1000 Grains weight, g**							
IW/CPE-1.20	27.14	1	27.59	2	28.34	3	27.69	2	36.18	3	36.80	4	37.64	2	36.87	4
IW/CPE-1.00	24.69	3	28.11	1	32.68	1	28.49	1	37.79	1	38.01	1	37.67	1	37.82	1
IW/CPE-0.80	23.87	4	26.23	4	28.35	2	26.15	4	37.63	2	37.02	3	37.30	4	37.32	2
IW/CPE-0.60	25.98	2	26.43	3	27.60	4	26.67	3	36.08	4	37.28	2	37.37	3	36.91	3
Mean	25.42		27.09		29.24		27.25		36.92		37.28		37.49		37.23	
	F. Test		S.E.m		C.D.		C.V.(%)		F. Test		S.E.m		C.D.		C.V.(%)	
Methods (A)	**		0.23		0.92		2.97		N.S.		0.18		0.72		1.70	
Schedule (B)	**		0.37		1.09		4.06		*		0.23		0.67		1.82	
B within A	**		0.64		1.90				N.S.		0.39		1.16			
A within B			0.60		1.78						0.38		1.14			
Date of sowing:			24.11.2013						Date of harvestin		20.04.2014					

Table 7.20.1. North Western Plains Zone **SPL-7** **Karnal** **2013-14**

Nutrient	Tiilage and Row Spacing in cm								Mean	Rk	Tiilage and Row Spacing in cm								Mean	Rk
	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk			CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk		
	Yield, q/ha										**Earhead/sq.m.**									
Rec. NPK	55.90	1	57.77	1	53.46	1	54.71	3	55.46	1	454	1	527	3	444	2	557	2	495	2
NPK+ FYM	50.74	2	55.95	2	50.27	2	57.45	1	53.60	2	422	3	553	2	424	3	566	1	491	3
125% NPK+FYM	47.06	3	50.35	3	48.56	3	55.72	2	50.42	3	443	2	558	1	459	1	546	3	501	1
Mean	51.23		54.69		50.76		55.96		53.16		439		546		443		556		496	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			*		1.02		3.54		5.77				**		7.97		27.58		4.82	
Nutrient (B)			**		0.65		1.90		4.25				N.S.		5.37		15.68		3.75	
B within A			*		1.30		3.80						N.S.		10.74		31.35			
A within B					1.48		4.31								11.85		34.59			
	Grains/Earhead										**1000 Grains Weight, g**									
Rec. NPK	28.35	2	25.55	1	28.79	2	23.94	2	26.66	2	43.43	1	42.98	1	41.83	1	41.00	3	42.31	1
NPK+ FYM	29.69	1	24.45	2	28.97	1	23.80	3	26.73	1	40.54	3	41.47	2	40.89	2	42.83	1	41.43	2
125% NPK+FYM	26.22	3	23.08	3	26.78	3	24.93	1	25.25	3	40.75	2	39.07	3	39.58	3	41.06	2	40.12	3
Mean	28.09		24.36		28.18		24.22		26.21		41.57		41.18		40.77		41.63		41.29	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			**		0.40		1.38		4.56				N.S.		0.64		2.23		4.68	
Nutrient (B)			*		0.37		1.09		4.95				**		0.38		1.11		3.20	
B within A			N.S.		0.75		2.19						N.S.		0.76		2.22			
A within B					0.73		2.13								0.90		2.61			

Date of Sowing: 10.11.2013 Date of harvesting: 18.04.2014

Table 7.20.2. North Western Plains Zone **SPL-7** **Ludhiana** **2013-14**

Nutrient	Tiilage and Row Spacing in cm								Mean	Rk	Tiilage and Row Spacing in cm								Mean	Rk
	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk			CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk		
	Yield, q/ha										**Earhead/sq.m.**									
Rec. NPK	65.91	3	66.94	3	65.15	3	60.84	3	64.71	3	408	3	476	3	374	3	445	3	426	3
NPK+ FYM	72.00	2	72.39	2	67.73	2	68.80	2	70.23	2	418	2	503	2	393	2	491	1	451	2
125% NPK+FYM	75.47	1	74.28	1	69.70	1	73.38	1	73.21	1	444	1	523	1	399	1	489	2	464	1
Mean	71.12		71.20		67.53		67.67		69.38		423		501		389		475		447	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			*		0.79		2.72		3.40				**		4.70		16.25		3.15	
Nutrient (B)			**		1.31		3.84		6.56				**		5.69		16.62		4.41	
B within A			N.S.		2.63		7.68						N.S.		11.39		33.23			
A within B					2.29		6.67								10.41		30.40			
	Grains/Earhead										**1000 Grains Weight, g**									
Rec. NPK	36.48	3	33.01	1	40.09	2	32.05	3	35.41	3	44.53	1	42.64	3	43.55	2	42.77	3	43.37	3
NPK+ FYM	40.11	1	32.29	2	37.77	3	32.37	2	35.63	2	42.96	2	44.59	2	45.55	1	43.33	2	44.11	1
125% NPK+FYM	39.68	2	31.62	3	41.05	1	34.32	1	36.67	1	42.84	3	44.99	1	42.64	3	43.80	1	43.57	2
Mean	38.76		32.31		39.64		32.91		35.90		43.44		44.07		43.91		43.30		43.68	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			**		0.60		2.09		5.05				N.S.		0.36		1.24		2.46	
Nutrient (B)			N.S.		0.71		2.07		6.84				N.S.		0.63		1.83		4.97	
B within A			N.S.		1.42		4.14						N.S.		1.25		3.66			
A within B					1.31		3.81								1.08		3.17			

Date of Sowing: 15.11.2013 Date of harvesting: 29.04.2014

Table 7.20.3. North Western Plains Zone **SPL-7** **Pantnagar** **2013-14**

Nutrient	Tiilage and Row Spacing in cm									Tiilage and Row Spacing in cm								
	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk
	Yield, q/ha										**Earhead/sq.m.**									
Rec. NPK	47.40	3	49.80	3	45.77	3	46.67	3	47.41	3	362	3	413	3	309	3	392	3	369	3
NPK+ FYM	48.77	2	50.10	2	46.83	2	48.63	2	48.58	2	391	2	421	2	415	2	429	2	414	2
125% NPK+FYM	49.57	1	53.63	1	49.87	1	49.60	1	50.67	1	412	1	440	1	427	1	465	1	436	1
Mean	48.58		51.18		47.49		48.30		48.89		388		425		384		429		406	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			N.S.		0.96		3.33		5.91				**		4.95		17.11		3.65	
Nutrient (B)			N.S.		0.90		2.63		6.39				**		11.10		32.39		9.46	
B within A			N.S.		1.80		5.27						N.S.		22.19		64.78			
A within B					1.76		5.14								18.78		54.83			
	Grains/Earhead										**1000 Grains Weight, g**									
Rec. NPK	36.53	1	29.95	3	36.57	1	32.05	1	33.77	1	35.90	3	40.33	2	40.77	1	37.60	3	38.65	2
NPK+ FYM	33.00	2	34.52	1	32.54	2	28.68	2	32.19	2	38.13	2	34.83	3	35.47	3	39.67	2	37.03	3
125% NPK+FYM	31.42	3	30.20	2	30.49	3	26.45	3	29.64	3	38.50	1	40.60	1	38.43	2	40.33	1	39.47	1
Mean	33.65		31.56		33.20		29.06		31.87		37.51		38.59		38.22		39.20		38.38	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			N.S.		1.33		4.59		12.48				N.S.		0.99		3.43		7.76	
Nutrient (B)			*		1.09		3.18		11.85				N.S.		0.66		1.92		5.94	
B within A			N.S.		2.18		6.36						*		1.32		3.84			
A within B					2.22		6.48								1.46		4.27			

Date of Sowing: 30.11.2013 Date of harvesting: 25.04.2014

Table 7.21.1. North Western Plains Zone **SPL-7 Rice** **Karnal** **2013-14**

Nutrient	Tiilage and Row Spacing in cm									Tiilage and Row Spacing in cm								
	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk
	Yield, q/ha										**Earhead/sq.m.**									
Rec. NPK	77.78	2	75.35	2	77.08	3	77.78	2	77.00	3	358	2	345	2	390	1	339	3	358	2
NPK+ FYM	73.61	3	78.47	1	80.56	2	75.35	3	77.00	2	343	3	357	1	380	2	373	1	363	1
125% NPK+FYM	79.17	1	75.00	3	82.64	1	81.60	1	79.60	1	365	1	328	3	356	3	345	2	348	3
Mean	76.85		76.27		80.09		78.24		77.86		355		343		375		353		357	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			N.S.		1.48		5.12		5.70				N.S.		6.22		21.53		5.23	
Nutrient (B)			N.S.		1.40		4.08		6.22				N.S.		5.54		16.16		5.38	
B within A			N.S.		2.80		8.16						N.S.		11.07		32.32			
A within B					2.72		7.94								10.97		32.03			
	Grains/Earhead										**1000 Grains Weight, g**									
Rec. NPK	88.22	1	86.69	3	79.42	3	91.02	2	86.34	2	24.63	3	25.25	1	24.91	3	25.24	1	25.01	3
NPK+ FYM	86.77	3	88.05	2	84.21	2	80.72	3	84.94	3	24.80	2	24.98	3	25.31	1	25.09	2	25.04	2
125% NPK+FYM	86.78	2	91.22	1	92.66	1	95.10	1	91.44	1	25.03	1	25.17	2	25.13	2	24.89	3	25.06	1
Mean	87.26		88.65		85.43		88.95		87.57		24.82		25.13		25.12		25.07		25.04	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			N.S.		2.67		9.23		9.14				N.S.		0.14		0.48		1.67	
Nutrient (B)			N.S.		2.05		5.99		8.11				N.S.		0.10		0.31		1.45	
B within A			N.S.		4.10		11.97						N.S.		0.21		0.61			
A within B					4.28		12.50								0.22		0.64			

Date of Sowing: 11.07.2013 Date of harvesting: 14.10.2013

Table 7.21.2. North Western Plains Zone **SPL-7 Rice Pantnagar** **2013-14**

Nutrient	Tiilage and Row Spacing in cm										Tiilage and Row Spacing in cm									
	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk	CT 20	Rk	CT 15	Rk	RT 20	Rk	RT 15	Rk	Mean	Rk
	Yield, q/ha										**Earhead/sq.m.**									
Rec. NPK	51.00	3	44.27	3	56.03	3	54.93	3	51.56	3	252	3	353	3	257	3	380	3	311	3
NPK+ FYM	51.73	2	54.10	2	56.57	2	55.93	1	54.58	2	260	2	389	2	286	2	410	2	336	2
125% NPK+FYM	54.70	1	57.63	1	56.77	1	55.17	2	56.07	1	361	1	394	1	290	1	424	1	367	1
Mean	52.48		52.00		56.46		55.34		54.07		291		379		278		405		338	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			*		0.86		2.99		4.79				**		6.28		21.73		5.57	
Nutrient (B)			**		0.90		2.62		5.75				**		10.69		31.20		10.96	
B within A			*		1.80		5.24						N.S.		21.38		62.40			
A within B					1.70		4.97								18.55		54.15			
	Grains/Earhead										**1000 Grains Weight, g**									
Rec. NPK	84.73	1	49.48	3	99.13	1	55.71	1	72.26	1	24.37	3	25.37	3	22.10	3	26.20	2	24.51	3
NPK+ FYM	84.14	2	52.86	2	78.42	2	52.29	2	66.93	2	24.63	2	26.40	2	25.37	2	26.17	3	25.64	2
125% NPK+FYM	61.69	3	55.47	1	76.32	3	50.08	3	60.89	3	25.07	1	26.57	1	25.80	1	26.30	1	25.93	1
Mean	76.85		52.60		84.62		52.70		66.69		24.69		26.11		24.42		26.22		25.36	
			F. Test		S.E.m		C.D.		C.V.(%)				F. Test		S.E.m		C.D.		C.V.(%)	
Tillage & Spacing (A)			**		1.62		5.60		7.28				*		0.41		1.42		4.86	
Nutrient (B)			N.S.		3.46		10.09		17.96				N.S.		0.71		2.06		9.63	
B within A			N.S.		6.91		20.18						N.S.		1.41		4.12			
A within B					5.87		17.14								1.22		3.57			

Date of Sowing: 12.07.2013 Date of harvesting: 11.11.2013

ANNEXURE -II

METEOROLOGICAL INFORMATION: 2013-2014

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
NORTHERN HILLS ZONE								
ALMORA	**Latitude 29^{0}36' N**		**Longitude 79^{0}40' E**		**Height above MSL 1250 m**			
40 (01-07 Oct)	27.1	17.7	95.7	60.3	7.0	2.2	2.0	3.4
41 (08-14 Oct)	28.0	16.9	95.8	61.1	3.0	2.5	2.0	6.3
42 (15-21 Oct)	27.2	13.4	94.6	52.2	4.0	2.4	2.2	7.4
43 (22-28 Oct)	27.1	10.9	96.9	39.6	0.0	2.4	2.2	8.1
44 (29-04 Nov)	25.4	5.7	100.0	34.3	0.0	2.4	2.1	7.3
45 (05-11 Nov)	21.6	4.9	99.3	40.6	3.0	1.8	2.0	6.5
46 (12-18 Nov)	23.6	1.4	98.8	32.4	0.0	2.1	1.2	8.8
47 (19-25 Nov)	23.5	1.5	100.0	45.1	0.0	1.7	1.7	7.3
48 (26-02 Dec)	23.9	1.6	100.0	35.9	0.0	1.7	1.7	7.6
49 (03-09 Dec)	22.5	0.1	98.6	39.9	0.0	1.7	1.9	8.4
50 (10-16 Dec)	20.7	1.1	99.3	55.7	0.0	1.5	1.7	6.9
51(17-23 Dec)	18.3	0.3	98.6	53.8	0.0	1.4	2.3	6.3
52 (24-31 Dec)	19.9	-1.6	99.3	45.9	6.0	1.3	1.6	6.7
1 (01-07 Jan)	19.6	-1.4	100.0	35.6	0.0	1.3	2.0	6.9
2 (08-14 Jan)	16.9	1.4	97.9	55.9	9.5	0.9	1.8	4.3
3 (15-21 Jan)	17.6	2.0	99.3	56.6	44.0	0.8	2.1	4.1
4 (22-28 Jan)	19.0	1.7	98.6	47.4	3.0	1.1	1.5	6.3
5 (29-04 Feb)	22.1	0.4	96.6	32.1	0.0	1.3	2.2	8.2
6 (05-11 Feb)	16.5	3.9	100.0	48.4	13.0	0.9	2.7	3.9
7 (12-18 Feb)	16.4	0.0	100.0	54.8	52.0	0.8	2.7	5.2
8 (19-25 Feb)	20.6	3.9	96.6	35.6	0.0	1.2	2.4	6.0
9 (26-04 Mar)	17.4	4.3	98.9	63.8	54.5	0.8	2.4	3.8
10 (05-11 Mar)	20.7	4.7	96.5	47.6	18.5	1.4	2.2	6.0
11 (12-18 Mar)	24.1	7.3	98.1	43.4	0.0	2.2	2.3	7.5
12 (19-25 Mar)	23.9	6.6	96.1	43.8	0.0	2.2	2.9	7.8
13 (26-01 Apr)	25.9	7.1	93.5	47.2	0.0	2.1	2.5	6.3
14 (02-08 Apr)	27.1	7.9	83.4	62.4	9.0	3.0	2.9	9.2
15 (09-15 Apr)	25.6	7.9	83.9	39.9	0.0	3.0	2.6	9.7
16 (16-22 Apr)	24.4	8.3	91.7	48.3	6.5	2.3	2.9	5.4
17 (23-29 Apr)	30.9	9.2	74.5	34.8	0.0	3.7	2.8	10.7
18 (30-06 May)	29.9	10.5	79.2	42.4	11.5	3.2	2.7	7.0
19 (7-13 May)	29.4	12.4	74.6	40.6	5.5	3.9	3.2	8.0
20 (14-20 May)	31.9	11.2	66.4	50.6	0.0	5.2	2.7	11.0
21 (21-27 May)	31.4	12.1	65.6	33.0	7.0	4.4	2.9	8.9

BAJAURA	**Latitude 31^{0}48' N**		**Longitude 77^{0}00' E**			**Height above MSL 1090 m**		
40 (01-07 Oct)	30.2	17.6	88.0	47.0	0.0	26.2		8.1
41 (08-14 Oct)	29.9	17.2	92.0	55.0	2.0	24.2		5.2
42 (15-21 Oct)	28.7	9.8	93.0	37.0	0.0	22.5		8.6
43 (22-28 Oct)	27.1	8.6	96.0	37.0	0.0	18.3		7.9
44 (29-04 Nov)	25.0	5.7	92.0	30.0	0.0	16.9		7.4
45 (05-11 Nov)	21.7	5.3	94.0	44.0	12.0	10.0		4.9
46 (12-18 Nov)	23.0	0.7	95.0	26.0	0.0	11.8		7.3
47 (19-25 Nov)	24.8	1.4	94.0	29.0	0.0	10.4		7.1
48 (26-02 Dec)	24.4	0.5	96.0	28.0	0.0	9.7		7.0
49 (03-09 Dec)	22.2	0.1	92.0	31.0	0.0	8.7		5.7
50 (10-16 Dec)	21.0	-1.1	94.0	27.0	0.0	10.3		6.3
51 (17-23 Dec)	17.3	-0.2	95.0	42.0	14.4	8.4		5.1
52 (24-31 Dec)	17.4	-1.1	93.0	34.0	0.0	9.1		6.2
1 (01-07 Jan)	15.4	-0.5	92.0	45.0	10.6	6.0		4.1
2 (08-14 Jan)	12.4	2.1	93.0	49.0	20.5	5.4		2.7
3 (15-21 Jan)	16.2	1.2	94.0	46.0	4.6	7.5		4.1
4 (22-28 Jan)	17.3	1.3	91.0	39.0	12.4	6.9		4.5
5 (29-04 Feb)	19.4	2.3	89.0	41.0	5.0	8.7		5.1
6 (05-11 Feb)	12.7	2.0	93.0	69.0	70.8	6.9		2.3

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
7 (12-18 Feb)	13.4	0.5	95.0	51.0	62.5	8.4		4.8
8 (19-25 Feb)	20.0	3.6	92.0	39.0	1.8	14.0		7.1
9 (26-04 Mar)	16.0	5.6	91.0	55.0	22.8	12.7		3.5
10 (05-11 Mar)	17.7	4.4	89.0	54.0	21.2	14.4		4.8
11 (12-18 Mar)	21.3	5.1	91.0	43.0	46.0	14.5		5.1
12 (19-25 Mar)	21.2	6.0	89.0	46.0	33.6	11.9		5.4
13 (26-01 Apr)	21.4	7.1	94.0	48.0	20.3	16.5		5.8
14 (02-08 Apr)	23.5	7.2	94.0	42.0	40.8	17.2		5.9
15 (09-15 Apr)	25.0	7.6	95.0	35.0	9.0	22.4		7.7
16 (16-22 Apr)	22.0	8.2	92.0	60.0	40.1	17.7		5.5
17 (23-29 Apr)	29.0	9.7	93.0	35.0	0.0	32.2		9.9
18(30-06 May)	30.8	12.7	90.0	43.0	25.0	29.1		7.4
19 (7-13 May)	26.4	12.4	93.0	46.0	44.0	25.1		6.9
20(4-20 May)	26.7	11.7	91.0	40.0	7.6	24.3		7.0
21(21-27 May)	28.8	12.2	91.0	46.0	30.5	29.5		8.6

IMPHAL	Latitude 24^{0}46' N		Longitude 90^{0}54' E			Height above MSL 730 m		
40 (01-07 Oct)	32.5	18.3	95.0	59.0	18.6		1.12	3.2
41 (08-14 Oct)	33.4	14.8	96.0	55.0	27.4		0.68	6.3
42 (15-21 Oct)	33.4	18.0	91.0	56.0	2.2		1.40	7.0
43 (22-28 Oct)	29.7	15.5	96.0	59.0	38.5		0.84	2.3
44 (29-04 Nov)	28.0	10.7	92.0	38.0	3.6		1.15	7.9
45 (05-11 Nov)	28.4	9.0	96.0	51.0			0.41	8.7
46 (12-18 Nov)	29.5	7.1	92.0	41.0			0.18	8.4
47 (19-25 Nov)	27.4	6.7	88.0	41.0			1.38	9.1
48 (26-02 Dec)	28.9	8.4	91.0	40.0			1.15	7.9
49 (03-09 Dec)	26.6	7.0	90.0	46.0			1.14	8.0
50 (10-16 Dec)	23.3	4.0	95.0	41.0	1.4		1.52	8.6
51 (17-23 Dec)	22.0	1.0	94.0	42.0			1.24	5.3
52 (24-31 Dec)	23.4	3.0	94.0	44.0			1.55	7.3
1 (01-07 Jan)	23.8	1.1	94.0	38.0			2.34	8.6
2 (08-14 Jan)	24.5	2.1	97.0	39.0			1.43	8.2
3 (15-21 Jan)	25.8	5.1	90.0	42.0			1.89	8.2
4 (22-28 Jan)	25.9	3.1	94.0	31.0			2.57	8.7
5 (29-04 Feb)	27.2	2.8	91.0	29.0			2.27	9.3
6 (05-11 Feb)	24.7	5.0	94.0	46.0	2.2		5.21	6.1
7 (12-18 Feb)	24.6	3.0	98.0	31.0	29.0		3.36	4.9
8 (19-25 Feb)	27.4	5.0	94.0	31.0			2.77	8.8
9 (26-04 Mar)	28.7	7.6	90.0	36.0			4.56	6.8
10 (05-11 Mar)	29.2	5.0	89.0	30.0			4.21	7.9
11 (12-18 Mar)	34.1	3.6	87.0	30.0			3.90	7.7
12 (19-25 Mar)	29.0	10.4	96.0	37.0	24.5		4.61	6.8
13 (26-01 Apr)	30.5	13.0	94.0	43.0	11.6		6.71	7.6
14 (02-08 Apr)	29.5	11.5	94.0	42.0	15.4		4.69	5.9
15 (09-15 Apr)	31.9	9.9	87.0	53.0	2.7		4.34	7.4
16 (16-22 Apr)	32.8	12.1	82.0	45.0	1.6		5.41	8.3
17 (23-29 Apr)	33.5	13.5	98.0	31.0	19.7		5.83	9.1
18(30-06 May	31.8	14.6	96.0	52.0	19.8		3.16	4.2

KHUDWANI	Latitude 34^0 N		Longitude 74^0 E			Height above MSL 1560 m		
40 (01-07 Oct)	29.0	11.7	85.4	45.6	0.0	23.5	1.03	8.3
41 (08-14 Oct)	24.7	12.9	88.4	65.0	11.6	19.7	0.76	4.5
42 (15-21 Oct)	23.4	6.4	84.9	54.1	0.0	15.9	1.79	6.8
43 (22-28 Oct)	23.0	3.3	81.9	67.7	0.0	15.9	1.47	7.0
44 (29-04 Nov)	15.6	2.2	85.7	72.0	17.6	10.7	1.63	3.0
45 (05-11 Nov)	13.6	2.8	82.0	70.4	8.8	6.7	1.69	3.0
46 (12-18 Nov)	15.6	-1.8	85.1	38.4	0.0	5.4	0.83	6.3
47 (19-25 Nov)	16.2	-0.8	86.9	72.4	0.0	7.4	0.99	2.6
48 (26-02 Dec)	14.9	-3.3	89.9	75.7	0.0	7.9	0.60	4.0
49 (03-09 Dec)	12.9	-2.4	88.3	62.6	0.0	4.9	1.20	1.1
50 (10-16 Dec)	10.2	-4.0	93.9	69.0	0.0	2.7	0.71	2.8
51 (17-23 Dec)	9.3	-0.8	85.3	67.4	10.2	2.7	1.37	2.7
52 (24-31 Dec)	7.2	-1.5	79.0	68.4	12.6	4.6	1.28	3.4
1 (01-07 Jan)	4.6	-2.4	84.6	83.1	48.2			0.6

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
2 (08-14 Jan)	4.0	-1.4	89.7	83.1	22.2			0.9
3 (15-21 Jan)	7.9	-2.2	93.3	72.1	0.0			2.5
4 (22-28 Jan)	3.1	0.1	89.0	82.4	95.2			0.1
5 (29-04 Feb)	4.6	-1.6	89.4	72.3	4.4			0.3
6 (05-11 Feb)	8.0	-0.6	90.4	65.9	28.1			3.9
7 (12-18 Feb)	10.0	-1.7	91.6	50.0	25.0			5.9
8 (19-25 Feb)	10.8	1.3	82.7	54.7	6.0			2.9
9 (26-04 Mar)	10.5	2.1	85.4	63.1	0.8			1.8
10 (05-11 Mar)	9.7	1.2	80.6	73.9	16.7			2.6
11 (12-18 Mar)	8.8	1.6	88.3	70.7	103.0			2.2
12 (19-25 Mar)	13.5	5.1	82.9	61.0	19.8			1.9
13 (26-01 Apr)	13.9	5.0	84.3	62.4	38.0			3.2
14 (02-08 Apr)	13.3	6.9	87.9	75.6	66.4			0.9
15 (09-15 Apr)	17.8	4.6	74.4	53.9	20.4			6.1
16 (16-22 Apr)	15.1	6.2	81.3	73.4	38.0			3.2
17 (23-29 Apr)	23.4	7.0	73.0	46.9	0.0			8.1
18 (30-06 May)	25.0	8.9	83.0	53.7	0.2			6.9
19 (7-13 May)	21.7	9.6	184.0	60.1	29.4			5.1
20 (14-20 May)	19.9	8.9	87.0	59.1	23.8			3.6
21 (21-27 May)	24.0	7.7	78.4	49.7	15.5			7.0

MALAN	Latitude 32^{0}1' N		Longitude 76^{0}2' E		Height above MSL 950 m			
40 (01-07 Oct)	28.5	19.3	71.7	69.3	6.1			
41 (08-14 Oct)	29.0	18.6	72.0	69.7	42.7			
42 (15-21 Oct)	27.8	17.6	57.0	52.3	0.2			
43 (22-28 Oct)	26.6	16.3	58.3	54.9	-			
44 (29-04 Nov)	27.1	15.0	46.9	48.1	-			
45 (05-11 Nov)	23.8	12.0	48.3	45.1	45			
46 (12-18 Nov)	22.3	9.0	42.7	43.4	-			
47 (19-25 Nov)	22.0	9.2	47.6	47.1	-			
48 (26-02 Dec)	21.8	8.4	48.0	45.1	-			
49 (03-09 Dec)	20.3	7.4	44.6	43.1	-			
50 (10-16 Dec)	18.9	6.5	43.0	39.3	-			
51 (17-23 Dec)	16.2	5.6	46.3	42.1	39.6			
52 (24-31 Dec)	16.0	5.2	45.6	41.9	24.1			
1 (01-07 Jan)	16.5	5.0	52.7	48.9	2.8			
2 (08-14 Jan)	14.7	5.1	47.7	45.4	-			
3 (15-21 Jan)	16.8	5.5	50.3	46.6	1.2			
4 (22-28 Jan)	17.0	5.5	56.9	53.9	57			
5 (29-04 Feb)	18.9	7.2	48.3	45.1	7.2			
6 (05-11 Feb)	16.3	5.3	62.3	57.9	55.8			
7 (12-18 Feb)	16.5	5.0	54.0	51.0	66.2			
8 (19-25 Feb)	19.8	7.2	51.9	48.3	19.4			
9 (26-04 Mar)	16.8	6.2	54.4	51.7	48.1			
10 (05-11 Mar)	19.1	6.3	47.1	44.0	25.3			
11 (12-18 Mar)	19.6	7.4	49.0	45.4	23.7			
12 (19-25 Mar)	25.0	7.2	52.6	48.9	20.3			
13 (26-01 Apr)	26.0	7.0	47.3	44.0	13.1			
14 (02-08 Apr)	25.2	7.2	46.6	43.4	8.8			
15 (09-15 Apr)	27.1	7.6	44.9	40.3	4.6			
16 (16-22 Apr)	27.6	8.0	54.7	51.4	23.8			
17 (23-29 Apr)	31.1	13.9	43.6	40.0	-			
18 (30-06 May)	33.5	17.2	42.1	38.6	0.2			
19 (7-13 May)	32.0	16.3	54.1	51.7	36.5			
20 (14-20 May)	33.5	17.2	47.7	44.0	-			
21 (21-27 May)	35.7	18.1	43.3	39.3	0.2			

SHIMLA	Latitude 31^0 06'N		Longitude 77^0 06'E		Height above MSL 1900 m			
40 (01-07 Oct)	23.03	14.64	95.0	45.0	41.80			7.79
41 (08-14 Oct)	22.51	15.40	95.0	60.0	1.80			7.64
42 (15-21 Oct)	21.57	13.47	90.0	33.0	0.20			9.36
43 (22-28 Oct)	20.43	11.91	93.0	23.0	0.20			8.93
44 (29-04 Nov)	18.50	9.93	91.0	22.0	3.40			7.71
45 (05-11 Nov)	16.40	7.93	91.0	43.0	2.60			7.86

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
46 (12-18 Nov)	18.06	9.56	67.0	24.0	0.00			8.86
47 (19-25 Nov)	19.66	9.74	84.0	21.0	0.00			7.86
48 (26-02 Dec)	19.17	10.20	86.0	17.0	0.00			7.07
49 (03-09 Dec)	17.33	8.99	83.0	20.0	0.00			5.93
50 (10-16 Dec)	17.34	7.73	71.0	16.0	0.00			7.07
51 (17-23 Dec)	12.26	4.63	94.0	24.0	0.20			5.57
52 (24-31 Dec)	12.75	4.66	89.0	17.0	0.00			7.43
1 (01-07 Jan)	13.09	4.64	92.0	16.0	0.00			6.71
2 (08-14 Jan)	12.63	3.77	92.0	13.0	0.60			6.71
3 (15-21 Jan)	12.80	3.79	94.0	37.0	0.40			6.71
4 (22-28 Jan)	13.86	4.86	94.0	23.0	19.60			8.00
5 (29-04 Feb)	15.10	6.50	91.0	36.0	4.20			6.86
6 (05-11 Feb)	9.96	3.64	94.0	32.0	1.00			6.14
7 (12-18 Feb)	9.31	3.11	95.0	18.0	18.80			5.07
8 (19-25 Feb)	14.66	5.59	91.0	31.0	1.00			8.07
9 (26-04 Mar)	11.49	3.86	93.0	44.0	24.40			6.14
10 (05-11 Mar)	14.57	5.89	91.0	38.0	18.00			7.00
11 (12-18 Mar)	19.27	9.34	93.0	32.0	16.00			7.57
12 (19-25 Mar)	17.33	8.97	93.0	30.0	14.80			7.79
13 (26-01 Apr)	18.49	10.17	92.0	39.0	1.20			7.50
14 (02-08 Apr)	20.74	9.87	90.0	31.0	4.20			9.86
15 (09-15 Apr)	20.09	11.49	92.0	30.0	0.00			9.79
16 (16-22 Apr)	19.47	9.50	93.0	32.0	9.60			9.57
17 (23-29 Apr)	24.05	16.27	64.0	34.0	0.00			11.00

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)	30.4	23.1	90.4	84.7	106.0	3.4		
41(08-14 Oct)	32.0	22.9	77.9	87.1	24.0	2.7		
42(15-21 Oct)	33.1	20.3	90.4	66.3	0.0	2.7		
43(22-28 Oct)	31.9	17.3	89..9	62.4	0.0	3.1		
44(29-04 Nov)	31.4	15.3	86.9	60.3	0.0	2.6		
45(05-11 Nov)	27.6	14.6	89.4	55.6	0.0	1.9		
46(12-18 Nov)	26.4	8.1	89.6	60.0	0.0	2.3		
47(19-25 Nov)	27.9	9.0	82.9	56.9	0.0	2.1		
48(26-02 Dec)	27.6	9.2	84.1	55.9	0.0	1.9		
49(03-09 Dec)	25.8	7.7	89.0	57.7	0.0	1.9		
50(10-16 Dec)	24.9	8.1	75.1	48.7	0.0	1.6		
51(17-23 Dec)	22.7	10.6	89.0	74.0	0.0	1.0		
52(24-31 Dec)	19.2	5.0	84.1	66.0	14.1	1.4		
1(01-07 Jan)	18.3	7.5	89.6	76.6	0.0	1.7		
2(08-14 Jan)	17.2	6.5	85.5	79.9	0.0	2.1		
3(15-21 Jan)	16.0	9.2	0.0	75.9	38.4	0.6		
4(22-28 Jan)	18.8	10.1	91.5	87.4	9.0	1.0		
5(29-04 Feb)	21.3	9.4	91.0	82.3	0.0	1.2		
6(05-11 Feb)	23.5	10.1	87.0	66.7	0.0	2.1		
7(12-18 Feb)	21.7	9.1	87.3	65.6	6.3	2.9		
8(19-25 Feb)	22.9	10.4	74.4	65.0	17.1	1.3		
9(26-04 Mar)	22.8	12.8	88.3	53.4	22.0	1.3		
10(05-11 Mar)	27.4	13.2	86.0	60.3	9.3	2.9		
11(12-18 Mar)	29.1	12.8	89.7	58.3	0.0	3.6		
12(19-25 Mar)	32.6	14.5	78.7	52.0	4.3	4.0		
13(26-01 Apr)	33.7	17.3	72.0	50.0	0.0	4.4		
14(02-08 Apr)	36.4	18.8	66.3	41.3	0.0	6.7		
15(09-15 Apr)	36.6	19.0	53.9	34.9	0.0	8.3		
16(16-22 Apr)	35.9	19.8	71.1	49.0	0.0	5.6		
17(23-29 Apr)	40.1	21.1	51.3	30.0	6.0	8.3		
18(30-06 May)	36.5	24.4	54.1	37.3	0.0	6.6		
19(07-13 May)	40.3	23.7	51.7	31.0	0.0	7.9		
20 (14-20 May)	39.0	23.7	60.1	31.6	0.0	8.0		
21 (21-27 May)	41.6	25.6	54.9	33.1	0.0	9.3		

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
DURGAPURA	**Latitude 26^{0}51' N**		**Longitude 75^{0}47' E**			**Height above MSL 390 m**		
40(01-07 Oct)	31.7	23.2	80.0	61.0	0.0	5.4	6.6	7.4
41(08-14 Oct)	33.0	22.0	80.0	52.0	1.2	5.8	5.4	7.3
42(15-21 Oct)	34.0	20.5	65.0	26.0	0.0	4.8	3.4	9.1
43(22-28 Oct)	32.4	19.1	61.0	24.0	0.0	4.2	3.3	9.1
44(29-04 Nov)	31.6	16.9	58.0	27.0	0.0	3.3	3.8	8.7
45(05-11 Nov)	27.2	15.2	65.0	36.0	4.0	2.7	4.5	7.0
46(12-18 Nov)	26.1	10.9	72.0	18.0	0.0	2.9	2.5	8.7
47(19-25 Nov)	28.5	11.8	70.0	26.0	0.0	3.4	2.8	9.2
48(26-02 Dec)	28.8	12.7	75.0	28.0	0.0	3.6	2.9	9.2
49(03-09 Dec)	26.7	10.3	81.0	32.0	0.0	3.2	2.4	9.2
50(10-16 Dec)	26.5	10.8	79.0	29.0	0.0	3.3	3.9	8.9
51(17-23 Dec)	22.6	11.0	90.0	50.0	0.0	2.5	3.8	5.1
52(24-31 Dec)	20.8	7.5	64.0	32.0	0.0	2.1	4.0	4.9
1(01-07 Jan)	18.9	6.4	89.0	41.0	0.0	1.8	3.2	3.9
2(08-14 Jan)	19.7	6.8	75.0	41.0	0.0	2.1	4.4	7.5
3(15-21 Jan)	18.8	7.8	92.0	56.0	5.6	1.5	4.8	4.5
4(22-28 Jan)	19.6	10.0	96.0	55.0	8.2	1.2	3.7	4.5
5(29-04 Feb)	24.0	10.1	92.0	36.0	0.0	2.2	3.3	8.5
6(05-11 Feb)	23.9	11.1	72.0	32.0	2.0	3.0	5.5	8.6
7(12-18 Feb)	22.2	7.6	79.0	23.0	0.0	3.0	5.2	8.6
8(19-25 Feb)	23.3	12.0	74.0	45.0	6.2	3.2	5.6	6.7
9(26-04 Mar)	23.1	11.6	83.0	43.0	33.0	2.8	5.4	7.5
10(05-11 Mar)	27.9	13.2	73.0	31.0	2.4	4.3	5.6	9.3
11(12-18 Mar)	30.1	16.2	60.0	17.0	0.0	4.4	6.0	9.5
12(19-25 Mar)	32.2	18.4	54.0	24.0	11.2	5.9	7.8	9.1
13(26-01 Apr)	32.3	20.7	50.0	27.0	0.0	6.6	6.0	7.3
14(02-08 Apr)	35.9	20.0	45.0	17.0	0.0	7.5	6.1	9.7
15(09-15 Apr)	35.5	21.6	33.0	13.0	0.0	7	5.5	10.4
16(16-22 Apr)	33.8	21.1	47.0	29.0	8.5	5.6	6.3	5.9
17(23-29 Apr)	38.2	22.3	37.0	13.0	2.6	8.1	5.4	11.1

GURDASPUR	**Latitude – 32^{0}03'**		**Longitude – 75^{0}24'**				**Height Above MSL 260 m**	
40(01-07 Oct)	30.8	22.9	98.0	81.0	4.0		0.9	
41(08-14 Oct)	30.4	21.7	98.0	77.0	36.5		1.0	
42(15-21 Oct)	30.6	15.7	98.0	54.0	0.0		0.8	
43(22-28 Oct)	28.9	16.6	98.0	54.0	0.0		0.7	
44(29-04 Nov)	26.5	12.8	95.0	47.0	0.0		0.9	
45(05-11 Nov)	23.7	11.7	97.0	57.0	0.0		0.9	
46(12-18 Nov)	24.5	8.8	99.0	41.0	0.0		0.6	
47(19-25 Nov)	24.4	9.9	99.0	46.0	0.0		0.6	
48(26-02 Dec)	24.2	9.4	98.0	48.0	0.0		0.7	
49(03-09 Dec)	22.4	8.7	99.0	55.0	0.0		0.8	
50(10-16 Dec)	21.0	7.7	99.0	61.0	0.0		1.1	
51(17-23 Dec)	15.0	9.4	99.0	91.0	22.5		1.2	
52(24-31 Dec)	16.1	3.8	99.0	59.0	0.0		1.0	
1(01-07 Jan)	16.5	3.2	99.0	69.0	4.5		1.3	
2(08-14 Jan)	16.2	4.8	99.0	68.0	0.0		1.3	
3(15-21 Jan)	16.6	7.3	99.0	79.0	0.0		1.0	
4(22-28 Jan)	18.2	6.8	99.0	74.0	63.0		1.3	
5(29-04 Feb)	17.2	9.0	99.0	87.0	1.0		1.2	
6(05-11 Feb)	12.2	7.3	99.0	75.0	7.0		1.6	
7(12-18 Feb)	17.2	5.7	99.0	69.0	16.0		1.3	
8(19-25 Feb)	20.2	8.1	99.0	65.0	3.0		1.4	
9(26-04 Mar)	20.9	9.4	95.0	57.0	2.5		1.9	
10(05-11 Mar)	22.6	10.4	91.0	61.0	12.0		2.1	
11(12-18 Mar)	25.8	11.7	98.0	63.0	15.0		1.8	
12(19-25 Mar)	23.9	12.8	97.0	66.0	18.0		1.8	
13(26-01 Apr)	25.9	13.8	94.0	57.0	1.0		1.7	
14(02-08 Apr)	25.6	13.3	88.0	66.0	6.0		2.4	
15(09-15 Apr)	29.4	13.0	75.0	41.0	3.0		1.8	
16(16-22 Apr)	28.6	14.7	81.0	44.0	41.5		1.9	
17(23-29 Apr)	35.1	18.1	61.0	28.0	0.0		1.5	

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
18(30-06 May)	36.5	20.8	59.0	33.0	8.0		2.1	
19(07-13 May)	32.6	20.4	67.0	42.0	8.5		2.1	
20 (14-20 May)	33.7	20.0	70.0	40.0	1.5		0.0	
21 (21-27 May)	36.2	19.8	49.0	37.0	2.0		0.5	

HISAR	Latitude 29º10'N		Longitude 75º 46'E		Height above MSL 215.2 m			
40(01-07 Oct)	31.3	23.6	89.1	62.7	4.0	3.3	5.3	6.9
41(08-14 Oct)	32.0	23.6	91.6	58.9	2.5	2.9	4.1	5.8
42(15-21 Oct)	33.2	19.0	86.7	37.3	0.0	3.1	2.6	8.9
43(22-28 Oct)	31.4	16.3	94.9	36.9	0.0	2.2	2.1	6.8
44(29-04 Nov)	30.3	14.2	89.1	37.1	0.0	2.7	3.3	7.7
45(05-11 Nov)	24.7	12.7	91.0	51.3	9.4	1.8	3.2	3.4
46(12-18 Nov)	25.2	8.0	95.6	36.9	0.0	1.7	1.6	7.9
47(19-25 Nov)	27.2	9.2	92.4	38.4	0.0	2.1	2.0	7.9
48(26-02 Dec)	27.8	8.8	91.7	38.1	0.0	1.7	1.9	8.0
49(03-09 Dec)	25.4	7.9	91.3	43.3	0.0	1.6	2.1	7.8
50(10-16 Dec)	24.1	7.2	93.7	44.4	0.0	1.4	3.3	15.0
51(17-23 Dec)	18.2	10.1	96.7	78.4	0.0	0.6	3.4	2.0
52(24-31 Dec)	18.3	3.2	94.3	43.3	0.0	1.3	2.9	6.8
1(01-07 Jan)	16.9	2.4	95.3	59.3	0.0	1.0	2.7	4.4
2(08-14 Jan)	18.5	3.3	95.9	52.1	0.0	1.2	2.3	5.5
3(15-21 Jan)	16.4	6.5	99.3	83.6	0.0	0.5	3.4	2.3
4(22-28 Jan)	18.3	8.8	98.0	77.9	2.0	1.4	5.0	2.8
5(29-04 Feb)	21.0	8.6	97.6	72.4	0.0	0.8	3.4	4.2
6(05-11 Feb)	20.6	7.9	96.6	64.7	4.1	1.9	4.7	6.0
7(12-18 Feb)	19.5	5.5	94.7	63.3	1.5	1.6	3.6	6.0
8(19-25 Feb)	21.9	8.5	91.6	65.7	3.1	1.9	4.4	6.5
9(26-04 Mar)	21.9	8.7	98.9	70.4	3.8	1.7	3.7	6.1
10(05-11 Mar)	25.4	11.1	91.1	65.9	20.3	2.8	5.0	7.5
11(12-18 Mar)	26.5	11.0	93.1	51.3	5.4	2.9	4.4	8.3
12(19-25 Mar)	28.0	14.0	85.7	47.4	14.2	3.9	5.4	7.4
13(26-01 Apr)	28.9	14.3	84.4	44.1	7.1	3.5	4.3	7.3
14(02-08 Apr)	32.1	15.3	83.3	39.6	8.5	4.8	4.9	9.5
15(09-15 Apr)	33.3	16.4	72.0	31.1	0.0	6.2	5.7	9.5
16(16-22 Apr)	32.8	18.4	79.0	49.7	7.9	5.6	6.4	8.8
17(23-29 Apr)	37.6	18.6	56.7	22.0	0.0	6.6	4.1	10.4
18(30-06 May)	40.2	22.6	58.3	25.4	15.5	8.4	5.6	9.3

JAMMU	Latitude- 32º44' N		Longitude- 74º54" E		Height Above MSL - 356 m			
43(22-28 Oct)	29.6	16.5	89.7	49.6	0.0	3.1	0.5	7.7
44(29-04 Nov)	27.7	12.6	93.4	37.0	4.4	2.6	1.2	6.9
45(05-11 Nov)	23.5	11.4	92.4	49.4	12.2	1.5	2.0	4.6
46(12-18 Nov)	25.6	7.5	92.9	32.0	0.0	1.3	0.5	8.7
47(19-25 Nov)	25.1	7.9	94.1	40.1	0.0	1.4	0.5	7.2
48(26-02 Dec)	25.1	7.1	94.0	39.4	0.0	1.3	0.6	8.3
49(03-09 Dec)	23.7	7.0	93.7	44.3	0.0	1.1	0.7	5.5
50(10-16 Dec)	22.4	6.1	95.4	45.0	0.0	1.1	0.9	6.7
51(17-23 Dec)	15.6	7.0	97.0	73.3	7.8	0.8	1.0	2.2
52(24-31 Dec)	17.1	2.3	95.9	48.3	3.0	0.8	1.1	6.2
1(01-07 Jan)	18.4	1.6	95.7	48.6	7.4	0.9	1.3	6.3
2(08-14 Jan)	18.0	4.4	95.0	51.1	1.2	1.0	1.4	3.7
3(15-21 Jan)	17.8	6.0	96.1	65.9	0.0	0.9	3.6	3.8
4(22-28 Jan)	20.5	6.9	95.4	55.3	52.0	1.1	1.5	6.0
5(29-04 Feb)	18.7	8.5	94.3	72.7	6.0	0.9	1.8	3.2
6(05-11 Feb)	18.4	7.7	91.3	64.3	7.7	1.2	1.9	5.1
7(12-18 Feb)	19.1	5.4	92.3	50.3	5.8	1.6	2.9	7.0
8(19-25 Feb)	21.4	7.6	93.1	54.6	4.0	1.5	1.9	6.4
9(26-04 Mar)	20.3	9.1	92.0	56.1	2.6	2.0	2.7	4.2
10(05-11 Mar)	22.2	10.3	88.6	57.6	47.4	1.8	3.4	5.5
11(12-18 Mar)	25.6	12.3	84.9	52.0	38.4	2.2	3.3	6.0
12(19-25 Mar)	24.3	12.5	86.0	60.7	13.4	2.1	3.4	4.6
13(26-01 Apr)	27.2	12.9	84.6	47.9	2.8	3.2	3.0	7.5
14(02-08 Apr)	25.6	13.5	84.3	53.4	19.5	2.6	4.4	4.7
15(09-15 Apr)	29.7	12.9	76.4	39.1	0.0	3.2	2.5	6.5

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
16(16-22 Apr)	29.5	13.2	77.7	38.6	0.0	3.1	2.1	5.7
17(23-29 Apr)	35.8	17.2	69.9	27.1	0.0	5.1	2.5	11.2
18(30-06 May)	37.3	20.4	63.7	30.3	11.5	7.2	2.3	8.8
19(07-13 May)	33.9	19.8	69.1	37.1	3.8	6.0	4.4	7.4
20 (14-20 May)	34.1	18.9	71.0	38.0	0.0	6.1	3.5	9.1

KARNAL	Latitude 29^{0}43'N		Longitude 76^{0}58'E		Height above MSL 245 m			
40(01-07 Oct)	32.4	22.8	90.3	55.4	0.0	3.7	3.4	5.8
41(08-14 Oct)	31.5	23.3	93.9	60.0	19.5	2.9	2.0	3.6
42(15-21 Oct)	32.2	17.3	93.1	41.6	0.0	3.2	1.8	7.6
43(22-28 Oct)	30.6	16.4	94.4	53.9	0.0	2.5	1.4	5.1
44(29-04 Nov)	28.7	13.7	85.3	41.6	0.0	2.8	3.0	6.0
45(05-11 Nov)	26.7	11.5	85.1	43.0	0.0	2.1	2.3	4.6
46(12-18 Nov)	26.7	7.5	88.6	24.3	0.0	2.4	1.8	8.2
47(19-25 Nov)	26.6	9.0	85.6	33.9	0.0	2.3	2.1	7.0
48(26-02 Dec)	27.2	9.3	86.6	26.6	0.0	3.3	3.0	7.3
49(03-09 Dec)	24.4	7.9	95.4	41.4	0.0	1.6	1.8	6.3
50(10-16 Dec)	22.4	8.1	91.6	52.7	0.0	1.8	3.2	5.1
51(17-23 Dec)	17.6	10.1	98.7	79.6	0.0	0.7	2.7	0.0
52(24-31 Dec)	18.9	4.5	87.6	49.6	1.8	1.6	3.1	6.5
1(01-07 Jan)	17.0	4.4	95.3	57.3	0.0	1.1	2.7	4.1
2(08-14 Jan)	18.3	5.4	97.4	57.7	0.0	1.0	1.9	2.9
3(15-21 Jan)	14.7	7.8	98.9	82.0	29.4	1.1	3.4	1.2
4(22-28 Jan)	18.4	8.6	99.3	64.3	35.8	1.3	4.6	4.9
5(29-04 Feb)	17.9	8.8	98.1	79.3	0.6	0.9	2.4	1.7
6(05-11 Feb)	19.7	7.4	95.0	57.4	2.4	1.5	3.1	4.2
7(12-18 Feb)	18.0	6.4	94.9	60.4	19.2	1.9	4.0	7.4
8(19-25 Feb)	22.2	8.8	96.1	54.6	18.2	1.9	3.1	7.3
9(26-04 Mar)	21.1	8.9	95.0	57.4	32.2	1.7	2.7	5.6
10(05-11 Mar)	24.2	10.6	85.4	45.7	2.6	2.8	4.3	6.3
11(12-18 Mar)	26.4	11.7	94.1	51.1	18.4	3.1	5.0	7.8
12(19-25 Mar)	26.8	13.8	76.9	49.7	6.6	2.8	3.1	7.3
13(26-01 Apr)	28.4	14.4	86.6	45.6	1.2	3.3	3.7	8.0
14(02-08 Apr)	32.2	14.8	82.1	32.1	2.0	4.7	4.6	9.5
15(09-15 Apr)	33.7	15.0	73.0	18.3	0.6	5.6	4.8	9.1
16(16-22 Apr)	32.4	16.1	70.1	25.6	8.8	5.1	4.5	8.4
17(23-29 Apr)	37.8	18.7	54.7	14.6	0.0	7.7	4.4	11.4
18(30-06 May)	41.0	20.0	47.0	6.0	0.0	9.6	3.5	11.5

LUDHIANA	Latitude 30^{0}54' N		Longitude 75^{0}52' E			Height above MSL 247 m		
40(01-07 Oct)	32.1	24.0	89.0	63.0	22.4	25.0	1.3	4.8
41(08-14 Oct)	30.6	23.3	95.0	67.0	1.8	15.6	1.6	2.1
42(15-21 Oct)	32.8	18.6	89.0	35.0	0.0	13.6	1.2	9.1
43(22-28 Oct)	30.7	16.9	91.0	38.0	0.0	18.3	1.2	5.2
44(29-04 Nov)	28.1	13.8	87.0	37.0	12.0	20.0	2.1	5.7
45(05-11 Nov)	24.7	11.9	91.0	44.0	4.6	13.6	2.1	4.1
46(12-18 Nov)	25.7	8.1	92.0	29.0	0.0	15.5	1.8	8.8
47(19-25 Nov)	26.3	9.5	93.0	39.0	0.0	13.8	1.7	7.3
48(26-02 Dec)	26.3	9.4	91.0	39.0	0.0	14.0	2.3	8.0
49(03-09 Dec)	24.5	8.1	93.0	44.0	0.0	11.4	1.5	6.1
50(10-16 Dec)	22.1	8.1	93.0	50.0	0.0	11.6	3.1	5.5
51(17-23 Dec)	15.1	9.6	97.0	83.0	10.4	4.6	2.6	0.2
52(24-31 Dec)	17.3	3.9	93.0	44.0	2.8	11.2	2.6	7.1
1(01-07 Jan)	16.8	3.8	94.0	52.0	0.0	8.0	1.7	5.4
2(08-14 Jan)	17.8	6.0	93.0	51.0	0.0	8.9	2.7	4.7
3(15-21 Jan)	15.7	8.2	96.0	75.0	26.1	8.1	3.9	2.5
4(22-28 Jan)	18.9	8.9	98.0	66.0	29.4	9.1	3.7	6.1
5(29-04 Feb)	18.4	9.7	96.0	72.0	1.0	7.7	3.0	2.7
6(05-11 Feb)	18.3	8.0	95.0	64.0	2.8	10.2	2.3	5.0
7(12-18 Feb)	18.3	6.6	93.0	61.0	6.1	10.5	3.7	6.5
8(19-25 Feb)	21.8	8.8	93.0	59.0	16.0	15.0	2.4	7.1
9(26-04 Mar)	21.3	8.9	92.0	62.0	13.6	15.4	3.4	6.3
10(05-11 Mar)	20.3	11.4	88.0	57.0	4.0	18.9	7.0	9.2
11(12-18 Mar)	25.5	12.6	93.0	51.0	16.0	27.5	5.1	9.1

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
12(19-25 Mar)	26.2	13.5	89.0	52.0	9.9	20.6	3.4	7.3
13(26-01 Apr)	28.0	14.6	89.0	43.0	3.3	28.3	3.8	10.1
14(02-08 Apr)	28.8	15.1	84.0	43.0	2.4	33.5	6.1	8.8
15(09-15 Apr)	32.6	15.1	77.0	30.0	0.6	45.6	5.4	9.9
16(16-22 Apr)	31.0	16.7	79.0	42.0	28.0	35.9	6.2	8.9
17(23-29 Apr)	37.2	19.5	70.0	36.0	0.0	53.0	4.7	12.2
18(30-06 May)	39.2	23.5	63.0	26.0	3.0	64.3	5.4	7.7
19(07-13 May)	35.7	21.6	61.0	38.0	12.8	52.8	7.2	7.5
NAGINA	**Latitude N29^0 28'N**		**Longitude 78^0 32'E**			**Height above MSL 245 m**		
40(01-07 Oct)	30.1	23.2	92.0	65.0	1.8	2.9	2.8	5.2
41(08-14 Oct)	29.6	22.5	95.0	69.0	68.2	2.8	1.9	4.8
42(15-21 Oct)	30.3	20.1	95.0	56.0	0.0	2.5	2.2	7.9
43(22-28 Oct)	30.4	15.9	96.0	51.0	0.0	2.3	1.5	8.2
44(29-04 Nov)	30.6	10.7	96.0	44.0	0.0	1.9	1.8	7.5
45(05-11 Nov)	27.1	10.4	97.0	42.0	0.0	1.7	1.5	6.2
46(12-18 Nov)	26.0	7.8	96.0	36.0	0.0	1.9	1.7	8.7
47(19-25 Nov)	24.9	8.0	98.0	48.0	0.0	1.5	1.6	7.7
48(26-02 Dec)	25.1	7.3	98.0	49.0	0.0	1.4	1.5	7.7
49(03-09 Dec)	24.3	5.9	100.0	45.0	0.0	1.4	1.4	7.9
50(10-16 Dec)	22.0	5.5	100.0	49.0	0.0	1.5	2.3	6.7
51(17-23 Dec)	20.5	7.9	98.0	57.0	9.0	1.1	2.0	3.5
52(24-31 Dec)	18.7	5.5	98.0	55.0	5.0	1.1	3.4	5.9
1(01-07 Jan)	18.2	6.1	100.0	57.0	0.0	1.0	3.4	4.0
2(08-14 Jan)	15.5	7.0	100.0	75.0	13.0	0.9	3.0	3.8
3(15-21 Jan)	16.0	8.3	100.0	77.0	96.0	1.3	3.4	2.8
4(22-28 Jan)	16.1	8.9	100.0	79.0	1.8	0.9	3.3	2.6
5(29-04 Feb)	18.0	9.0	97.0	72.0	0.0	0.7	2.9	3.2
6(05-11 Feb)	21.4	8.2	97.0	51.0	3.0	1.7	4.1	5.5
7(12-18 Feb)	18.9	6.8	100.0	57.0	33.8	3.0	4.9	6.9
8(19-25 Feb)	21.1	9.4	99.0	62.0	0.0	1.8	2.9	6.8
9(26-04 Mar)	22.7	10.1	98.0	56.0	41.8	3.6	3.9	7.0
10(05-11 Mar)	23.9	10.3	96.0	51.0	3.0	3.5	3.6	7.6
11(12-18 Mar)	26.5	13.2	95.0	51.0	12.0	3.3	4.8	8.5
12(19-25 Mar)	27.1	13.4	95.0	50.0	0.0	3.1	3.5	6.7
13(26-01 Apr)	29.7	15.2	86.0	42.0	0.0	3.9	5.6	7.6
14(02-08 Apr)	30.3	15.5	88.0	44.0	6.4	4.3	5.8	10.1
15(09-15 Apr)	31.5	14.4	84.0	36.0	0.0	5.1	5.0	9.3
PANTNAGAR	**Latitude 29^{0}N**		**Longitude 79^0 30´E**			**Height above MSL 243.84 m**		
40(01-07 Oct)	30.5	23.1	82.0	65.0	6.8	3.4	4.5	4.2
41(08-14 Oct)	31.1	22.1	90.0	62.0	79.6	2.7	3.5	6.4
42(15-21 Oct)	30.3	20.1	91.0	65.0	0	2.3	2.7	5.5
43(22-28 Oct)	29.9	16.4	88.0	53.0	0	2.8	2.8	7.8
44(29-04 Nov)	28.5	13.4	90.0	48.0	Trace	2.3	2.6	6.9
45(05-11 Nov)	26.8	11.8	91.0	43.0	Trace	1.9	3.0	6.2
46(12-18 Nov)	27.2	9.0	96.0	38.0	0	2.4	1.8	9.1
47(19-25 Nov)	25.8	9.9	93.0	42.0	0	1.8	2.0	7.9
48(26-02 Dec)	26.5	9.5	92.0	49.0	0	1.6	1.6	8.1
49(03-09 Dec)	25.5	8.2	93.0	42.0	0	2.0	2.2	8.8
50(10-16 Dec)	22.9	7.4	93.0	49.0	0	1.3	2.5	6.4
51(17-23 Dec)	21.6	8.5	92.0	59.0	0	1.4	3.8	2.7
52(24-31 Dec)	19.2	5.4	96.0	67.0	11.8	1.6	4.4	5.0
1(01-07 Jan)	16.0	5.9	97.0	74.0	0	1.1	3.7	2.8
2(08-14 Jan)	16.5	7.5	96.0	79.0	3.6	1.0	3.3	2.6
3(15-21 Jan)	18.2	9.3	94.0	73.0	105.8	1.9	5.6	3.0
4(22-28 Jan)	16.6	9.2	94.3	79.3	1.4	1.0	4.6	1.7
5(29-04 Feb)	18.0	9.4	95.7	77.9	0	1.0	3.7	3.1
6(05-11 Feb)	21.7	8.9	91.9	59.6	2	2.1	5.5	5.8
7(12-18 Feb)	20.7	7.0	95.1	58.1	93.2	2.0	6.0	6.5
8(19-25 Feb)	22.7	10.2	90.6	55.4	0	2.1	3.7	5.8
9(26-04 Mar)	23.5	11.3	89.6	47.6	81.4	3.5	5.8	6.1
10(05-11 Mar)	25.2	10.3	88.3	45.9	12.8	3.2	5.1	7.8
11(12-18 Mar)	25.4	14.1	86.7	46.3	0	3.8	3.8	9.7

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
12(19-25 Mar)	28.6	14.2	87.5	45.5	87	2.9	4.3	7.9
13(26-01 Apr)	31.1	14.8	86.7	45.3	0	5.0	7.1	7.7
14(02-08 Apr)	32.2	15.1	79.8	43.4	2.2	5.4	6.2	10.4
15(09-15 Apr)	33.2	15.3	74.8	25.4	0.6	7.9	6.1	9.4
16(16-22 Apr)	32.5	15.7	75.1	29.2	5.2	5.5	5.3	7.4
17(23-29 Apr)	37.9	17.7	67.0	20.0	0	9.6	7.2	11.7
18(30-06 May)	36.1	20.9	62.0	30.0	14.4	7.0	7.3	8.2
SRIGANGANAGAR		**Latitude 28^0 4'N**			**Longitude 72^0 30´E**		**Height above MSL 175.6 m**	
40(01-07 Oct)	35.9	24.1	84.3	54.7	0.0	30.5	1.0	7.6
41(08-14 Oct)	35.2	23.4	86.9	54.6	0.0	30.8	1.0	6.4
42(15-21 Oct)	37.0	19.5	77.9	42.9	0.0	23.1	1.0	8.2
43(22-28 Oct)	34.0	16.7	81.6	51.9	0.0	19.9	0.6	6.1
44(29-04 Nov)	31.8	15.0	75.7	44.0	0.0	18.6	1.0	6.7
45(05-11 Nov)	25.6	12.1	86.4	65.7	4.5	13.7	1.0	4.7
46(12-18 Nov)	28.0	9.2	90.3	49.3	0.0	14.5	0.7	7.7
47(19-25 Nov)	30.0	10.2	87.7	53.6	0.0	13.3	1.0	7.6
48(26-02 Dec)	30.1	10.0	86.6	55.1	0.0	13.1	1.1	7.5
49(03-09 Dec)	28.0	7.2	85.9	55.3	0.0	13.8	1.0	7.3
50(10-16 Dec)	27.2	9.2	94.4	64.4	0.0	14.0	1.0	6.8
51(17-23 Dec)	16.9	9.3	97.3	77.7	0.0	8.3	1.0	2.2
52(24-31 Dec)	20.4	3.0	92.7	47.6	0.0	11.1	0.8	7.1
1(01-07 Jan)	20.1	2.3	88.0	48.4	0.0	9.2	1.3	6.8
2(08-14 Jan)	19.4	4.2	93.9	57.6	0.0	7.9	1.1	4.8
3(15-21 Jan)	19.0	6.5	96.0	69.1	0.0	8.2	1.0	4.8
4(22-28 Jan)	21.4	8.0	96.7	63.3	0.0	8.3	1.6	3.7
5(29-04 Feb)	21.1	8.8	97.9	70.3	0.0	8.9	1.4	3.8
6(05-11 Feb)	21.2	7.8	90.3	55.4	7.1	8.4	2.1	6.1
7(12-18 Feb)	21.6	6.2	95.3	49.3	0.0	9.9	1.1	6.7
8(19-25 Feb)	23.4	8.7	84.7	59.7	5.8	11.3	1.7	6.7
9(26-04 Mar)	23.6	9.3	93.6	55.9	4.2	11.6	0.7	6.2
10(05-11 Mar)	27.3	12.5	86.1	51.1	2.3	16.1	1.7	7.4
11(12-18 Mar)	28.9	12.1	83.7	46.0	5.4	19.2	1.9	7.1
12(19-25 Mar)	29.4	14.3	82.6	51.9	60.4	22.2	2.0	7.3
13(26-01 Apr)	30.4	15.3	82.0	46.4	0.0	21.1	1.7	7.8
14(02-08 Apr)	31.5	16.0	77.7	44.6	0.3	26.6	1.9	8.2
15(09-15 Apr)	36.6	17.6	58.6	26.0	0.0	36.1	1.9	8.8
16(16-22 Apr)	18.3	33.9	75.7	35.3	0.0	35.3	2.0	8.1
17(23-29 Apr)	20.5	40.6	50.3	23.9	0.0	42.0	1.4	8.9
18(30-06 May)	23.6	42.3	45.7	24.9	0.0	49.9	1.7	7.1

NORTH EASTERN PLAINS ZONE								
BURDWAN	**Latitude 23^{0}15' N**		**Longitude 87^{0}52' E**			**Height above MSL 32 m**		
40(01-07 Oct)	31.0	24.2	97.3	78.3	43.2			3.67
41(08-14 Oct)	30.0	24.1	97.0	75.6	70.5			4.01
42(15-21 Oct)	31.1	23.9	97.7	60.1	65.0			6.74
43(22-28 Oct)	28.0	22.3	98.7	78.1	104.6			2.14
44(29-04 Nov)	31.2	19.0	96.6	42.7	0.0			7.57
45(05-11 Nov)	28.5	17.4	88.4	40.1	0.0			8.27
46(12-18 Nov)	28.4	14.3	97.9	36.7	0.0			8.07
47(19-25 Nov)	28.4	13.9	83.3	24.3	0.0			6.77
48(26-02 Dec)	28.6	14.8	84.1	43.4	0.0			6.32
49(03-09 Dec)	27.5	13.7	81.0	29.9	0.0			7.47
50(10-16 Dec)	26.5	11.4	85.7	18.1	0.0			5.32
51(17-23 Dec)	26.5	12.7	87.6	28.8	0.0			1.71
52(24-31 Dec)	28.2	12.6	99.7	28.7	0.0			4.87
1(01-07 Jan)	24.4	11.0	82.7	30.4	0.0			5.12
2(08-14 Jan)	23.9	10.5	86.7	32.3	0.0			5.12
3(15-21 Jan)	23.7	11.7	88.9	41.9	0.0			5.27
4(22-28 Jan)	24.9	11.5	89.3	39.1	0.0			7.55
5(29-04 Feb)	24.8	10.1	87.9	33.9	0.0			7.80
6(05-11 Feb)	29.5	14.8	86.1	29.1	0.0			7.58
7(12-18 Feb)	24.0	14.1	83.7	44.0	48.0			5.71

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)	26.4	15.1	85.6	36.4	0.0			7.28
9(26-04 Mar)	25.9	17.0	88.3	43.4	6.2			4.77
10(05-11 Mar)	18.2	16.4	84.1	29.6	1.6			8.35
11(12-18 Mar)	32.0	19.4	85.7	32.4	0.0			7.35
12(19-25 Mar)	28.3	20.0	83.6	35.1	42.6			7.81
13(26-01 Apr)	35.7	20.6	76.3	24.1	0.0			8.52
14(02-08 Apr)	35.3	25.4	83.1	25.7	0.0			8.14
15(09-15 Apr)	35.5	22.4	82.0	25.6	0.0			8.45

COOCHBEHAR	Latitude 26^{0}19'86" N		Longitude 89^{0}23'53" E		Height above MSL 43 m			
45(05-11 Nov)	29.66	24.17	99.00	288.00	-	-	4.45	6.56
46(12-18 Nov)	33.30	24.37	99.00	25.00	-	-	3.19	9.60
47(19-25 Nov)	33.34	25.56	99.00	11.00	-	-	3.01	8.89
48(26-02 Dec)	31.89	24.24	99.00	56.00	-	-	4.01	8.75
49(03-09 Dec)	29.66	23.47	99.00	90.00	-	-	4.13	7.95
50(10-16 Dec)	30.93	21.43	99.00	2.50	-	-	4.47	8.15
51(17-23 Dec)	29.27	21.26	99.00	74.50	-	-	2.91	7.05
52(24-31 Dec)	28.27	19.90	99.00	1.50	-	-	2.68	7.77
1(01-07 Jan)	25.69	18.70	99.00	2.50	-	-	4.10	7.22
2(08-14 Jan)	28.54	15.54	99.00	0.00	-	-	2.53	8.25
3(15-21 Jan)	28.54	12.20	99.00	0.00	-	-	2.85	8.18
4(22-28 Jan)	27.63	13.09	99.00	0.00	-	-	6.40	8.19
5(29-04 Feb)	27.84	14.14	99.00	0.00	-	-	9.18	8.00
6(05-11 Feb)	27.26	14.20	99.00	0.00	-	-	7.75	7.99
7(12-18 Feb)	24.54	11.97	99.00	0.00	-	-	7.95	7.29
8(19-25 Feb)	22.54	9.06	99.00	0.00	-	-	9.68	7.34
9(26-04 Mar)	19.51	11.63	99.00	0.00	-	-	5.78	4.23
10(05-11 Mar)	21.73	10.71	93.57	0.00	-	-	3.02	6.15
11(12-18 Mar)	19.26	9.09	58.86	0.00	-	-	2.59	5.60
12(19-25 Mar)	24.37	11.14	63.71	0.00	-	-	4.08	7.02
13(26-01 Apr)	23.31	11.61	63.00	0.00	-	-	2.78	7.13

FAIZABAD	Latitude 26^{0}47' N		Longitude 82^{0}12' E		Height above MSL 113 m			
40(01-07 Oct)	29.8	23.5	84.8	69.1	3.6			3.8
41(08-14 Oct)	30.6	23.5	88.2	72.4	3.1			3.6
42(15-21 Oct)	28.9	21.6	94.1	70.5	0.0			4.2
43(22-28 Oct)	31.1	18.7	79.2	59.5	0.0			6.7
44(29-04 Nov)	29.6	17.3	86.8	61.0	0.0			4.6
45(05-11 Nov)	27.7	14.0	89.0	53.5	0.0			5.8
46(12-18 Nov)	27.3	11.5	85.7	48.4	0.0			5.7
47(19-25 Nov)	26.0	10.4	89.0	43.8	0.0			6.0
48(26-02 Dec)	26.6	9.6	85.4	55.5	0.0			5.4
49(03-09 Dec)	27.2	8.5	81.2	51.1	0.0			6.5
50(10-16 Dec)	24.7	7.8	84.5	53.0	0.0			4.1
51(17-23 Dec)	22.4	9.1	91.8	53.8	0.0			0.8
52(24-31 Dec)	21.7	7.6	83.2	60.5	0.4			3.6
1(01-07 Jan)	19.3	6.2	92.4	58.8	2.1			4.4
2(08-14 Jan)	15.5	5.9	99.4	76.4	6.0			0.4
3(15-21 Jan)	17.1	8.2	95.5	70.7	56.2			2.0
4(22-28 Jan)	20.7	9.5	89.0	66.1	0.0			3.1
5(29-04 Feb)	18.2	8.8	96.0	73.1	0.0			2.5
6(05-11 Feb)	25.8	10.2	85.0	48.8	0.0			7.1
7(12-18 Feb)	20.6	8.6	85.1	56.5	7.4			4.3
8(19-25 Feb)	23.4	10.3	87.8	56.4	17.7			5.0
9(26-04 Mar)	24.0	13.0	90.1	57.7	15.3			5.2
10(05-11 Mar)	26.3	11.2	28.8	45.8	0.0			7.0
11(12-18 Mar)	30.2	11.5	74.2	42.1	0.0			7.6
12(19-25 Mar)	31.8	13.6	71.1	38.2	0.0			6.4
13(26-01 Apr)	34.8	15.7	63.5	36.5	0.0			8.0
14(02-08 Apr)	35.8	14.9	64.5	35.1	0.0			8.1
15(09-15 Apr)	36.6	14.9	58.5	30.5	0.0			7.5

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
IARI PUSA BIHAR	**Latitude 25.98^0 N**		**Longitude 85.67^0 E**				**Height above MSL 52.12 m**	
42(15-21 Oct)	28.3	21.5	92.0	72.0	39.0	2.0	5.4	2.8
43(22-28 Oct)	30.1	20.7	92.0	61.0	0.0	2.4	3.0	6.9
44(29-04 Nov)	28.3	19.7	94.0	63.0	0.0	1.6	3.1	2.9
45(05-11 Nov)	29.0	14.7	88.0	41.0	0.0	1.8	1.7	6.5
46(12-18 Nov)	28.3	12.3	87.0	36.0	0.0	1.9	2.0	8.1
47(19-25 Nov)	21.7	11.1	88.0	37.0	0.0	1.6	1.8	6.5
48(26-02 Dec)	27.2	13.0	90.0	46.0	0.0	1.2	1.6	2.9
49(03-09 Dec)	27.3	11.0	90.0	41.0	0.0	1.5	1.5	6.6
50(10-16 Dec)	24.4	10.3	91.0	49.0	0.0	1.0	1.8	2.5
51(17-23 Dec)	23.0	11.1	89.0	59.0	0.0	0.9	2.3	0.5
52(24-31 Dec)	18.8	9.0	93.0	73.0	0.0	0.5	2.8	0.0
1(01-07 Jan)	21.2	8.8	87.0	57.0	0.0	1.2	3.5	3.6
2(08-14 Jan)	18.1	8.9	87.0	57.0	5.3	0.7	3.4	0.5
3(15-21 Jan)	18.9	9.5	91.0	75.0	0.0	0.7	3.6	2.4
4(22-28 Jan)	20.2	10.5	92.0	66.0	0.0	1.0	3.9	2.7
5(29-04 Feb)	17.6	8.9	91.0	74.0	0.0	0.7	3.7	1.0
6(05-11 Feb)	24.2	9.9	88.0	51.0	0.0	2.2	3.8	6.9
7(12-18 Feb)	20.4	10.4	89.0	62.0	29.4	1.5	4.9	5.2
8(19-25 Feb)	24.2	10.7	90.0	55.0	1.4	1.8	3.0	5.9
9(26-04 Mar)	24.4	14.3	90.0	61.0	12.0	2.2	3.7	3.5
10(05-11 Mar)	26.6	11.6	88.0	42.0	0.0	3.1	3.7	7.2
11(12-18 Mar)	30.4	13.3	88.0	41.0	0.0	3.7	3.6	9.0
12(19-25 Mar)	31.8	16.6	80.0	39.0	0.0	4.0	4.0	9.0
13(26-01 Apr)	35.5	18.2	70.0	28.0	0.0	7.2	6.8	9.5
14(02-08 Apr)	35.0	19.0	78.0	36.0	0.0	5.2	4.7	9.1
15(09-15 Apr)	36.8	17.3	65.0	28.0	0.0	5.3	4.4	9.6
16(16-22 Apr)	37.8	20.2	61.0	23.0	0.0	7.0	4.9	9.7

KALYANI	**Latitude 22^{0}57'N**		**Longitude 88^{0}20'E**				**Height above MSL 9.75 m**	
45(05-11 Nov)	29.9	18.5	87.6	58.6	0	1.8	0	8.9
46(12-18 Nov)	29.7	14.8	80.4	49.9	0	2.0	0	8.7
47(19-25 Nov)	28.9	14.6	79.7	53.4	0	1.6	0	7.2
48(26-02 Dec)	29.4	15.4	81.0	60.9	0	1.2	0	7.3
49(03-09 Dec)	27.6	14.0	83.6	58.6	0	1.2	0	6.4
50(10-16 Dec)	27.3	11.6	83.4	55.1	0	1.1	0	7.3
51(17-23 Dec)	28.2	12.5	83.7	62.1	0	0.9	0	4.4
52(24-31 Dec)	24.8	11.7	87.9	57.7	0	1.0	0	6.1
1(01-07 Jan)	24.3	9.8	81.7	60.6	Trace	1.0	0	6.2
2(08-14 Jan)	24.4	10.0	84.1	57.7	0	0.9	0	5.4
3(15-21 Jan)	22.8	11.6	92.0	71.9	0	0.8	0	3.8
4(22-28 Jan)	25.4	10.7	85.1	60.9	0	1.3	0	7.7
5(29-04 Feb)	25.4	9.1	89.7	58.6	0	1.4	0	7.3
6(05-11 Feb)	30.7	13.4	83.3	44.6	0	1.8	0	8.3
7(12-18 Feb)	26.7	14.6	85.3	57.3	0	1.8	0	5.7
8(19-25 Feb)	28.4	12.7	84.4	53.9	0	2.0	0	8.4
9(26-04 Mar)	29.3	17.1	86.1	57.9	Trace	2.0	0	6.1
10(05-11 Mar)	31.0	15.3	85.0	45.9	Trace	3.1	0	8.7
11(12-18 Mar)	34.7	18.3	83.0	42.9	0	3.3	0	8.1
12(19-25 Mar)	35.1	20.2	85.9	46.3	26.2	3.6	0.1	8.3
13(26-01 Apr)	37.2	22.7	88.6	46.0	0	3.6	0	8.8
14(02-08 Apr)	37.5	24.0	87.7	38.9	0	4.0	0.1	8.9
15(09-15 Apr)	38.3	24.3	86.4	38.7	Trace	4.5	0.1	8.6
16(16-22 Apr)	40.0	24.8	84.1	37.0	0	4.8	0	8.2
17(23-29 Apr)	41.6	26.1	84.4	34.7	0	5.6	0	9.6

KANPUR	**Latitude 26^{0}29'N**		**Longitude 80^{0}18'E**				**Height above MSL 125.9 m**	
40(01-07 Oct)	33.2	24.6	90.3	80.1	143.2	3.1	7.8	4.7
41(08-14 Oct)	30.9	20.3	84.8	63.6	-	3.3	5.3	6.9
42(15-21 Oct)	31.2	17.8	90.2	55.2	-	3.5	3.0	6.5
43(22-28 Oct)	31.0	16.2	89.2	46.2	-	3.1	3.0	7.6
44(29-04 Nov)	31.2	12.8	90.8	35.7	-	2.9	2.5	6.3
45(05-11 Nov)	26.9	10.5	92.5	47.1	-	2.7	2.4	7.0
46(12-18 Nov)	26.4	7.3	88.7	38.0	-	2.5	2.3	5.8

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
47(19-25 Nov)	26.8	7.7	86.0	41.0	-	2.4	2.1	3.7
48(26-02 Dec)	26.6	8.8	86.0	46.0	-	2.5	3.8	3.9
49(03-09 Dec)	25.6	6.7	91.0	42.0	-	2.1	2.5	5.4
50(10-16 Dec)	24.5	7.1	87.0	43.0	-	2.1	4.3	4.4
51(17-23 Dec)	22.6	8.5	95.0	60.7	-	1.7	4.1	3.4
52(24-31 Dec)	20.3	7.3	86.5	53.5	-	1.5	5.5	4.8
1(01-07 Jan)	15.6	6.3	93.0	68.0	4.2	1.2	5.6	4.9
2(08-14 Jan)	14.3	5.1	83.4	63.1	19	8.9	4.2	4.5
3(15-21 Jan)	15.2	7.7	83.7	68.0	67.2	0.9	5.4	4.2
4(22-28 Jan)	19.5	7.0	80.8	60.1	8.4	1.0	5.3	4.5
5(29-04 Feb)	16.6	7.2	80.5	58.1	-	1.3	4.2	4.7
6(05-11 Feb)	19.9	6.9	92.0	50.2	1.2	1.4	5.2	8.2
7(12-18 Feb)	19.6	6.9	91.1	69.0	13.6	1.4	7.1	5.1
8(19-25 Feb)	22.7	7.7	96.0	64.0	12	1.4	3.9	6.7
9(26-04 Mar)	23.6	10.3	94.0	69.0	10	1.8	5.5	5.0
10(05-11 Mar)	26.7	9.5	90.0	55.0	-	2.1	3.7	8.0
11(12-18 Mar)	19.8	11.8	85.0	49.0	-	2.2	4.4	9.1
12(19-25 Mar)	31.1	14.1	74.0	44.0	10.6	2.8	6.1	8.9
13(26-01 Apr)	34.0	15.1	73.2	38.2	-	2.9	4.6	8.8
14(02-08 Apr)	41.6	16.0	74.0	38.0	-	3.1	5.8	9.7
15(09-15 Apr)	36.5	15.6	60.5	41.4		3.4	5.9	8.2
16(16-22 Apr)	34.9	16.0	71.2	49.0	4.4	3.8	4.7	8.8
17(23-29 Apr)	39.8	18.5	56.8	41.0	-	4.3	5.8	10.0
18(30-06 May)	39.1	20.9	61.1	35.8	-	4.9	6.2	9.4

RANCHI	Latitude 23^{0}21'N		Longitude 85^{0}20'E		Height above MSL 629 m			
44(29-04 Nov)	26.89	13.39	82.86	69.71	0	30.7	1.59	9.21
45(05-11 Nov)	24.13	10.69	82.00	72.00	0	28.5	1.01	8.69
46(12-18 Nov)	23.20	8.96	83.43	72.14	0	32.1	2.39	9.86
47(19-25 Nov)	24.64	9.70	74.57	56.43	0	30.2	1.27	9.47
48(26-02 Dec)	22.57	8.24	75.86	59.57	0	27.2	0.47	9.09
49(03-09 Dec)	20.76	5.24	68.43	46.57	0	27.2		9.10
50(10-16 Dec)	22.14	5.33	67.14	49.43	0	26.2		9.49
51(17-23 Dec)	24.27	8.14	70.14	51.14	0	27.5		8.16
52(24-31 Dec)	21.96	7.03	70.63	47.88	0	28.8		9.83
1(01-07 Jan)	23.04	6.44	80.14	66.86	10.2	25.5		8.27
2(08-14 Jan)	20.24	5.61	82.57	70.00	8	13.7		6.33
3(15-21 Jan)	23.61	7.64	83.43	69.71	0	26.1		8.59
4(22-28 Jan)	21.31	5.87	82.86	67.00	0	23.7		8.34
5(29-04 Feb)	22.71	6.21	82.57	67.14	0	25.6		8.91
6(05-11 Feb)	25.81	11.33	82.57	63.71	0	29.9		9.27
7(12-18 Feb)	21.91	8.43	83.71	62.14	6.2	11.5		4.74
8(19-25 Feb)	24.67	9.64	83.00	49.71	4	21.2		7.99
9(26-04 Mar)	23.21	13.16	85.43	62.14	30.9	15.8		4.74
10(05-11 Mar)	25.66	11.71	83.57	48.29	16	20.6		6.46
11(12-18 Mar)	28.56	14.51	83.14	63.57	0	27.5		8.69
12(19-25 Mar)	32.27	14.14	83.00	68.57	0	32.4		9.24
13(26-01 Apr)	33.80	18.04	84.00	58.00	0	35.7		8.97
14(02-08 Apr)	34.96	17.74	83.57	67.86	0	38.0		9.77
15(09-15 Apr)	34.64	17.90	82.43	69.14	0	36.4		9.44
16(16-22 Apr)	34.81	17.97	83.43	65.57	2	34.6		9.77
17(23-29 Apr)	37.03	19.27	83.43	63.86	0	34.0		9.72
18(30-06 May)	36.57	18.60	82.57	65.50	11.8	31.8		8.83

RAU PUSA BIHAR	Latitude 25.98^0 N		Longitude 85.67^0 E		Height above MSL 52.0 m			
40(01-07 Oct)	30.2	24.2	90.0	72.0	113.8	2.5	7.0	1.7
41(08-14 Oct)	31.3	23.6	89.0	65.0	132.2	3.5	7.5	7.3
42(15-21 Oct)	28.4	22.1	92.0	72.0	39.0	2.0	5.5	2.9
43(22-28 Oct)	31.1	21.2	93.0	63.0	0.0	2.4	2.9	7.0
44(29-04 Nov)	28.2	19.8	94.0	68.0	0.0	1.5	3.1	3.2
45(05-11 Nov)	28.9	14.8	90.0	44.0	0.0	1.8	1.6	6.5
46(12-18 Nov)	28.2	13.0	88.0	36.0	0.0	1.9	2.1	8.1
47(19-25 Nov)	27.4	11.1	89.0	37.0	0.0	1.6	1.8	6.5
48(26-02 Dec)	27.2	13.0	91.0	46.0	0.0	1.2	1.6	2.9

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
49(03-09 Dec)	27.2	11.1	90.0	41.0	0.0	1.5	1.5	6.7
50(10-16 Dec)	24.4	10.3	91.0	49.0	0.0	1.0	1.8	2.5
51(17-23 Dec)	22.9	11.2	89.0	59.0	0.0	0.9	2.3	0.6
52(24-31 Dec)	18.8	9.7	93.0	77.0	0.0	0.5	2.9	0.0
1(01-07 Jan)	21.3	9.0	87.1	57.8	0.0	1.3	3.5	3.6
2(08-14 Jan)	18.5	9.0	91.1	67.0	5.3	0.9	3.4	1.0
3(15-21 Jan)	18.8	9.5	91.0	74.2	4.2	0.7	3.6	2.2
4(22-28 Jan)	19.7	10.5	92.0	66.1	0.0	1.1	3.9	2.7
5(29-04 Feb)	17.6	8.9	90.9	74.7	0.0	0.8	3.8	1.1
6(05-11 Feb)	24.2	10.4	88.4	50.6	0.0	2.3	3.8	7.0
7(12-18 Feb)	20.4	10.8	89.4	61.6	29.6	1.6	4.9	5.3
8(19-25 Feb)	24.0	10.8	90.0	54.7	1.4	1.8	2.9	6.0
9(26-04 Mar)	24.7	14.3	90.0	64.3	1.7	2.2	3.7	3.5
10(05-11 Mar)	26.7	11.7	87.6	41.6	0.0	3.1	3.7	7.2
11(12-18 Mar)	30.3	15.0	88.1	41.1	0.0	3.7	3.3	9.0
12(19-25 Mar)	31.7	16.6	80.7	39.3	0.0	4.0	4.0	9.0
13(26-01 Apr)	34.6	18.3	70.3	28.1	0.0	7.2	6.8	9.4
14(02-08 Apr)	35.0	19.1	78.4	35.9	0.0	5.2	4.8	7.8
15(09-15 Apr)	36.8	17.4	64.9	28.0	0.0	6.0	4.4	9.6
16 (16-22 Apr)	37.8	20.3	60.9	23.0	0.0	7.0	4.9	9.7
17 (23-29 Apr)	38.9	21.1	69.3	23.7	0.0	7.8	5.7	9.9

SABOUR	Latitude 25^0 23' N		Longitude 87^0 07' E		Height above MSL 37.1m			
40(01-07 Oct)	29.1	24.0	87.0	82.0	26.3		5.0	
41(08-14 Oct)	31.2	23.6	87.0	81.0	99.7		5.5	
42(15-21 Oct)	27.7	22.9	94.0	81.0	117.6		3.2	
43(22-28 Oct)	27.7	21.2	89.0	80.0	47.8		1.5	
44(29-04 Nov)	28.2	19.7	94.0	80.0	14.2		1.0	
45(05-11 Nov)	27.7	17.6	89.0	68.0	0.0		1.0	
46(12-18 Nov)	27.2	15.3	85.0	47.0	0.0		1.0	
47(19-25 Nov)	26.8	12.2	88.0	50.0	0.0		1.0	
48(26-02 Dec)	26.6	12.8	95.0	54.0	0.0		6.5	
49(03-09 Dec)	25.6	10.7	86.0	57.0	0.0		5.6	
50(10-16 Dec)	24.2	10.5	89.0	65.0	0.0		1.0	
51(17-23 Dec)	22.7	10.0	94.0	65.0	0.0		1.0	
52(24-31 Dec)	20.5	8.9	98.0	63.0	0.0		1.8	
1(01-07 Jan)	21.0	9.4	91.0	60.0	0.0		2.9	4.0
2(08-14 Jan)	19.4	10.1	98.0	72.0	4.0		2.8	1.5
3(15-21 Jan)	18.8	10.5	98.0	75.0	0.3		3.2	2.6
4(22-28 Jan)	21.1	11.8	93.0	68.0	0.0		4.6	5.1
5(29-04 Feb)	19.6	9.0	96.0	73.0	0.0		5.3	3.4
6(05-11 Feb)	24.9	11.3	85.0	49.0	0.0		3.5	7.1
7(12-18 Feb)	20.4	9.8	91.0	66.0	30.2		3.5	4.7
8(19-25 Feb)	24.1	11.7	94.0	52.0	2.3		1.9	6.2
9(26-04 Mar)	24.5	14.5	94.0	62.0	6.8		3.2	3.0
10(05-11 Mar)	26.6	12.8	85.0	43.0	0.0		2.9	8.3
11(12-18 Mar)	30.1	14.3	84.0	38.0	0.0		2.4	7.9
12(19-25 Mar)	31.9	15.8	72.0	39.0	0.0		3.2	7.3
13(26-01 Apr)	35.2	16.2	55.0	30.0	0.0		7.8	8.5
14(02-08 Apr)	34.4	20.2	75.0	40.0	0.0		5.1	7.3
15(09-15 Apr)	36.3	18.2	55.0	27.0	0.0		4.1	8.8
16(18-22 Apr)	37.5	20.9	56.0	27.0	0.0		5.4	8.3
17 (23-29 Apr)	39.4	20.8	53.0	26.0	0.0		5.7	9.0
18 (30-06 May)	36.9	22.6	76.0	44.0	1.0		10.2	7.2

SHILLONGANI	Latitude 26^0 21' N		Longitude 90^{0}45' E		Height above MSL 50.2 m			
40(01-07 Oct)	30.0	24.2	95.0	79.0	37.8	29.3	2.30	
41(08-14 Oct)	31.4	23.0	89.0	73.0	0.0	35.9	1.90	
42(15-21 Oct)	32.1	23.4	86.0	77.0	0.0	35.4	1.20	
43(22-28 Oct)	29.4	21.8	93.0	76.0	7.0	31.3	1.10	
44(29-04 Nov)	27.3	18.9	84.0	72.0	4.0	25.8	1.20	
45(05-11 Nov)	28.1	16.7	97.0	66.0	0.0	19.5	0.96	
46(12-18 Nov)	27.9	14.4	89.0	67.0	0.0	21.6	1.44	
47(19-25 Nov)	27.7	14.4	83.0	60.0	0.0	19.2	1.59	

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
48(26-02 Dec)	27.8	15.3	85.0	61.0	0.0	19.4	1.03	
49(03-09 Dec)	27.7	15.1	89.0	65.0	0.0	18.7	0.98	
50(10-16 Dec)	24.3	13.7	90.0	67.0	6.4	21.1	1.29	
51(17-23 Dec)	22.5	9.8	82.0	64.0	0.0	24.3	1.06	
52(24-31 Dec)	22.1	11.7	93.0	82.0	0.0	26.3	0.91	
1(01-07 Jan)	23.0	10.9	93.0	66.0	0.0	25.0	1.00	
2(08-14 Jan)	22.4	10.1	89.0	63.0	0.0	24.5	0.90	
3(15-21 Jan)	25.5	10.9	89.0	60.0	1.0	22.8	1.30	
4(22-28 Jan)	25.7	13.4	90.0	69.0	0.0	20.2	1.50	
5(29-04 Feb)	24.0	10.7	83.0	57.0	0.0	21.6	1.28	
6(05-11 Feb)	23.9	13.5	82.0	59.0	0.0	25.0	2.10	
7(12-18 Feb)	22.5	12.9	88.0	69.0	19.5	22.9	1.95	
8(19-25 Feb)	25.9	12.9	77.0	55.0	0.0	27.3	1.79	
9(26-04 Mar)	26.4	15.1	80.0	60.0	1.0	29.2	1.90	
10(05-11 Mar)	27.4	14.6	73.0	51.0	1.0	30.8	1.78	
11(12-18 Mar)	29.9	16.7	76.0	50.0	0.0	34.6	1.85	
12(19-25 Mar)	29.1	17.1	70.0	52.0	22.3	38.3	3.14	
13(26-01 Apr)	30.1	19.8	79.0	59.0	3.6	36.1	3.05	
14(02-08 Apr)	30.9	17.7	78.0	59.0	21.6	39.7	3.20	
15(09-15 Apr)	31.9	19.9	79.0	52.0	28.0	35.7	2.68	
16(18-22 Apr)	32.9	20.4	76.0	51.0	7.6	39.7	1.97	
17 (23-29 Apr)	34.9	20.5	68.0	45.0	0.0	37.3	2.70	
18 (30-06 May)	30.0	21.6	83.0	60.0	55.6	31.4	2.10	
19 (7-13 May)	29.2	20.9	93.0	74.0	68.2	17.6	1.86	
20 (14-20 May)	32.7	23.0	82.0	66.0	4.0	34.4	2.67	

VARANASI	Latitude 25^0 20' N		Longitude 83^0 03' E			Height above MSL 75.5 m		
40(01-07 Oct)	28.8	24.3	93.0	85.0	83.9	3.3	5.9	3.9
41(08-14 Oct)	29.1	23.8	84.0	78.0	44.0	2.6	5.5	6.5
42(15-21 Oct)	26.7	21.1	92.0	80.0	1.7	1.7	1.5	4.2
43(22-28 Oct)	29.6	21.1	88.0	72.0	0.0	2.9	2.2	8.9
44(29-04 Nov)	28.6	17.3	80.0	76.0	0.0	2.3	1.6	7.8
45(05-11 Nov)	27.6	15.5	84.0	60.0	0.0	1.6	0.6	7.6
46(12-18 Nov)	26.2	11.5	90.0	48.0	0.0	1.5	1.2	7.9
47(19-25 Nov)	26.7	25.0	89.0	41.0	0.0	1.8	1.0	8.5
48(26-02 Dec)	26.4	13.7	87.0	46.0	0.0	1.6	1.9	8.1
49(03-09 Dec)	25.4	13.7	89.0	43.0	0.0	1.5	1.3	8.2
50(10-16 Dec)	24.0	10.6	88.0	48.0	0.0	1.4	2.5	8.3
51(17-23 Dec)	23.5	11.5	83.0	57.0	0.0	1.6	2.0	7.5
52(24-31 Dec)	21.1	10.3	85.0	49.0	0.0	1.4	3.1	7.8
1(01-07 Jan)	20.7	11.3	91.0	59.0	0.0	1.3	3.1	6.9
2(08-14 Jan)	17.9	10.7	92.0	68.0	22.4	1.1	3.2	2.0
3(15-21 Jan)	18.1	10.6	92.0	76.0	37.1	0.8	2.1	0.6
4(22-28 Jan)	20.4	11.7	94.0	63.0	0.0	1.4	3.2	2.4
5(29-04 Feb)	20.1	9.8	89.0	63.0	0.0	1.2	1.9	4.6
6(05-11 Feb)	24.9	12.3	81.0	45.0	0.0	2.7	3.2	9.1
7(12-18 Feb)	20.4	11.0	83.0	54.0	24.4	1.3	3.8	3.1
8(19-25 Feb)	23.5	12.3	82.0	64.0	15.5	1.8	1.8	7.6
9(26-04 Mar)	23.9	15.6	87.0	68.0	34.5	1.8	2.9	3.6
10(05-11 Mar)	27.0	13.0	83.0	45.0	0.0	3.0	2.3	8.1
11(12-18 Mar)	28.5	15.9	82.0	55.0	0.0	3.5	2.5	8.3
12(19-25 Mar)	31.9	17.5	66.0	38.0	0.0	4.7	2.6	9.5
13(26-01 Apr)	34.9	19.8	64.0	39.0	0.0	5.3	4.6	9.6
14(02-08 Apr)	36.0	19.4	50.0	23.0	0.0	6.5	4.3	9.7
15(09-15 Apr)	36.3	19.3	32.0	18.0	0.0	6.3	4.6	9.6

CENTRAL ZONE								
BILASPUR	Latitude 22^0 9' N		Longitude 82^0 12' E			Height above MSL 292.3 m		
40 (01-07 Oct)	30.3	23.6	95.7	82.3	71.8			2.6
41 (08-14 Oct)	29.9	22.5	91.4	80	51.6			4.3
42 (15-21 Oct)	30.5	20.4	93	69	0			8.1
43 (22-28 Oct)	30.9	22.4	92	76	9.2			3.2
44 (29-04 Nov)	30.8	16.6	95.4	50.8	0			8.5

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
45 (05-11 Nov)	29.6	14.6	93.4	54	0			8.5
46 (12-18 Nov)	25.5	12.3	91.1	43.3	0			7.6
47 (19-25 Nov)	29.8	14.1	90.7	47.1	0			7.9
48 (26-02 Dec)	29.8	13.4	92.3	51.6	0			8.5
49 (03-09 Dec)	28.2	11	91.1	40.6	0			8.6
50 (10-16 Dec)	28	9.1	92.4	41	0			8.5
51 (17-23 Dec)	28	11	93.6	49	0			8.1
52 (24-31 Dec)	27.8	12.7	92.4	56	0			6.9
1 (01-07 Jan)	27.9	12.6	96.1	78.8	1.8			7.1
2 (08-14 Jan)	27.1	10.8	92	64	0			5.6
3 (15-21 Jan)	28.2	15.5	91.4	60.4	0			3.6
4 (22-28 Jan)	27.6	13.8	91.1	48.1	0			7.3
5 (29-04 Feb)	28	10	85.6	35.6	0			9.9
6 (05-11 Feb)	31.3	13.9	91.3	40.7	0			9.6
7 (12-18 Feb)	27.4	14.2	81	49.3	2.2			6.4
8 (19-25 Feb)	28.7	13.4	87.4	46.1	9.6			7.4
9 (26-04 Mar)	27.8	16.3	95.4	65.3	51.8			4.8
10 (05-11 Mar)	27.6	16.6	76.4	54.4	4.4			6.2
11 (12-18 Mar)	32.8	18.6	91.1	51.3	19			7.6
12 (19-25 Mar)	35.5	18.4	79.8	33.8	0			8.8
13 (26-01 Apr)	37.5	21.5	71.1	36.7	0			8.2
14 (02-08 Apr)	37.6	20.7	77.2	32.1	0			8
15 (09-15 Apr)	36	21.4	69	36.3	19.2			8.3

GWALIOR	Latitude 26^0 13' N		Longitude 78^0 14' E		Height above MSL 211.52 m			
45 (05-11 Nov)	29.2	22.6	65.5	55.9	36.4	2.2		
46 (12-18 Nov)	31.1	22.3	92.4	64.0	39.0	3.2		
47 (19-25 Nov)	32.9	20.6	89.2	46.4	0.0	3.2		
48 (26-02 Dec)	31.9	17.0	88.4	41.1	0.0	2.8		
49 (03-09 Dec)	32.5	14.6	86.4	28.1	0.0	3.5		
50 (10-16 Dec)	20.5	12.3	89.7	47.0	4.6	2.1		
51 (17-23 Dec)	22.4	8.3	93.4	31.5	0.0	2.1		
52 (24-31 Dec)	28.2	9.0	89.0	29.5	0.0	2.5		
1 (01-07 Jan)	28.4	9.4	91.8	35.5	0.0	2.7		
2 (08-14 Jan)	27.0	7.8	95.0	34.0	0.0	2.0		
3 (15-21 Jan)	26.2	8.4	92.3	37.4	0.0	2.1		
4 (22-28 Jan)	22.9	9.0	95.7	67.3	0.0	1.3		
5 (29-04 Feb)	18.3	6.1	93.5	64.4	28.8	1.2		
6 (05-11 Feb)	17.5	8.0	94.7	70.8	2.4	3.2		
7 (12-18 Feb)	18.8	6.2	95.5	56.2	1.0	1.1		
8 (19-25 Feb)	15.7	8.5	95.5	85.0	2.6	0.6		
9 (26-04 Mar)	18.5	8.7	94.7	73.4	43.0	1.2		
10 (05-11 Mar)	22.9	8.1	96.1	61.1	0.0	1.8		
11 (12-18 Mar)	25.2	10.1	94.4	53.2	0.0	2.2		
12 (19-25 Mar)	20.9	7.4	93.8	41.4	5.4	1.9		
13 (26-01 Apr)	23.3	9.3	94.7	60.8	4.0	2.1		
14 (02-08 Apr)	23.6	11.5	96.4	68.1	25.2	2.1		
15 (09-15 Apr)	27.9	10.6	94.5	49.7	1.0	3.0		
16 (16-22 Apr)	30.2	12.6	92.1	49.4	1.6	4.1		
17 (23-29 Apr)	32.6	13.5	89.7	43.7	10.0	4.8		

INDORE	Latitude 22^0 37'N		Longitude 75^{0}50' N		Height above MSL 557 m			
40 (01-07 Oct)	29.5	22.6	87.3		42.8	5		
41 (08-14 Oct)	29.4	21.2	82.6		64.8	3.3		
42 (15-21 Oct)	32.1	19.7	81.7			9		
43 (22-28 Oct)	30.2	15.5	77.3			5.7		
44 (29-04 Nov)	30.4	15.1	79.1			4.9		
45 (05-11 Nov)	28.5	15.3	77.9			4.1		
46 (12-18 Nov)	27	11.8	76.4			3.4		
47 (19-25 Nov)	26.8	8.4	78.3			4.3		
48 (26-02 Dec)	28.2	11	80.9			5.7		
49 (03-09 Dec)	27.1	13.6	77.6		2.2	3.8		
50 (10-16 Dec)	25.2	7	81.4			4		
51 (17-23 Dec)	25.4	6.6	80.3			3.8		

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)	23.9	6.9	80.9			2.8		
1 (01-07 Jan)	24.8	7.9	78.7			4.1		
2 (08-14 Jan)	23.4	6.9	78.6			3.8		
3 (15-21 Jan)	23.1	6.8	79.1			3.6		
4 (22-28 Jan)	20.4	7.1	85.7			3		
5 (29-04 Feb)	25.2	6.6	78.4			4.1		
6 (05-11 Feb)	26.8	8.1	78.7			5		
7 (12-18 Feb)	22.4	8	80.6		0.6	4.3		
8 (19-25 Feb)	26.6	6.8	76.3		11.6	4.8		
9 (26-04 Mar)	27.1	8.2	79.3		30	4.7		
10 (05-11 Mar)	27.8	10.1	78.3			5.4		
11 (12-18 Mar)	32.9	12.9	77.6			5.8		
12 (19-25 Mar)	34.4	14.2	80.6			7.7		
13 (26-01 Apr)	36.3	17.3	81.3			8.9		
14 (02-08 Apr)	37.2	18.4	81.9			8.9		

JUNAGARH	Latitude 21^0 31' N		Longitude 70^0 33' E		Height above MSL 61 m			
40 (01-07 Oct)								
41 (08-14 Oct)	32.6	25.6	86	63	-	-	-	5.7
42 (15-21 Oct)	35.0	24.2	87	41	-	-	-	8.5
43 (22-28 Oct)	35.2	20.6	79	32	-	-	-	9.6
44 (29-04 Nov)	34.1	19.0	78	34	-	-	-	9.5
45 (05-11 Nov)	33.4	19.6	68	34	-	-	-	9.0
46 (12-18 Nov)	31.5	16.0	67	36	-	-	-	8.8
47 (19-25 Nov)	32.9	15.1	77	31	-	-	-	9.3
48 (26-02 Dec)	32.8	18.8	58	34	-	-	-	8.7
49 (03-09 Dec)	31.5	14.0	77	33	-	-	-	9.0
50 (10-16 Dec)	30.3	11.8	82	31	-	-	-	9.5
51 (17-23 Dec)	28.9	12.7	80	27	-	-	-	9.0
52 (24-31 Dec)	26.7	13.0	48	29	-	-	-	8.0
1 (01-07 Jan)	27.2	10.8	64	33	-	-	-	7.6
2 (08-14 Jan)	26.6	12.4	61	30	-	-	-	7.9
3 (15-21 Jan)	27.5	9.5	67	26	-	-	-	8.7
4 (22-28 Jan)	29.1	13.8	80	40	-	-	-	7.5
5 (29-04 Feb)	32.6	14.0	76	29	-	-	-	8.5
6 (05-11 Feb)	30.3	14.6	81	32	-	-	-	9.1
7 (12-18 Feb)	28.1	12.1	65	33	-	-	-	8.1
8 (19-25 Feb)	31.4	16.9	75	41	-	-	-	7.9
9 (26-04 Mar)	31.5	15.6	64	29	-	-	-	8.9
10 (05-11 Mar)	34.6	16.6	75	41	-	-	-	8.6
11 (12-18 Mar)	36.5	18.3	57	25	-	-	-	9.8
12 (19-25 Mar)	36.0	17.9	80	23	-	-	-	10.3
13 (26-01 Apr)	36.8	20.2	71	19	-	-	-	10.1

KOTA	Latitude 25^0 13'N		Longitude 75^{0}25'E		Height above MSL 258 m			
			Mean RH		-	-	-	-
40 (01-07 Oct)	31	23	98		85			
41 (08-14 Oct)	32	22	98		107			
42 (15-21 Oct)	34	22	76		0.2			
43 (22-28 Oct)	33	17	73		0.2			
44 (29-04 Nov)	33	17	69		0			
45 (05-11 Nov)	28	14	81		8.2			
46 (12-18 Nov)	27	11	76		0			
47 (19-25 Nov)	29	11	75		1.2			
48 (26-02 Dec)	29	11	72		1.2			
49 (03-09 Dec)	28	11	72		0.6			
50 (10-16 Dec)	25	10	70		0.8			
51 (17-23 Dec)	23	9	99		1.8			
52 (24-31 Dec)	19	8	92		6.6			
1 (01-07 Jan)	17	11	99		27			
2 (08-14 Jan)	18	7	94		2.6			
3 (15-21 Jan)	17	8	97		2.4			
4 (22-28 Jan)	19	11	99		46.2			

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
5 (29-04 Feb)	24	8	88		2.8			
6 (05-11 Feb)	27	12	79		1.2			
7 (12-18 Feb)	23	8	80		3.4			
8 (19-25 Feb)	24	10	82		1.4			
9 (26-04 Mar)	25	12	92		33.8			
10 (05-11 Mar)	28	11	73		0.8			

POWARKHEDA	Latitude 22^0 44'N		Longitude 77^0 42' E		Height above MSL 299 m			
40 (01-07 Oct)	20	30.4	85	57	4			
41 (08-14 Oct)	20.2	32.5	90	62	0			
42 (15-21 Oct)	19.2	34.9	75	38	0.2			
43 (22-28 Oct)	19	33.5	83	47				
44 (29-04 Nov)	16	33.8	52	29				
45 (05-11 Nov)	17	32.6	55	30				
46 (12-18 Nov)	12	30.5	50	22				
47 (19-25 Nov)	10	30.4	49	22				
48 (26-02 Dec)	12.5	32.2	52	23				
49 (03-09 Dec)	9.8	32.5	54	22				
50 (10-16 Dec)	8.5	28.9	64	25				
51 (17-23 Dec)	9	28	71	36				
52 (24-31 Dec)	13	28.2	74	24				
1 (01-07 Jan)	13	28.4	67	33				
2 (08-14 Jan)	9	27.8	72	39	5.4			
3 (15-21 Jan)	10.8	21.1	81	33	11.6			
4 (22-28 Jan)	10.4	22	89	27	10.2			
5 (29-04 Feb)	9.4	29.2	80	39				
6 (05-11 Feb)	11	32	84	24				
7 (12-18 Feb)	11	27.9	66	24				
8 (19-25 Feb)	8.9	33	65	26	2			
9 (26-04 Mar)	12.6	28.4	75	28				
10 (05-11 Mar)	14.4	32.5	71	26				
11 (12-18 Mar)	17	38.7	74	16				
12 (19-25 Mar)	16	38	57	9				
13 (26-01 Apr)	19	38.9	44	13				
14 (02-08 Apr)	18.4	40.2	28	7				
15 (09-15 Apr)	18.6	40.4	21	9				
16 (16-22 Apr)	20.7	40.9	47	9	8.2			
17 (23-29 Apr)	20.2	41.9	40	13				
18 (30-06 May)	27	42.4	37	10				
19 (7-13 May)	30	43.5	42	26				
20 (14-20 May)	25	44	75	16				
21 (21-27 May)	33	43.8	80	8				

SAGAR	Latitude 24^0 27' N		Longitude 78^0 21' E		Height above MSL 530 m			
40 (01-07 Oct)	28.5	22.2	95.9	85.9	25.2	-	-	-
41 (08-14 Oct)	30.0	20.8	91.0	76.6	8.0	-	-	-
42 (15-21 Oct)	32.4	19.4	72.9	56.3	0.0	-	-	-
43 (22-28 Oct)	30.6	17.7	73.4	52.9	1.0	-	-	-
44 (29-04 Nov)	31.6	17.0	54.9	45.0	0.0	-	-	-
45 (05-11 Nov)	29.1	14.7	61.9	52.3	2.4	-	-	-
46 (12-18 Nov)	27.2	11.8	52.7	46.9	0.0	-	-	-
47 (19-25 Nov)	29.1	12.8	46.1	40.4	0.0	-	-	-
48 (26-02 Dec)	29.0	12.9	55.3	46.3	0.0	-	-	-
49 (03-09 Dec)	26.9	12.4	52.7	44.1	0.0	-	-	-
50 (10-16 Dec)	27.2	11.1	55.3	42.0	0.0	-	-	-
51 (17-23 Dec)	25.7	11.0	70.0	49.4	0.0	-	-	-
52 (24-31 Dec)	23.7	10.7	74.0	60.4	0.0	-	-	-
1 (01-07 Jan)	23.0	11.4	89.4	73.9	0.5	-	-	-
2 (08-14 Jan)	23.1	9.8	82.7	63.0	0.0	-	-	-
3 (15-21 Jan)	21.8	11.8	93.1	72.3	0.0	-	-	-
4 (22-28 Jan)	21.2	10.8	88.7	78.4	49.3	-	-	-
5 (29-04 Feb)	25.4	10.6	63.0	37.7	0.6	-	-	-
6 (05-11 Feb)	28.1	13.7	61.0	42.3	0.0	-	-	-

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
7 (12-18 Feb)	24.1	9.8	67.3	48.7	7.4	-	-	-
8 (19-25 Feb)	25.4	11.8	72.3	59.6	15.4	-	-	-
9 (26-04 Mar)	24.5	13.1	86.0	69.0	61.0	-	-	-
10 (05-11 Mar)	28.3	14.5	62.1	49.6	0.0	-	-	-
11 (12-18 Mar)	32.3	16.8	59.3	39.3	13.6	-	-	-
12 (19-25 Mar)	34.0	18.6	37.7	22.7	0.0	-	-	-
13 (26-01 Apr)	36.3	19.8	46.7	22.1	0.8	-	-	-
14 (02-08 Apr)	37.3	20.7	31.3	21.9	0.0	-	-	-
15 (09-15 Apr)	37.3	21.5	24.9	19.6	0.0	-	-	-

UDAIPUR	Latitude 24^0 34' N		Longitude 70^{0}42'E			Height above MSL 582 m		
40 (01-07 Oct)	21.9	30.7	86.3	60.7	6.2	3.6	3.4	6.0
41 (08-14 Oct)	21.4	30.5	89.4	62.1	70.6	2.7	2.7	6.4
42 (15-21 Oct)	18.5	33.0	82.6	35.4	0.0	3.5	1.8	8.5
43 (22-28 Oct)	14.9	30.5	79.7	31.1	0.0	3.7	2.9	9.0
44 (29-04 Nov)	14.2	30.4	79.0	31.4	0.0	2.9	1.4	8.6
45 (05-11 Nov)	14.7	28.0	83.1	39.4	0.8	3.0	2.0	6.5
46 (12-18 Nov)	10.1	25.8	79.4	29.3	0.0	2.8	2.0	7.7
47 (19-25 Nov)	9.0	27.9	73.4	25.0	0.0	2.9	2.0	8.9
48 (26-02 Dec)	9.9	28.3	80.0	26.9	0.0	2.9	1.9	8.5
49 (03-09 Dec)	9.2	27.3	80.6	30.7	0.0	2.3	1.6	8.8
50 (10-16 Dec)	8.3	27.4	81.7	25.9	0.0	2.4	1.6	9.0
51 (17-23 Dec)	7.1	24.7	85.6	32.9	0.0	2.1	1.7	7.8
52 (24-31 Dec)	7.8	22.2	84.3	42.3	0.0	1.6	1.4	4.9
1 (01-07 Jan)	7.5	22.2	77.4	44.1	0.0	2.1	2.2	6.5
2 (08-14 Jan)	6.4	21.6	84.3	43.4	0.0	1.9	2.2	6.4
3 (15-21 Jan)	6.6	22.3	88.0	47.1	7.0	2.2	1.9	6.1
4 (22-28 Jan)	9.7	21.4	89.7	49.1	10.6	1.8	1.9	5.8
5 (29-04 Feb)	8.0	26.3	87.7	29.7	0.0	2.5	1.4	8.4
6 (05-11 Feb)	9.8	26.8	76.9	23.4	0.0	4.0	3.3	9.0
7 (12-18 Feb)	7.9	23.0	85.1	36.0	0.0	2.8	2.6	7.2
8 (19-25 Feb)	11.0	25.5	85.6	40.0	0.0	2.9	2.7	6.8
9 (26-04 Mar)	8.8	26.8	86.6	31.3	2.4	3.5	2.5	8.0
10 (05-11 Mar)	11.3	28.8	78.4	23.1	0.0	3.7	2.0	9.0
11 (12-18 Mar)	13.8	32.1	61.6	25.9	0.0	5.2	3.0	9.1
12 (19-25 Mar)	14.2	33.5	64.7	27.6	0.0	6.4	3.1	9.3
13 (26-01 Apr)	16.7	34.6	59.7	20.3	0.0	7.2	3.4	8.9
14 (02-08 Apr)	18.1	35.9	57.7	19.3	0.0	9.2	4.3	9.3
15 (09-15 Apr)	17.6	36.6	44.3	19.3	0.0	7.8	2.7	9.9

VIJAPUR	Latitude 23^{0}35' N		Longitude 72^{0}55' E			Height above MSL 124 m		
40 (01-07 Oct)	32.8	27.0	88.9	72.6	11.0			
41 (08-14 Oct)	32.9	25.6	90.6	74.0	32.0			
42 (15-21 Oct)	33.3	25.1	86.4	78.0	---			
43 (22-28 Oct)	35.3	22.1	90.7	81.4	---			
44 (29-04 Nov)	33.4	21.9	87.9	76.3	---			
45 (05-11 Nov)	32.2	19.3	86.0	63.9	---			
46 (12-18 Nov)	30.2	16.3	79.6	44.3	---			
47 (19-25 Nov)	30.9	14.9	69.1	53.6	---			
48 (26-02 Dec)	31.1	14.9	89.9	61.0	---			
49 (03-09 Dec)	31.7	14.2	88.3	52.4	---			
50 (10-16 Dec)	30.4	13.9	77.4	55.1	---			
51 (17-23 Dec)	30.3	11.7	88.7	56.0	---			
52 (24-31 Dec)	26.9	11.8	81.8	55.6	---			
1 (01-07 Jan)	27.3	13.7	79.6	41.9	---			
2 (08-14 Jan)	26.8	12.4	78.6	47.6	---			
3 (15-21 Jan)	27.2	11.1	84.1	43.3	0.5			
4 (22-28 Jan)	27.9	15.3	89.9	58.9	---			
5 (29-04 Feb)	31.6	14.6	82.9	36.3	---			
6 (05-11 Feb)	30.9	13.0	80.9	35.9	---			
7 (12-18 Feb)	28.4	14.5	79.0	38.4	---			
8 (19-25 Feb)	31.2	15.4	76.7	44.6	---			
9 (26-04 Mar)	31.1	13.9	63.3	53.1	---			

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)	34.0	17.6	73.6	45.0	---			
11 (12-18 Mar)	37.3	18.8	51.0	35.4	---			
12 (19-25 Mar)	37.6	18.3	73.7	45.9	---			
13 (26-01 Apr)	38.5	21.6	70.4	57.6	---			
14 (2-8 Apr)								
ARNEJ	**Latitude 23^{0}35' N**		**Longitude 72^{0}55' E**		**Height above MSL 124 m**			
40 (01-07 Oct)	32.8	27.0	88.9	72.6	11.0			
41 (08-14 Oct)	32.9	25.6	90.6	74.0	32.0			
42 (15-21 Oct)	33.3	25.1	86.4	78.0	---			
43 (22-28 Oct)	35.3	22.1	90.7	81.4	---			
44 (29-04 Nov)	33.4	21.9	87.9	76.3	---			
45 (05-11 Nov)	32.2	19.3	86.0	63.9	---			
46 (12-18 Nov)	30.2	16.3	79.6	44.3	---			
47 (19-25 Nov)	30.9	14.9	69.1	53.6	---			
48 (26-02 Dec)	31.1	14.9	89.9	61.0	---			
49 (03-09 Dec)	31.7	14.2	88.3	52.4	---			
50 (10-16 Dec)	30.4	13.9	77.4	55.1	---			
51 (17-23 Dec)	30.3	11.7	88.7	56.0	---			
52 (24-31 Dec)	26.9	11.8	81.8	55.6	---			
1 (01-07 Jan)	27.3	13.7	79.6	41.9	---			
2 (08-14 Jan)	26.8	12.4	78.6	47.6	---			
3 (15-21 Jan)	27.2	11.1	84.1	43.3	0.5			
4 (22-28 Jan)	27.9	15.3	89.9	58.9	---			
5 (29-04 Feb)	31.6	14.6	82.9	36.3	---			
6 (05-11 Feb)	30.9	13.0	80.9	35.9	---			
7 (12-18 Feb)	28.4	14.5	79.0	38.4	---			
8 (19-25 Feb)	31.2	15.4	76.7	44.6	---			
9 (26-04 Mar)	31.1	13.9	63.3	53.1	---			
10 (05-11 Mar)	34.0	17.6	73.6	45.0	---			
11 (12-18 Mar)	37.3	18.8	51.0	35.4	---			
12 (19-25 Mar)	37.6	18.3	73.7	45.9	---			
13 (26-01 Apr)	38.5	21.6	70.4	57.6	---			

PENINSULAR ZONE

BIJAPUR	**Latitude 16^0 49' N**		**Longitude 75^{0}42' E**		**Height above MSL 613 m**			
36(Sep 3-9)	31.1	20.7	90.0	61.0	29.5	3.8	8.3	4.2
37(Sep 10-16)	30.3	21.4	93.3	65.6	79.1	3.8	5.0	5.7
38(Sep17-23)	29.4	20.9	93.1	66.4	69.6	3.9	11.0	4.2
39(Sep 24-30)	31.5	20.3	89.7	49.7	3.5	5.1	10.7	8.2
40(01-07 Oct)	30.9	21.1	88.7	56.4	2.0	3.9	10.3	5.0
41(08-14 Oct)	31.3	20.3	91.4	53.7	31.6	4.3	7.9	6.7
42(15-21 Oct)	31.5	20.1	86.9	41.4	7.6	4.1	4.5	8.7
43(22-28 Oct)	29.2	21.0	91.0	71.3	71.3	2.9	6.5	3.9
44(29-04 Nov)	30.0	19.0	87.1	51.1	0.0	3.0	3.6	8.7
45(05-11 Nov)	28.9	16.3	88.7	46.1	0.0	3.2	4.0	8.0
46(12-18 Nov)	28.1	13.2	80.7	42.0	0.0	3.4	4.2	8.6
47(19-25 Nov)	30.3	15.3	78.7	37.0	0.0	3.5	3.3	9.2
48(26-02 Dec)	29.6	17.2	85.7	47.6	0.0	3.1	3.5	6.8
49(03-09 Dec)	29.2	12.5	84.6	32.4	0.0	3.5	4.4	8.4
50(10-16 Dec)	29.3	9.0	71.4	24.7	0.0	4.1	3.6	10.1
51(17-23 Dec)	29.2	9.9	75.3	31.9	0.0	3.6	3.4	10.0
52(24-31 Dec)	28.3	12.9	85.3	46.5	0.0	3.6	4.9	9.2
1(01-07 Jan)	29.5	12.8	84.4	36.0	0.0	3.8	3.8	9.6
2(08-14 Jan)	30.5	15.2	76.4	32.3	0.0	4.1	4.7	9.4
3(15-21 Jan)	30.7	17.0	77.9	36.7	0.0	4.4	5.5	8.6
4(22-28 Jan)	28.8	16.6	76.6	40.0	0.0	4.1	6.2	6.1
5(29-04 Feb)	29.3	13.6	80.0	37.6	0.0	4.3	4.2	8.4
6(05-11 Feb)	33.0	15.2	55.0	25.0	0.0	5.6	4.3	9.9
7(12-18 Feb)	30.2	14.5	61.4	34.7	0.0	5.6	6.1	8.7
8(19-25 Feb)	32.2	18.7	70.6	35.9	0.0	5.5	5.8	8.3
9(26-04 Mar)	32.2	17.5	75.3	40.0	15.4	5.7	6.2	8.7

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)	30.1	18.1	91.1	44.6	18.4	4.1	5.6	8.0
11(12-18 Mar)	34.4	20.1	59.3	27.0	0.0	7.2	5.9	8.8
12(19-25 Mar)	36.9	21.3	43.1	20.6	0.0	8.1	5.9	9.0
13(26-01 Apr)	38.2	22.5	48.3	19.1	0.0	8.5	5.3	9.2
14(02-08 Apr)	38.2	22.8	52.6	20.7	0.0	9.1	7.5	8.1
15(09-15 Apr)	38.1	21.8	51.0	20.7	1.2	8.8	7.9	8.9
16(16-22 Apr)	36.3	21.5	69.1	28.1	20.4	6.3	6.3	6.4

DHARWAD	Latitude 15^0 26'N		Longitude 75^0 07' E		Height above MSL 678 m			
36(Sep 3-9)	28.56	20.01	95	73	9.4	-	-	-
37(Sep 10-16)	27.97	20.97	95	73	97.0	-	-	-
38(Sep17-23)	27.16	20.39	95	75	15.8	-	-	-
39(Sep 24-30)	26.47	19.74	94	77	6.4	-	-	-
40(01-07 Oct)	27.47	19.99	93	73	10.2	-	-	-
41(08-14 Oct)	29.24	19.37	93	59	0.0	-	-	-
42(15-21 Oct)	30.33	19.41	90	53	17.6	-	-	-
43(22-28 Oct)	27.84	20.03	92	73	47.6	-	-	-
44(29-04 Nov)	29.29	17.74	87	50	0.0	-	-	-
45(05-11 Nov)	28.81	15.86	86	51	0.0	-	-	-
46(12-18 Nov)	28.00	14.03	73	50	0.0	-	-	-
47(19-25 Nov)	30.81	15.24	75	40	0.0	-	-	-
48(26-02 Dec)	29.63	17.54	86	50	2.2	-	-	-
49(03-09 Dec)	28.54	13.26	74	36	0.0	-	-	-
50(10-16 Dec)	28.69	11.71	60	29	0.0	-	-	-
51(17-23 Dec)	28.30	11.17	66	30	0.0	-	-	-
52(24-31 Dec)	28.06	12.89	77	38	0.0	-	-	-
1(01-07 Jan)	28.87	13.23	78	35	0.0	-	-	-
2(08-14 Jan)	30.41	14.29	71	32	0.0	-	-	-
3(15-21 Jan)	30.26	15.81	74	41	0.0	-	-	-
4(22-28 Jan)	29.03	15.51	64	34	0.0	-	-	-
5(29-04 Feb)	29.13	14.67	65	31	0.0	-	-	-
6(05-11 Feb)	32.56	15.17	46	19	0.0	-	-	-
7(12-18 Feb)	29.41	14.84	60	31	0.0	-	-	-
8(19-25 Feb)	31.23	17.59	69	29	0.0	-	-	-
9(26-04 Mar)	31.97	17.43	70	31	0.0	-	-	-
10(05-11 Mar)	31.46	17.20	72	35	0.0	-	-	-
11(12-18 Mar)	34.49	18.44	49	19	1.2	-	-	-
12(19-25 Mar)	36.13	19.81	61	18	0.0	-	-	-
13(26-01 Apr)	37.05	20.68	63	18	0.0	-	-	-

NIPHAD	Latitude 20.6^0 N		Longitude 74.6^0 E		Height above MSL 551 m			
40(01-07 Oct)	30.7	19.7	95	66	23	5.3	4.3	6.5
41(08-14 Oct)	30.0	17.7	95	64	0	6.5	4.6	6.0
42(15-21 Oct)	31.6	19.8	77	52	65.8	5.1	3.0	8.4
43(22-28 Oct)	31.1	17.1	69	44	0	6.4	1.7	8.5
44(29-04 Nov)	31.2	16.2	74	45	0	6.9	2.5	9.1
45(05-11 Nov)	31.2	15.8	82	42	0	5.8	2.9	8.6
46(12-18 Nov)	29.1	10.8	84	41	0	7.1	3.1	9.2
47(19-25 Nov)	30.3	9.2	84	49	0	6.8	3.6	7.2
48(26-02 Dec)	28.9	13.4	86	66	20.2	6.4	4.2	7.9
49(03-09 Dec)	28.6	10.8	89	48	0	4.1	3.8	7.2
50(10-16 Dec)	28.4	6.0	83	25	0	3.5	2.3	9.6
51(17-23 Dec)	28.6	7.3	81	32	0	3.7	1.9	9.2
52(24-31 Dec)	27.4	11.7	87	42	0	3.7	2.9	9.8
1(01-07 Jan)	27.5	10.5	86	39	0	4.3	3.3	8.5
2(08-14 Jan)	27.0	9.7	82	41	0	4.8	3.1	8.6
3(15-21 Jan)	27.6	10.1	84	42	0	5.4	4.1	8.2
4(22-28 Jan)	27.2	12.0	84	40	1	5.7	3.5	6.1
5(29-04 Feb)	28.0	8.1	85	31	0	5.5	2.6	9.2
6(05-11 Feb)	29.7	8.1	82	24	0	5.2	3.1	10.1
7(12-18 Feb)	25.3	8.0	85	39	0	5.5	3.9	8.1
8(19-25 Feb)	29.0	11.6	84	35	4	5.8	3.9	9.5
9(26-04 Mar)	28.7	9.9	80	37	0	6.0	3.8	9.2

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)	29.2	14.2	86	35	0.2	8.3	4.4	8.1
11(12-18 Mar)	33.7	14.3	82	28	0	8.8	3.4	8.0
12(19-25 Mar)	35.7	13.9	65	27	0	9.4	3.6	9.4
13(26-01 Apr)	36.7	15.2	75	27	0	9.9	3.1	9.9
14(02-08 Apr)	36.6	16.8	74	30	0	10.0	2.8	8.4
15(09-15 Apr)	36.8	16.6	64	44	0	11.1	3.3	10.1
16(16-22 Apr)	37.5	17.8	76	36	0.4	10.5	5.2	8.6
17(23-29 Apr)	39.1	18.3	74	33	0	11.1	3.6	9.3
18(30-06 May)	39.1	19.3	77	55	0	10.5	5.5	9.2
19(07-13 May)	36.9	19.7	78	55	2.6	9.6	5.6	8.7
20(14-20 May)	36.8	19.7	84	69	2.4	9.9	6.5	8.5

PUNE	Latitude 18^{0}04' N		Longitude 74^{0}21' E		Height above MSL 548.2 m			
40(01-07 Oct)	31.77	20.92	92.85	60.57	4.2	-	-	-
41(08-14 Oct)	31.31	20.26	92.43	56.42	23.6	-	-	-
42(15-21 Oct)	31.87	20.28	91.71	50.85	0	-	-	-
43(22-28 Oct)	31.25	20.50	89.86	56.86	34.3	-	-	-
44(29-04 Nov)	32.10	18.70	92.00	51.57	0	-	-	-
45(05-11 Nov)	29.73	15.40	86.86	48.00	0	-	-	-
46(12-18 Nov)	29.43	12.44	88.43	52.28	0	-	-	-
47(19-25 Nov)	31.00	14.47	88.71	41.57	0	-	-	-
48(26-02 Dec)	30.24	18.54	90.42	54.28	TR	-	-	-
49(03-09 Dec)	28.97	13.33	93.00	43.43	11	-	-	-
50(10-16 Dec)	29.04	8.04	91.00	38.57	0	-	-	-
51(17-23 Dec)	29.14	8.96	91.71	39.71	0	-	-	-
52(24-31 Dec)	28.60	12.50	91.14	46.57	0	-	-	-
1(01-07 Jan)	28.94	11.65	91.57	46.28	0	-	-	-
2(08-14 Jan)	30.20	11.78	92.42	42.00	0	-	-	-
3(15-21 Jan)	29.93	13.58	90.71	42.86	0	-	-	-
4(22-28 Jan)	29.11	14.00	93.71	47.00	TR	-	-	-
5(29-04 Feb)	29.76	10.93	92.00	41.71	0	-	-	-
6(05-11 Feb)	32.96	10.70	89.43	26.86	0	-	-	-
7(12-18 Feb)	29.36	10.00	88.00	34.43	0	-	-	-
8(19-25 Feb)	32.53	15.51	89.14	35.71	0	-	-	-
9(26-04 Mar)	30.68	13.24	84.43	39.43	0.8	-	-	-
10(05-11 Mar)	31.60	16.24	93.86	45.71	8	-	-	-
11(12-18 Mar)	35.24	18.40	92.43	38.28	TR	-	-	-
12(19-25 Mar)	37.11	16.14	82.00	27.71	0	-	-	-
13(26-01 Apr)	38.60	17.98	77.14	24.57	0	-	-	-
14(02-08 Apr)	37.97	20.47	76.14	28.71	TR	-	-	-
15(09-15 Apr)	37.67	17.25	73.71	22.71	TR	-		
16(16-22 Apr)	37.25	20.76	83.85	32.71	5.7			

WASHIM	Latitude 19^{0}37'-21^{0}10'N			Longitude 76^{0}42'-77^{0}24' E		Height above MSL 552 m		
40(01-07 Oct)	24.64	22.64	29.5	26.78	74.5			
41(08-14 Oct)	24.78	22.78	30.71	26.57	26			
42(15-21 Oct)	25.93	22.86	30.93	26.14	0			
43(22-28 Oct)	24.00	21.57	29.78	25.50	0			
44(29-04 Nov)	24.03	20.07	29.57	24.93	0			
45(05-11 Nov)	23.50	19.36	29.43	23.78	0			
46(12-18 Nov)	21.21	16.00	27.88	21.43	0			
47(19-25 Nov)	21.36	15.86	29.86	21.64	0			
48(26-02 Dec)	23.28	19.21	28.5	23.36	0			
49(03-09 Dec)	21.36	16.43	28.28	21.64	0			
50(10-16 Dec)	19.21	13.00	28.00	20.93	0			
51(17-23 Dec)	18.64	13.50	27.14	20.07	0			
52(24-31 Dec)	18.19	12.75	26.75	19.87	0			
1(01-07 Jan)	19.24	13.28	27.50	21.86	0			
2(08-14 Jan)	17.07	12.64	27.43	20.57	0			
3(15-21 Jan)	18.07	13.86	26.78	21.43	14			
4(22-28 Jan)	18.00	13.28	27.14	20.57	0			
5(29-04 Feb)	18.50	13.36	28.07	20.50	0			
6(05-11 Feb)	19.21	13.57	30.36	21.64	0			

Julian weeks	Temperature ^{0}C		RH (%)		Rainfall	Pan-E	Wind Speed	Sunshine
	Max	Min	Max	Min	mm	mm	km/hr	hrs/day
7(12-18 Feb)	25.21	18.86	43.00	23.33	0			
8(19-25 Feb)	29.71	22.78	79.00	32.66	9.5			
9(26-04 Mar)	27.78	21.78	79.75	47.66	16			
10(05-11 Mar)	27.07	22.86	88.00	61.33	49			
11(12-18 Mar)	31.21	22.92	71.00	36.00	25.5			

WELLINGTON	**Latitude** 11.1^{0}N		**Longitude** 77.7^0 E		**Height above MSL 1840 m**			
			Mean RH					
45(05-11 Nov)	14.2	6.7	99.5	82.7	69.63			
46(12-18 Nov)	12.6	7.6	96.8	70.8	21.4			
47(19-25 Nov)	14.2	8.9	94.3	73.8	27.8			
48(26-02 Dec)	13.0	6.1	87.4	59.2	0.8			
49(03-09 Dec)	14.5	2.9	99.1	70.5	29.2			
50(10-16 Dec)	5.1	-0.1	84.3	70.9	0.4			
51(17-23 Dec)	6.2	1.4	88.2	73.1	0			
52(24-31 Dec)	5.7	3.1	84.4	66.1	0.2			
1(01-07 Jan)	13.3	4.9	91.9	70.3	0.2			
2(08-14 Jan)	11.4	5.9	97.8	82.8	0			
3(15-21 Jan)	10.3	3.5	90.9	70.0	0.2			
4(22-28 Jan)	7.0	4.4	88.8	61.5	0			
5(29-04 Feb)	6.7	3.4	75.4	61.6	0.2			
6(05-11 Feb)	11.3	6.3	98.8	76.9	18.2			
7(12-18 Feb)	14.4	7.0	96.8	76.9	8.8			
8(19-25 Feb)	14.2	5.6	98.5	72.9	10.4			
9(26-04 Mar)	12.4	9.1	95.2	71.1	23.2			
10(05-11 Mar)	7.7	4.2	66.5	46.3	0			
11(12-18 Mar)	12.5	7.3	69.8	54.7	0			
12(19-25 Mar)	8.9	3.3	61.6	53.4	0			
13(26-01 Apr)	12.1	9.4	64.7	57.7	0			
14(02-08 Apr)	14.1	11.5	84.4	59.8	7.2			
15(09-15 Apr)	10.4	12.5	87.6	64.4	5.4			
16(16-22 Apr)	11.5	13.6	77.8	64.2	0.2			
17(23-29 Apr)	12.7	15.3	89.5	76.4	71			
18(30-06 May)	12.6	15.8	99.4	77.0	202.2			
19(07-13 May)	10.6	14.9	88.1	68.9	8.6			
20(14-20 May)	14.2	6.7	99.5	82.7	69.63			

ANNEXURE-III

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	15.0	48.0	37.0	-	-	-	0.55	302	35.0	320	6.8	-
Imphal	Silty clay	5.9	42.7	51.9	1.25	-	-	1.27	216.5	80.21	116.26	4.98	-
Khudwani	Silty clay Loam	16	46	38	-	-	-	0.89	235.5	18.5	270.0	6.9	-
Malan	Silty clay Loam	24.6	39.3	36.1	1.50	31.0	13.0	0.59	315	42.0	215	6.0	-
NORTH WESTERN PLAINS ZONE													
Agra	Sandy loam	61.6	20.0	18.0	1.54	17.2	6.8	0.38	168.0	23.50	275	8.2	1.82
Delhi	Sandy loam	61.5	23.0	15.5	1.52	22.2	9.8	0.4	173.2	13.8	246	8.0	0.43
Durgapura	Loamy sand	84.1	7.6	8.3	1.52	9.3	3.2	0. 19	188.2	32.6	251	7.9	0.24
Diggi	Sandy loam	74.3	16.5	9.2	1.42	14.4	6	0.29	198	38.5	282	8.0	0.33
Gurdaspur	Sandy loam	67.4	15.6	18.0	1.51	22.3	9.9	0.8	-	32.3	135.0	6.3	0.6
Hisar	Sandy loam	72.0	18.5	9.5	1.41	-	-	0.51	-	21	423	7.9	0.24
Jammu	Clay loam	39.0	30.2	30.8	1.52	-	-	0.51	224	16	139	7.5	0.18
Karnal	Sandy Loam	62.4	27.5	10.1	1.63	18.9	7.3	0.28	189.0	19.7	243	8.1	0.23
Ludhiana	Loamy sand	84.0	8.2	7.8	1.48	-	-	0.28	-	22.5	124.3	8.2	0.20
Nagina	Sandy Loam	-	-	-	-	-	-	0.29	195.6	19.9	268	7.6	0.34
Pantnagar	Loam	38.0	48	15	1.39	23.3	7.7	0.7	225.6	45.4	140.3	7.3	0.40
Sriganganagar	Sandy Loam	76.5	10.3	11.5	1.5	17.3	4.2	0.3	245	12.6	290	8.0	0.20
NORTH EASTERN PLAINS ZONE													
Burdwan	Sandy loam	-	-	-	-	-	-	0.44	-	105	228	5.8	0.06
Mohitnagar	-	-	-	-	-	-	-	0.83	-	54	128	6.2	0.06
Coochbehar	Sandy Loam	65.9	18	16.1	1.25	44	3.81	0.76	117.6	14.98	121.33	5.3	0.08
Faizabad	Sandy Loam	57.2	28.7	15	1.3	24	8	0.46	118	24	261	7.5	4
Kalyani	Loam	49	30	21	1.5	30	12	0.5	230	25	232	7.1	0.3
Ranchi	Sandy loam	66.2	16.3	17.5	1.41	20.4	10.7	0.41	223.31	26.6	185	5.7	0.16
RAU Pusa	Clay Loam	23.04	49.5	27.51	1.42	21.64	7.65	0.43	196.8	20.82	126.36	8.4	0.24
Sabour	Sandy Loam	45	30	25	1.43	27	14	0.56	186	25	196.3	7.03	0.15
Shillongani	Sandy Clay Loam	47.6	22.6	17.8	1.38	43.03	7.8	1.24	246.4	12.8	268.2	5.5	0.262
Varanasi	Sandy Loam	45.77	30.4	23.82	1.41	19.8	6.2	0.32	190.32	18.81	181.75	7.42	0.33
CENTRAL ZONE													
Bilaspur	Sandy clay loam	48.43	27.59	30.98	1.28	22.79	8.5	0.49	239	19.78	319	7.4	0.32
Gwalior	Sandy clay loam	56.0	17.2	20.0	-	-	-	0.41	170	20	240	7.5	-
Indore	Vertisols	4.0	40.0	56.0	1.4	28.0	12.0	0.55	210	12.3	660	8	0.14
Kota	Clayey	18.5	35.0	46.5	1.47	30.4	15.1	0.7	322	24.9	298	7.8	0.72
Powarkheda	Clayey	26.0	24.5	47.5	1.53	-	-	0.48	285	32.15	351	7.5	0.39
Sagar	Medium Black	24.96	26.54	48.05	1.48	-	-	0.39	207	29.02	317	7.5	0.36
Udaipur	Clay loam	37.98	27.04	34.98	1.49	-	-	0.79	249	19.4	372	8.1	0.86
Vijapur	Sandy loam	74.8	11.8	8.7	1.59	11.45	2.44	0.31	182	38.45	286	7.95	0.28
Dhandhuka	Loamy sand	70.4	15.6	13.5	1.54	17.5	3.5	0.42	204	48.16	290	8.03	0.39
Arnej	Loamy sand	72.4	14	12.6	1.56	14.5	2.75	0.32	120.2	12.86	525	8.14	0.54
PENINSULAR ZONE													
Akola	Clayey	11.2	29.5	59.3	-	-	-	0.69	148	10.12	269	8.1	0.16
Dharwad	Deep vertisol	19	28	53	1.3	39	18	0.56	254	42	396	8.4	0.7
Niphad	Vertisol	12.54	29.50	57.90	1.21	-	-	0.76	129.00	22.60	438.00	8.02	0.63
Pune	Medium Black	-	-	-	-	-	-	0.79	190	19.44	733	7.64	0.4
SOUTHERN HILLS ZONE													
Wellington	Red lateritic	12	18	78	-	-	-	2.4	372	15	172	6	0.12

ANNEXURE-IV

SOWING DATES FOR DIFFERENT ZONES UNDER IRRIGATED CONDITIONS

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

ANNEXURE-V

LIST OF CENTRES AND COOPERATING SCIENTISTS WORKING UNDER RESOURCE MANAGEMENT PROGRAMME OF THE AICW&BIP (2013-14)

NORTHERN HILLS ZONE

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*3.	Imphal	Sh L Chaoba Singh, Assistant Agronomist, AICW&BIP, Imphal Centre, State Mechanised Farm Complex, Lamphelpet-795004, Imphal West, Manipur.
4.	Khudwani	Dr M A Bhat, Sr scientist Agronomy Dr Gulzar Singh Sanghera, Sr. Scientist, Section of Plant Breeding and Genetics, SKUAST-K, Rice Research & Regional Station, Khudwani, Anantnag- 192 102, J&K, India. *Email:* g_singh72@rediffmail.com*, Mobile: 09797198851.*
*5.	Malan	Dr Sandeep Manuja, Wheat Agronomist, CSKHPKV, RWRC, Malan-176 047, Distt. Kangra, HP. *Email: sandeepmanuja70@gmail.com; sandeepmanuja70@rediffmail.com* Mobile: 09418112682, 09816900266.
6.	Shimla	Dr Dharam Pal, Senior Scientist (Plant Breeding), IARI Regional Station, Tutikandi, Shimla-171 004, HP. *Email: dpwalia@rediffmail.com*

NORTH WESTERN PLAINS ZONE

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3.	Gurdaspur	Dr (Mrs) Charanjit Kaur, Agronomist, PAU Regional Research Station, Gurdaspur- 143521, Punjab. *Email: virgocharan@yahoo.com, Mobile-0917287920*
*4.	Hisar	Dr Bhagat Singh, Assistant Wheat Agronomist, Department of Plant Breeding, CCS HAU, Hisar (Haryana)-125 004. *Email:* bsdahiya@gmail.com*, Mobile:09813078155*
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NORTH EASTERN PLAINS ZONE

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CENTRAL ZONE

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