प्रगति प्रतिवेदन
PROGRESS REPORT
2018-19

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

फसल सुधार
CROP IMPROVEMENT

भा.कृ.अनु.प.–भारतीय गेहूँ एवं जौ अनुसंधान संस्थान, करनाल
ICAR-Indian Institute of Wheat and Barley Research, Karnal

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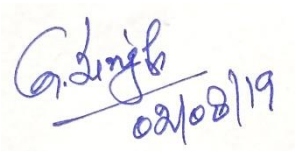
In the end, it is stated that although utmost care has been taken to avoid any error in presentation of the results in this report, any error/omission is unintended and may please be brought to the notice of the undersigned.

Dated: 2nd August, 2019



(Gyanendra Singh)
Principal Investigator
(Crop Improvement)

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Crop Improvement Principal Investigator's Report
Research Highlights, 2018-19

The crop year 2018-19 has been once again a record breaking year as far as wheat production of India is concerned. This year the country has witnessed a record production of 101.20 mt (3rd AE, 2019) of wheat grains from an area of 29.55 mha. The productivity of 34.24 q/ha this year is also one of the highest ever recorded in the country. During the year under report, the constitution and dispatch of the advance varietal trials was performed by zonal coordinating units and the special trials sets were prepared by the respective lead centres. The constitution and dispatch of advance varietal trials for North Eastern Plains Zone and Peninsular Zone were carried out at Karnal. All the work related to coding, constitution and dispatch of national initial varietal trials was done at Karnal. A summary of the work done and significant achievements made during the crop season 2018-19 in Crop Improvement discipline of the All India Coordinated Research Project on Wheat & Barley is presented here.

Development and release of new wheat varieties for different zones

Central released varieties: During 2018-19, the Central Sub-Committee on Crops Standards, Notification and Release of Varieties for Agricultural Crops (CVRC) recommended the release of following 06 varieties of wheat for different zones and production conditions of the country.

Wheat varieties released by CVRC during 2018-19

Variety name and parentage	Area	Developed by	Prod. Cond.	Grain yield (q/ha)		Notification. No.	Special feature
				Ave.	Pot.		
Bread Wheat							
PBW 752 *(PBW621/4/PBW343//YR10 /6*AVOCET/3/3*PBW343/5 /PBW621)*	NWPZ	PAU, Ludhiana	IR-LS	49.7	65.4	1498(E) 01/04/2019	High resistance against yellow and brown rust
PBW 757 *(PBW550/YR15/ 6*AVOCET/3/2*PBW550/4/PB W568+YR36/3*PBW550)*	NWPZ	PAU, Ludhiana	IR-VLS	36.7	44.9	1498(E) 01/04/2019	High resistance against yellow and brown rusts, good chapati quality
HD 3226 (Pusa Yashasvi) *(GRACKLE/HD 2894)*	NWPZ	IARI, N. Delhi	IR-TS	57.5	79.6	1498(E) 01/04/2019	Resistance to yellow and brown rusts, high wet gluten content.
HD 3237 (Pusa wheat 3237) *(HD 316/HD 2967)*	NWPZ	IARI, N. Delhi	RI-TS	48.4	63.1	1498(E) 01/04/2019	Resistance to yellow and brown rust, good chapati quality
HI 1620 (Pusa wheat 1620) (*NAC/TH.AC//3*PVN/3/MIR LO/BUC/4/2*PASTOR/5/KA CHU/6/KACHU)*	NWPZ	IARI RS, Indore	RI-TS	49.1	61.8	1498(E) 01/04/2019	Resistance to yellow and brown rust.
DBW 187 (*Karan Vandana) (NAC/TH.AC//3*PVN/3/MIR LO/BUC/4/2*PASTOR/5/KA CHU/6/KACHU)*	NEPZ	IIWBR, Karnal	IR-TS	48.8	64.7	1498(E) 01/04/2019	Resistance to yellow and brown rust, High Fe content

State released varieties: Following eleven wheat varieties recommended by respective state for different production conditions were recommended for notification by the Central Sub-Committee on Crops Standards, Notification and Release of Varieties for Agricultural Crops.

Wheat varieties released by SVRC during 2018-19

Variety name and parentage	State /Area	Dev. by	Prod. Cond.	Grain yield (q/ha)		Not. No.	Special feature
				Av.	Pot.		
AAIW-10 (SHIATS-W 10) *(WELLI/KAMBI/ PASTOR)*	UP	SHUATS, Allahabad	IR-TS	43.07	57.78	6318(E) 26/12/2018	Resistance to brown rust, leaf blight, Karnal bunt
AAIW-9 (SHIATS-W 9) *(TOBA97/PASTOR)*	UP	SHUATS, Allahabad	IR-LS	38.37	50.52	6318(E) 26/12/2018	Resistance to brown rust, leaf blight, Karnal bunt
UP 2844 *(HD2844/FRTL/AGRI/NAC)*	Uttarakhand (Plains)	GBPUA&T, Pantnagar	IR-LS	42.04	69.81	1498(E) 01/04/2019	Resistance to yellow and brown rust
UP 2855 *(PBW 565/UP2565)*	Uttarakhand (Plains)	GBPUA&T, Pantnagar	IR-TS	52.52	100	1498(E) 01/04/2019	Resistance to leaf rust,
UP 2865 *(HP1749/PBW 564)*	Uttarakhand (Plains)	GBPUA&T, Pantnagar	IR-LS	45.82	68.89	1498(E) 01/04/2019	Resistance to leaf rust,
VL Gehun 967 *(SHARP/3/PRL/SARAJ/TSIA/EE #5/5/VEE/LIRNIBOWI3IBCNI4IK AUZ#4)*	Uttarakhand (Plains)	VPKAS, Almora	TS,RF (Organic Cultivation)	19.86	35.44	1498(E) 01/04/2019	Highly resistant to yellow and brown rust,
VL Gehun 2014 *(Raj4132/AKAW4006)*	Uttarakhand (Plains)	VPKAS, Almora	IR-TS	52.06	71.01	1498(E) 01/04/2019	Highly resistant to yellow and brown rust
VL Gehun 3004 *(HD2844/PBW486)*	Uttarakhand (Plains)	VPKAS, Almora	IR-LS	43.88	70.31	1498(E) 01/04/2019	Highly resistant to yellow and brown rust,
JAUW 584 *(PDW 233/Ae.crassa/ PBW 343)*	Jammu region of J&K	SKUAST, Jammu	IR-TS	37.6	46.3	1498(E) 01/04/2019	Resistance to yellow and brown rusts
CHHATTISGARH AMBER WHEAT (CG 1018) (HW 2004/PBN 1662-2)	Chhattisgarh	IGKVV, RS, Bilaspur	RI-TS	35.09	58.2	1498(E) 01/04/2019	Resistant to brown and black rust
Unnat PBW 550 (PBW 550/ Yr15/ 6*Avocet/3*PBW550)	Punjab	PAU, Ludhiana	IR-TS	60.4	73.6	1498(E) 01/04/2019	Highly resistant to yellow and brown rust

Registration of new genetic stocks: During the year 2018-19, following 21 genetic stocks of wheat have been registered with NBPGR, New Delhi for novel traits (disease resistance, chlorophyll deficient mutant, heat tolerant, drought tolerant and quality). The genetic resources unit of the IIWBR, Karnal multiplies the seeds of these registered genetic stock and supplies to breeder across the country for use in wheat improvement.

Genetic stocks registered during 2018-19

Name	INGR	National ID	Developed by	Trait
DBW-EMS98	INGR 18004	IC0625990	IIWBR, Karnal	Chlorophyll deficient mutant
PHS 1108	INGR 18005	IC0624499		High protein and bold seeds
DBW 129	INGR 18006	IC0624497		Multiple disease and pest resistance
DBW 246	INGR 18007	IC0625998		Highly resistant to yellow rust.
IC-0624570	INGR 18008	IC0624570	BHU,Varanasi	Spot blotch resistance and early Maturity.
HTW 9	INGR 18009	IC0625994	IIWBR, Karnal	Heat tolerance.
DBW 218	INGR 18010	IC0625997		High sedimentation value
EC531185	INGR 18011	EC531185	NBPGR, New Delhi	Low DSI (<0.5)
EC339604	INGR 18012	EC339604		Resistant to leaf rust.
IC252459	INGR 18013	IC0252459		Resistant to stripe and leaf rust
IC564121	INGR 18014	IC0564121		Highly resistant to spot blotch
IC443669	INGR 18015	IC0443669		Highly resistant to spot blotch
QLD 49	INGR 18016	IC0626288	IIWBR, Karnal	Soft grain for better biscuit making.
QLD 46	INGR 18017	IC0626289		High grain protein content.
DDW 32	INGR 18018	IC0626290		Loose smut resistance
IC536365	INGR 19007	IC0536365	IARI, RS, Wellington,	Resistant to all three rusts
EC574482	INGR 19008	EC574482		Carry two major genes for stripe rust (Yr5 &Yr15) leaf rust (Lr50) and 3 minor APR genes
HI8774	INGR 19009	IC0628570	IARI RS, Indore	Resistant to stripe rust, Karnal bunt and powdery mildew.
QLD84	INGR 19010	IC0628572	IIWBR, Karnal	Soft grain genotype (hardness =18)
QLD11	INGR 19011	IC0628573		High grain protein content (14.8%)
HTW 63	INGR 19032	IC36761A		Drought tolerance.

Registration of Varieties with PPV&FRA: Four wheat varieties namely HS 490, MPO 1215, HW 1098, and CoW 2 were registered by the PPV&FRA vide registration number 71, 76, 176 and 178 of 2018, respectively. Registration proposal of DBW 168 and DBW 173 were submitted to the PPV&FRA, New Delhi for seeking protection under PPV&FRA, 2001 in extant and new category, respectively.

Significant results from coordinated yield trials

Conduction of coordinated trials: The wheat coordinated varietal evaluation programme entails a huge multilocation testing programme which is undertaken with the cooperation of 29 funded and 95 voluntary centres spread across five wheat growing zones in the country.

Zone-wise funded and voluntary centres associated in conduction of coordinated trials

Zone	Funded centres	Voluntary centres, including ICAR centres
NWPZ	5	22
NEPZ	8	24
CZ	8	24
PZ	4	17
NHZ	4	8
Total	**29**	**95**

During the crop season 2018-19, a total of 24 series of trials comprising AVTs, NIVTs, IVTs and Special trials were laid out in the different zones under four major production conditions *viz.* timely sown irrigated, late sown irrigated, timely sown restricted irrigation early sown and very late condition. This year altogether 318 test entries were evaluated along with a total of 67 check varieties in different trials. In all, 436 trial sets were supplied to 124 centres out of which 423 trials were actually conducted. The non-conduction of the coordinated trials was mainly at voluntary centres. The percent conduction of trials was 100% in NEPZ and PZ followed by NWPZ (97.4%) NHZ (97.1%) and CZ (91.9%).

Breakup of yield trials during 2018-19

Zone	Proposed	Conducted	% conduction	Reported	% reporting	Not Reported
NHZ	34	33	97.1	31	93.9	LSM (1), RMT (1)
NWPZ	117	114	97.4	104	91.2	HCV (3), RMT (5), LSM (2)
NEPZ	93	93	100	75	80.6	DNR (1), LSM (6), TF (1), RMT (9), LSM&HCV(1)
CZ	111	102	91.9	78	76.5	DNR (8), LS (3), LSM (3), RMT (8), HCV (2)
PZ	81	81	100	62	76.5	DNR (3), LSM (4), RMT (8), LS (3), HCV(1)
Total	**436**	**423**	**97.0**	**350**	**82.7**	**73 (RMT - 31)**

During this year, from amongst the 423 trials conducted, the data of 350 trials were found qualifying for reporting based on set norms for disease resistance and yield performance. The overall reporting of conducted trials during this crop season was 82.7%. The reporting of data was highest in NHZ (93.9%) followed by NWPZ (91.2%). The reporting of data in other zones was NEPZ (80.6%), CZ and PZ (76.5%).

Varieties in the final year evaluation in AVTs: During the year under report, there were 19 varieties in the final year of yield evaluation in various AVTs and SPL trials in the different zones. The proposal for identification of these varieties would be placed for consideration by the Varietal Identification Committee.

Varieties in final year of evaluation in AVTs during 2018-19

Trial	Final year entries
North Western Plains Zone	
AVT-IR-TS-TAS	DBW221, DBW222
AVT-IR-LS-TAS	PBW771
AVT-RI-TS-TAS	BRW3806, NIAW3170, HI1628
North Eastern Plains Zone	
AVT-IR-TS-TAS	HD3249
AVT-RI-TS-TAS	DBW252
Central Zone	
AVT-RI-TS-TAD	UAS466(d), DDW47(d)
Peninsular Zone	
AVT-RI-TS-TAD	MACS6696, MACS6695, NIAW3170 MACS4058(d), GW1346(d), HI8805(d), HI8802(d)
SPL Trials	
SPL-VLS	HD3271, HI1621

Marker assisted gene prospecting in AVT entries of wheat

Genetic diversity is not only important for breeders to carry forward development of newer varieties but at the same time diversity among cultivars ensures buffering against unforeseen stresses both biotic and abiotic. Molecular markers associated with economically important traits could be used as selection tools by plant breeders since they identify differences in DNA sequence and are less ambiguous as compared to phenotypic markers. Screening of advanced varietal trial entries and checks using molecular markers generate a vast amount of information. In an effort to utilize some of the available molecular markers, Molecular Biology Program at ICAR-IIWBR screened the final year (2018-19) AVT test entries and checks using various STS/ AS-PCR markers linked to the gene(s) of Waxiness (*WxB1*), abiotic (drought) stress related (*DREB*), vivipary (*Vp1B3*), leaf rust resistance (*Lr*), Photoperiod response (*PD1*) and vernalization (*Vrn*). The dendrogram constructed using these STS and more than 40 SSR markers depicted the genetic relationships among genotypes.

Cluster analysis showed that genetic relatedness of the genotypes ranged from 0.55 to 0.91 i.e. 55–91%. There were two distinct clusters one having predominantly the durum wheat varieties and the other primarily for bread wheat which gets reflected in the dendrogram based on genetic similarity. The allele distribution by using STS /AS-PCR markers is shown in the table given below.

Molecular marker profile of AVT (Final Year) entries and checks of 2018-19

SN	Genotype\Marker	*WxB1*		*DREB*	*Vp1B3*		*Lr10*	*Lr34*		*PD1*		*Vrn1a*	*Vrn1b*
	Allele Size (bp)	**425**	**690**	**700**	**569**	**652**	**300**	**150**	**230**	**228**	**414**	**965**	**800**
1	DBW221	+	-	+	+	-	-	-	+	+	-	-	+
2	DBW222	-	+	-	+	-	-	-	+	+	-	+	+
3	WH1105	+	-	+	+	-	-	-	-	+	-	+	+
4	HD3086	-	+	-	+	-	-	-	-	+	-	-	+
5	DBW88	-	-	-	-	-	+	-	-	+	-	-	-
6	DPW621-50	+	-	-	+	-	+	-	-	+	-	+	-
7	PBW550	-	+	+	+	-	-	-	-	+	-	-	+
8	PBW771	-	+	+	-	-	-	-	+	+	-	+	+
9	HD3059	+	-	+	+	-	+	-	+	+	-	+	+
10	DBW173	-	+	+	+	-	+	-	+	+	-	+	+
11	WH1021	+	-	+	+	-	-	-	+	+	-	-	-
12	WH1124	+	-	-	+	-	+	-	+	+	-	-	+
13	BRW3806	+	-	+	+	-	-	-	-	+	-	+	+
14	NIAW3170	+	-	+	+	-	-	-	+	+	-	+	+
15	HI1628	+	-	+	+	-	-	-	-	+	-	+	+
16	WH1080	-	+	+	+	-	-	-	+	+	-	+	+
17	HD3249	+	-	+	+	-	-	-	+	+	-	+	+
18	DBW252	+	-	+	+	-	-	-	+	+	-	-	+
19	HD2888	-	+	+	+	-	-	-	+	-	-	-	+
20	K8027	-	+	+	+	-	-	-	+	-	+	+	+
21	HD3171	+	-	+	-	+	-	-	-	+	-	-	+
22	K1317	+	-	+	+	-	-	-	+	+	-	+	+
23	HI1612	-	+	+	+	-	-	-	+	+	-	+	+
24	UAS466	+	-	+	+	-	-	-	-	+	-	+	+
25	DDW47	-	+	+	+	-	-	-	-	-	-	-	+
26	HI8627	+	-	+	+	-	-	-	-	-	-	+	+
27	DBW110	+	-	+	+	-	-	-	+	+	-	+	+
28	MACS6696	+	-	+	+	-	-	-	+	+	-	-	+
29	MACS6695	+	-	+	+	-	-	-	+	+	-	-	+
30	MACS4058	+	-	+	+	-	-	-	-	-	-	-	+
31	GW1346	+	-	+	-	+	-	-	-	-	-	-	-
32	HI8805	+	-	+	-	-	-	-	-	-	-	-	-
33	HI8802	+	-	-	+	-	-	-	-	-	-	-	-
34	DBW93	+	-	+	+	-	-	-	+	+	-	+	-
35	HI1605	+	-	+	+	-	-	-	-	+	-	+	+
36	AKDW2997-16	+	-	+	+	-	-	-	-	-	-	+	+
37	UAS446	+	-	+	+	-	-	-	-	-	-	-	-
38	HD3271	+	-	+	+	-	-	-	-	+	-	-	+
39	HI1621	+	-	+	-	-	-	-	-	-	-	-	-
40	WR544	-	+	+	+	-	-	-	-	+	-	+	+
42	HD2733	+	+	+	-	+	-	-	+	+	-	-	-
43	K0307	+	+	+	+	-	+	-	+	+	-	-	+
44	DBW39	+	+	-	-	+	-	+	-	+	-	-	-
45	HD2967	+	-	+	-	+	-	-	+	+	-	-	-
46	DBW187	+	-	+	-	-	+	-	+	+	-	-	+
47	HD3043	+	+	M	+	-	-	-	+	+	-	+	+
48	PBW644	+	+	M	-	-	-	-	-	+	-	-	+

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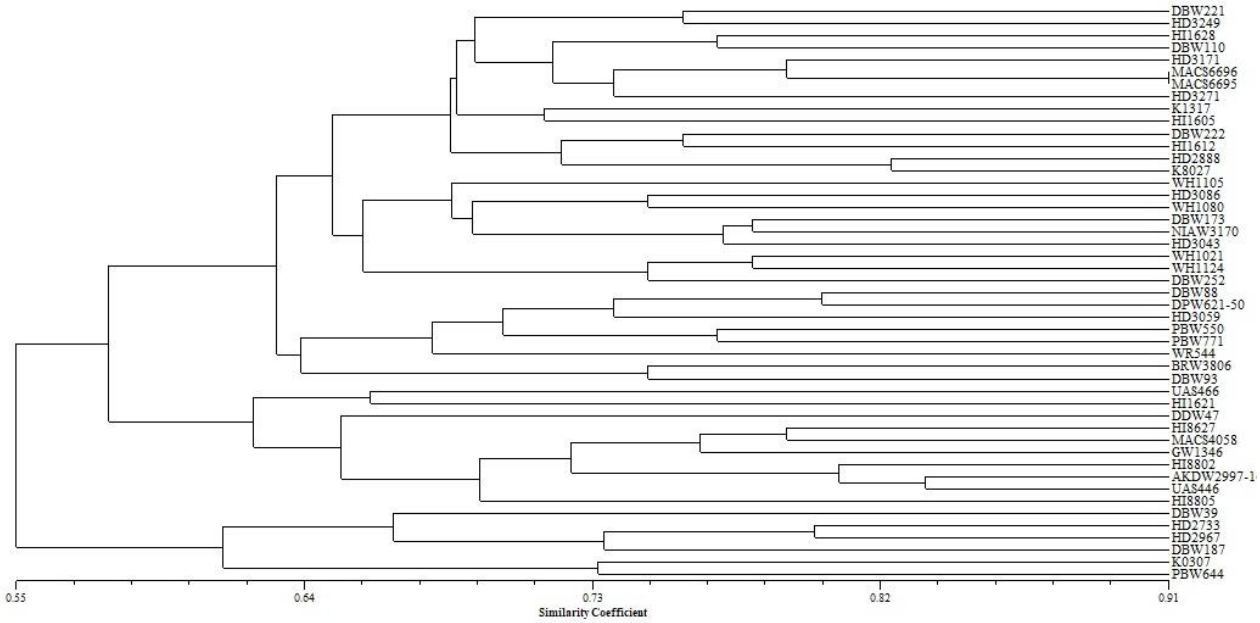

Dendrogram showing relative diversity in AVT entries based on molecular markers

Promising varieties in Advanced Varietal Trials: The criteria for promotion of varieties in AVTs was based on significant superiority of genotypes over the best zonal check of the trials and accordingly 40 genotypes were evaluated in different zones during this crop season. From among the varieties evaluated in AVTs, this year 03 genotypes viz., CG 1029 in late sown irrigated conditions of Central Zone, HI 1633 for late sown conditions of Peninsular Zone and NIDW 1149 (d) for restricted irrigated conditions of Peninsular Zone were identified to be superior on the basis of their yield performance and response to the incidence of rusts.

Most promising Varieties in AVTs

Zone	Timely sown, Irrigated	Late sown, Irrigated	Timely sown, Restricted irrigat
CZ	-	CG-1029	-
PZ	-	HI-1633	NIDW1149 (d)

Promising varieties in NIVTs

Among the total 217 new entries evaluated for their performance in 8 NIVTs, as many as 33 entries were found promising on the basis of high yielding ability and disease resistance. Out of these 33 promising entries, 26 were of bread wheat and 07 of durum wheat. 10 entries were observed to be promising for timely sown irrigated condition, 16 for late sown irrigated condition and 7 for restricted irrigation condition. In all, 11 entries were reported promising in NWPZ, one in NEPZ, 9 in CZ and 12 in PZ under different cultural conditions at the zonal level.

Most promising entries in NIVTs and IVTs

Zone	Timely sown, Irrigated	Late sown, Irrigated	Timely sown, Restricted irrigation
NWPZ	PBW803	PBW811, PBW812, PBW813, DBW290, DBW291, HD3332, HD3334, JKW261, WH1264	DBW296
NEPZ	PBW804	-	-
CZ	GW513, HI1636, HI1637, MACS6747, MP1361, TAW155	-	MPO1357(d), UAS 472(d), HI8823 (d)
PZ	WHD964 (d), HI8818(d)	UAS3008, HI1641, HI1642, HI1646, MACS6752, MACS6749, GW519	MP1358, MACS4087 (d), UAS472 (d)

Zonal monitoring of coordinated trials and nurseries

Multidisciplinary teams were constituted to monitor trial conducting centres in all zones. Programmes of monitoring were carried out during February to April, 2019 for examining the conduction of trials and performance of test genotypes in each of the five wheat growing zones. Out of the total 124 trial conducting centres, 103 centres were monitored during this crop season. The collective decisions of the monitoring team members on acceptance/rejection of a trial were considered during preparation of the monitoring reports. The detailed report of the zonal monitoring teams has been appended in this Progress Report. The general comments of the members of the zonal teams on the genetic purity of test genotypes would be taken into account for promotion, retention or dropping of a particular test entry during the group meeting at the ensuing workshop.

Itinerary of zonal monitoring during 2019

Zone	Duration	Centres monitored
PZ	Team I: 03-06 Feb	Bagalkot, Mudhol, Kallolli, Arabhavi, Ugar Khurd, Nippani, Bailhongal, Dharwad
	Team II: 5-8 Feb	Akola, Washim, Parbhani, Pravaranagar, Savilivihir, Niphad Nashik
CZ	Team I: 18-21 Feb	SK Nagar, Vijapur, Anand, Arnej, Dhandhuka, Sanosara (Lok Bharti), Amreli, Junagadh
	Team II: 25 Feb-1 Mar	Kota, Udaipur, Pratapgarh, Ujjain, Indore, Bhopal and Powarkheda
	Team III: 1-6 March	IGKV Raipur, ICAR-NIBSM Raipur, Bilaspur, Jabalpur, Sagar, Tikamgarh, Morena, Gwalior
NEPZ	Team I: 8-11 March	Kalyani, Burdwan, Manikchak, Majhian (South Dinajpur), Coochbehar, Shillongani
	Team II: 5-9 March	IARI-RS, Pusa, RPCAU, Pusa, KVK Jalagarh (Purnea), Sabour, Banka, Dumka, Goriakarma, Chianki, Ranchi
	Team III: 12-16 March	Naini, Varanasi, Chandauli, Maharajganj (Basuli), Basti, Kumarganj, Masodha, Amethi, Deegh, Kanpur, Araul
NWPZ	Team I: 6-8 March	New Delhi, Shikohpur, Bawal, Alwar, Bharatpur, Durgapura, Tabiji, Diggi
	Team II: 15-17 March	Karnal, Rauni, Bhatinda, Muktsar, Sriganganagar, Rohtak
	Team III: 14-16 March	Nagina, Kashipur, Pantnagar, Rampur, Bareilly, Sahajahanpur, Ujhani, Bulandshahr
	Team IV: 22-26 March	Ludhiana, Ladowal, Faridkot, Kapurthala, Balachaur, Gurdaspur, Jammu, Kathua
NHZ	Team I: 24-26 April	Ranichauri, Majhera and Hawalbagh
	Team II: 8-13 April	Shimla, Berthin, Akrot, Una, Malan and Bajaura

The monitoring teams recommended the rejection of the following 31 trials based on poor conduction, faulty layout, poor plant stand, sowing beyond the recommended dates etc.

Trials rejected by zonal monitoring teams

Zone	Centre	Trial
NHZ	Ranichauri	IVT-RF
NWPZ	Alwar	AVT-IR-TS
	Bareilly	AVT-IR-TS, AVT-IR-LS
	Rampur	SPL-VLS
	Diggi	NIVT5A
NEPZ	Dumka	AVT-RI-TS
	Goriakarma	AVT-RI-TS
	Chandauli	AVT-IR-TS, SPL-VLS
	Maharjganj	AVT-RI-TS
	Basti	AVT-IR-TS
	Faizabad	SPL-AST
	Amethi	AVT-IR-TS
	Araul	AVT-IR-TS
CZ	Amreli	AVT-RI-TS
	Kota	NIVT-5B
	Udaipur	NIVT-5B
	NIBSM Raipur	AVT-IR-TS, AVT-IR-LS
	Jabalpur	AVT-IR-TS
	Sagar	AVT-RI-TS, NIVT-2
PZ	Mudhol	AVT-IR-TS, SPL-DIC
	Nippani	NIVT-5B
	Akola	AVT-IR-LS
	Mahabaleshwar	AVT-IR-TS, AVT-IR-LS, SPL-DIC
	Baramati	AVT-RI-TS

The monitoring teams observed variation, segregation for different traits in the test genotypes. Among the entries recommended for rejection by individual monitoring team, the commonly appearing entries have been dropped from further testing and are given below;

Entries dropped from further testing

Trial	Entry
Central Zone (AVTIR-TS)	CZ-TS104 (HD3343^{M})
Central Zone (AVT-IR-LS)	CZ-LS-206 (UAS3002)
NIVT 1A	N-114 (WH1257)
NIVT 1B	N-202 (HD3326), N-203 (HUW834)
NIVT-2	N-314(RVW4265), N-327(UP3032), N-328 (Raj 4542), N-329 (UAS3005)
NIVT-3B	N-525(TAW154)
NIVT-5A	N-720 (UP3036), N-724 (HD3335)
NIVT-5B	N-811 (UAS3009), N-814 (CG1033)

Seed Production

During 2018-19, total indent of 20321.78 q breeder seed of 141 wheat varieties was received from DAC for production. The highest indented varieties included HD 2967 (2972.88 q), HD 3086 (1936.30 q), PBW 723 (1569.40 q), Raj 4238 (955 q), PBW 725 (746.20 q), HI 8713 (462.20 q), GW 366 (445 q), HI 1544 (398.80 q), MP 3336 (377 q) and HI 8737 (356.80 q).

Top indented varieties in breeder seed chain for crop season 2018-19

Variety	Year of release	DAC Indent (q)	Breeder seed (q)	
			Allocation	Production
HD 2967	2011	2972.88	2972.8	4060.08
HD 3086 (Pusa Gautami)	2014	1936.3	1936.3	1960.0
PBW 723	2017	1569.4	1569.4	1404.4
Raj 4238	2013	955.0	955.0	1195.0
PBW 725	2015	746.2	746.2	748.0
HI 8713 (Pusa Mangal)	2013	462.2	462.2	520.0
GW 366	2007	445.0	445.0	647.55
HI 1544 (Purna)	2008	398.8	398.8	886.5

Breeder Seed Production: Total production of breeder seed during the year was 28361.72 q. Thus there was a surplus production of 8710.87q over the allocated quantity (28361.72 q) of breeder seed. JNKVV, Jabalpur produced highest quantity of breeder seed (2676.98 q) followed by PAU, Ludhiana (2560.40 q) and IIWBR Karnal (2327 q). The highest quantity of breeder seed was produced for HD 2967 (4060.08q) followed by HD 3086 (1960 q), PBW 723 (1404.40 q), MP 3288 (1398.84 q), Raj 4238 (1192 q), HI 1544 (886.50 q), Raj 4079 (860.50 q) etc. Breeder seed production of five allocated varieties, MP(JW) 3336 (377 q) at JNKVV Jabalpur, WR 544 (26.74 q) at RPCAU Pusa, HI 1500 (5 q) at IARI Indore, HI 1479 (5 q) at MAF (AU) Kota, K 7903 (27.60 q) at CSAUAT Kanpur and HI 1418 (18 q) at IARI Indore was not taken up.

Nucleus Seed Production: Against an allocation of 766.30 q nucleus seed of 141 wheat varieties, 1153.67 q nucleus seed was produced. Apart from allocated varieties, an additional 635.60q nucleus seed was also produced. Hence, a total nucleus seed of 1789.27 q of 222 varieties was produced. IARI Indore produced maximum quantity (194.30q) of nucleus seed followed by PAU Ludhiana (116.75 q), MAF (AU) Kota (110.86) and IARI New Delhi (91.40 q)**.** The maximum nucleus seed of variety HD 2967 (109.60 q) was produced followed by HD 3086 (50.30 q), PBW 723 (46.55 q), GW 496 (41.55 q), HI 8713 (40.60 q) and HI 1544 (32.0 q).

Test stock multiplication: NSC reported to produce 909.50 q test stock multiplication of 5 newly identified wheat varieties viz., HD 3226 (204.5 q), HD 3237 (86.4 q), HI 1620 (266.60 q), PBW 752 (261.0 q) and DBW 187 (91.0 q)

Evaluation of National Nurseries and International Nurseries/Trials

National Nurseries: During 2018-19, seven nurseries and one segregating stock nursery were constituted by the institute and supplied to different co-operators located across various zones in the country for evaluation and utilization.

Nursery	Entries+ Checks	Centre
National Genetic Stock Nursery (NGSN)	80+3	34
Short Duration Screening Nursery (SDSN)	44+6	17
Drought Tolerance Screening Nursery (DTSN)	19+6	15
Salinity-alkalinity Tolerance Screening Nursery (SATSN)	26+2	9
Quality Component & Wheat Biofortification Nursery (QCWBN)	45+7	13
Elite International Germplasm Nursery (EIGN)	108+4	27
National Durum Screening Nursery (NDSN)	54+3	13
Segregating Stock Nursery (SSN)	160 F_2/F_3	20

National Genetic Stock Nursery (NGSN): The NGSN comprising 80 lines including *T. aestivum* (67), *T. durum* (09), *T. dicoccum* (2) and Triticale (2) was provided to 34 centres as "suggested crossing block". Pooled analysis of data was done for identification of promising lines and presented below:

Promising lines identified for yield component traits in NGSN during 2018-19

The promising genotypes showing resistances to disease under field condition in NGSN are listed in table:

Traits	Promising Entries	Best check
Days to heading (≤85 days)	TL 3006(79), PBW 757 (80), TL 3007, DWAP 1531(81), HTW 9, HIKK 06, FLW 22, HIKK 09, DHTW 60 (82), HIKK 05, DBW 107, AKAW 4927, MP 3336, NIAW 1994 (83), AKAW 4901, GRU 2010-18/7, HI 1620, MP 3382 (84)	Sonalika (87)
Days to maturity (≤130 days)	PBW 757 (128), FLW 22, HTW 9 (129), DBW 107, DWAP 1531, HIKK 06, HIKK 05, TL 3006(T), DHTW 60, HI 1620, AKAW 4901, WH 730, HIKK 09 (130)	Sonalika (132)
Tillers /m(>100)	AKAW 3717 (127), DHTW 60 (110), GJW 463, WH 1080 (106), HTW 9, HIKK 09 (105), TL 3007(104), KBRL 79-2, WH 1127 (103), KRL 283 (102), DDK 1051(101)	HD 2967 (89)
Grains /spike (>57)	AKAW 4901, GRU 2010-18/7, HD 3171(59), MP 3382, KBRL 82-2, HD 3043 (58)	HD 2967 (57)
1000-gr weight (g) (>43 g)	HI 8751(49), AKAW 4927, HI 8737(48), HI 8708(47), HI 8777(46), DWAP 1531, K 1317, HI 1609, DDK 1051, PDW 344, MACS 5044, MACS 3949(45), DBW 187, HI 8759(44)	HI8713 (43)
Spike length(cm) (>11)	BRW 3723 (15), GRU 2010-18/7 (13), AKAW 4927, DWAP 1531, UASD DT -6, AKAW 4901 (12)	HD 2967 (10)

Genotypes showing resistance to diseases in NGSN under field conditions

Disease	Resistant genotypes
Yellow rust	FLW16, PBW 725, PDW 344(d), TL 3006(T)
Brown rust	DBW 187, PBW 760, WH 1127, HI 8708(d), HI 8737(d), HI 8751 (d), HI 8759(d), HI 8765 (d), HI 8777(d), MACS 3949(d), PDW 344(d), TL 3006(T), TL 3007(T)
Black rust	HW 5207, AKAW 4927, DBW 39, DBW 93, DBW 107, KBRL 79-2, KBRL 82-2, PBW 703, PBW 760, WH 1216

d- durum wheat; T- Triticale

On the basis of utilization report received from 27 locations, it was found that 21.1% genotypes in the NGSN were either directly used for selection or utilized in hybridization as parents.

***Short Duration Screening Nursery*:** The 32nd Short Duration Screening Nursery(SDSN) was planted during second fortnight of December, 2018 to identify early maturing genotypes along with high yield and tolerance to high temperature during grain filling period under late sown conditions. Among the tested entries GW 2017-845 and GW2016-752 were found promising across the zones

Drought Tolerance Screening Nursery: The 31st Drought Tolerance Screening Nursery (DTSN) comprising 25 wheat genotypes including 4 checks (C 306, MP 3288, DBW 110 and NI 5439) was conducted at 15 centres to identify wheat genotypes having tolerance to moisture stress. Drought tolerant genotypes viz., HD 3237, DBW 166, HI 1620, HI 1628, MP 1331 and M 516 were having low DSI values and these genotypes can be used as a source in hybridization to develop drought tolerant varieties.

Salinity-Alkalinity Tolerance Screening Nursery: Out of 26 test entries, 5 entries viz., KRL1741, WH1249, WH1250, KRL1733 and K1702 were found to be promising on the basis of mean yield. These lines were also resistance to all the three rusts (stem, leaf and yellow rust) in IPPSN 2018-19.

***Quality Component Screening Nursery*:** QCSN was planted at 12 places and involved 51 test entries which were compared with four checks to identify new genetic resource for quality improvement.

Promising genotypes for individual quality parameters

Component	Genotypes
Protein content (%)	GW20171-596 (14.6%), UP2994 (13.8%)
Sedimentation value(ml)	HD3304 (75.1ml), HD3241 (74.8ml), HD3215 (73.0ml)
Grain hardness index	QLD112 (15.0)
Test weight (kg/ml)	RAJ-4541 (82.5 Kg/hl), QLD109 (80.8 Kg/hl), QBP-18-8 (80.6 Kg/hl), QBP-18-10 (80.4 Kg/hl), KA-1805 (80.4 Kg/hl), UP2994 (80.2 Kg/hl), and VA-2016-37 (79.8 Kg/hl)
Fe content (ppm)	BWL-7800 (49.3), BNSR-1 (47.6), HD3310 and UP2994 (47.1ppm)
Zinc content (ppm)	BWL-7800 (46.1), Raj-4541 (45.5), UP2994 (44.4), QLD109 (43.6), GW2014-596 (43.4), GW2017-825 (42.9), HD3310 (42.8)

Elite International Germplasm Nurseries: The elite international germplasm nursery comprising 108 entries were supplied to 27 centres. Promising entries were identified for plant height, 1000-grains weight, grain yield/plot and resistant to diseases.

Trait-wise promising entries from EIGN during

Trait	Original entry numbers
Grain yield/plot (>575g)	38th ESWYT 149 (639), 38th ESWYT 104(630), 16th HTWYT 2 (594), 16th HTWYT 49 (584), 38th ESWYT 148 (582), 25th SAWYT 336 (579), 38th ESWYT 138 (575)
Plant height (<85cm)	28th STEMRRSN 6132, 18th DSBWYT 14, 18th DSBWON 76
1000-grains weight (g) (> 45g)	35th SAWSN 3258, 50th IBWSN 1283, 28th HRWSN 2124, 16th HTWYT 27, 28th HRWSN 2120 and 38th ESWYT 149
YR (0,tR/tMS)	50th IBWSN 1216, 50th IBWSN 1269, 16th HTWYT 47, 16th HTWYT 49, 25th HRWYT 238, 18th ESBWYT 49, 18th HTSBWON 85, 18th HTSBWON 161, 18th DSBWON 50
Brown rust (0, tR, tMS)	38th ESWYT 104, 50th IBWSN 1095, 16th HTWYT 41, 16th HTWYT 47, 16th HTWYT 49, 16th HTWYT 50, 16th HTWYT 308, 25th SAWYT 336, 35th SAWSN 3255, 28th HRWSN 2120, 28th HRWSN 2124, 28th HRWSN 2144, 28th HRWSN 2147, 28TH HRWSN 2851, 28th SRRSN 6023, 28th SRRSN 6069, 9th HLBSN 39, 9th HLBSN 48, 19th KBSN 19, 19th KBSN 37, 18th ESBWYT 26, 18th HTSBWON 83
Leaf blight (≤ 35)	50th IBWSN 1095, 9th HLBSN 22

A total of 384 selections were made by the different cooperating centres in EIGN.

National Durum Screening Nursery: 5th National Durum Screening Nursery (NDSN) comprising 55 lines were shared with 13 centres for the identification of promising entries for yield components and disease resistance. The feedback reports of NDSN indicate that a total of 120 lines were selected by the breeders of different centres.

Trait-wise promising entries from NDSN

Trait	Original entry number
Grain yield/plot (>660g)	49th IDYN 750 (738), GW 2017-859 (707), 49th IDSN 7066 (683), 49th IDYN 739 (675), 49th IDYN 737 (670), 49th IDSN 7082 (665), GW 2017-864 (663)
Days to heading (<72 days)	GW 2017-855(70), GW 2017-852 (72)
Nos. of tillers /m (> 105)	49th IDYN 718 (110), 41st IDYT 9 (107), 49th IDSN 7066(105)
1000- grain weight (>55 g)	GW 2017-852 (60.1), GW 2017-853 (59.4), GW 2017-854 (56.3)
Grains / spike (> 60)	49th IDSN 7080 (65.4), GW 2017-859 (61.3), 49th IDYN731 (60.2)
Black rust (Free)	41st IDYT 3, 41st IDYT 10, GW 2017-852, GW 2017-863, GW 2017-865

Segregating Stock Nursery: During 2018-19 the 22nd SSN was constituted with 160 segregating populations (F_2/F_3) and supplied to 20 centres. All supplied 160 entries were utilized by one or other centre. The utilization report indicated that the nursery could achieve 33.93%

utilization across the centres. The maximum utilization percentage of crosses was reported by Sabour (94.37%) followed by Bilaspur (58.13%) and Malan (58.13%). The data for number of plants selected from SSN lines showed that a total 4676 plants were selected across locations and maximum selection of plants was done by Sabour (1351) followed by Malan (1350), Coochbehar (490), Faizabad (429), Bilaspur (276), Sanosara (272).

International nurseries/ trials received during 2018-19

From CIMMYT, Mexico, sets of seven trials and seven nurseries comprising a total of 1539 lines (1312 bread wheat and 227 lines of durum wheat) were received and evaluated at various wheat breeding centres and promising lines were identified for yield and yield contributing traits.

Physiological studies on heat stress tolerance

The multilocation heat tolerance trial (MLHT) is conducted to identify heat tolerant genotypes among the AVT genotypes. Two trials MLHT1 and MLHT2 (each with 16 entries for CZ and PZ trial and 25 entries for NWPZ and NEPZ trial) were conducted during the crop season 2018-19. On the basis of pooled analysis for different zones the entries presented in table below were found to be heat tolerant.

Trial	Zone	Genotype
MLHT1	CZ & PZ	PBW823(0.65),PBW822(0.78),DBW277(0.80),DWAP1715(0.83),CG1029(0.86),HD 3345(0.95) and RWP-2018-29 (0.95)
	NWPZ & NEPZ	HD3293(0.76), RWP-2018-32(0.87), RWP -2018-31(0.88), PBW821(0.88), DBW273(0.89), RWP-2018-27(0.89), RAJ4529(0.90), RWP-2018-26(0.92), PBW796(0.97), WH1239(0.97), DBW257(0.97)
MLHT2	CZ & PZ	HI1625(0.54),AKAW4924(0.66),RWP 2017-21(0.93), GW492(0.96), GW491(0.98), MP1338(0.98)
	NWPZ & NEPZ	HD3249(0.84), PBW771(0.88), PBW762(0.89), DBW221(0.91), K1601(0.91), BRW3792(0.95), DBW233(0.97), WH1218(0.97), PBW769(0.99)

Report on preparatory screening against wheat blast disease: As part of anticipatory breeding, AICRP on Wheat & Barley, sent a set of 100 wheat genotypes (released varieties, AVT and NIVT entries) for screening against wheat blast disease at Jessore (Bangladesh) and Bolivia during 2017-18 and the same set of 100 genotypes was again sent to Jessore (Bangladesh) during 2018-19 for confirmation. The disease reactions of highly resistant and resistant lines are given below, while remaining entries were in MR, MS, S and HS category.

List of resistant lines against wheat blast during 2017-18 and 2018-19

Disease rating	# Entries	Name
Highly Resistant (score =0)	1	BRW 3806
Resistant (score <10)	4	DBW 173, HD 2967, DBW 233, DBW 187

Also, another set of 353 lines (checks, AVT, NIVT and registered genetic stocks) was sent for screening against wheat blast at Jessore (Bangladesh) during 2018-19. The disease reactions of highly resistant and resistant lines are given (Table 2), while remaining entries were in MR, MS, S and HS category.

List of resistant lines against wheat blast during 2018-19

Disease rating	Entries	Name
Highly Resistant (score =0)	27	PBW820, WH1256, WH1258, HUW835, UP3029, DBW287, JKW260, KRL429, UAS3006, MP3522, PBW810, TAW155, NWS2118, HD3334, JKW261, HD3344, MP1362, UP3036, UP3037, K1810, HUW838, MP1358, UAS3010, DBW301, DBW187, DBW 233, HD3043
Resistant (score <10)	14	HD3331, K1805, HD 3293, MACS6736, PBW815, UP3043, HI1633, DBW 246, HPBW 01, PBW802, TAW154, JKW267, DBW 196, DPW621-50

Points for discussion during the workshop

1. Proposals for High Yield Potential Trial (HYPT) may be from a common trial.
2. In view of variable nature of salinity and alkalinity problem in different zones, SATSN may be discontinued.
3. Contribution of exotic material in IPPSN and also new proposals (NIVT/IVT) should not exceed 25% of total contributions so as to promote material developed through national breeding programme.
4. To improve wheat blast resistance, a new nursery comprising of potential material be initiated and the criteria for promoting entries with blast resistance need to be formulated. Also, to mitigate challenge of wheat blast, some promotions be considered in national testing based on wheat blast screening.
5. Proposals of MABB entries should be trait specific.
6. In monitoring reports, list of promising and dropped entries should be specified clearly.
7. Meteorological data from each centre should be provided only once, as per format and only soft copy within specified time limit.

Break-up of Coordinated Wheat Varietal Trials
Proposed(PR), Conducted(CD) and Reported(RT) 2018-19

SN	Trial Series	NHZ			NWPZ			NEPZ			CZ			PZ			ALL ZONE		
		PR	CD	RT	PR	CD	RT	PR	CD	RT	PR	CD	RT	PR	CD	RT	PR	CD	RT
1	AVT-IR-TS-TAS	4	4	4	24	23	19	23	23	15							51	50	38
2	AVT-IR-TS-TAD										23	21	14	17	17	11	40	38	25
3	AVT-IR-LS-TAS				25	24	21				21	18	16	17	17	12	63	59	49
4	AVT-RF-TS-TAS	11	11	10													11	11	10
5	AVT-RI-TS-TAS				14	14	14	20	20	16	18	16	12	11	11	8	63	61	50
6	AVT-RI-LS-TAS	11	10	9													11	10	9
7	IVT-RF-TS-TAS	8	8	8													8	8	8
8	NIVT-1A-IR-TS				9	9	9	9	9	9							18	18	18
9	NIVT-1B-IR-TS				7	7	7	11	11	10							18	18	17
10	NIVT-2-IR-TS										10	10	9	7	7	6	17	17	15
11	NIVT-3A-IR-LS				8	8	8	9	9	8							17	17	16
12	NIVT-3B-IR-LS										10	10	10	5	5	5	15	15	15
13	NIVT-4-IR-TS										6	6	6	6	6	6	12	12	12
14	NIVT-5A-RI-TS				9	9	8	9	9	9							18	18	17
15	NIVT-5B-RI-TS-TDM										12	12	8	6	6	5	18	18	13
16	SPL-DIC-IR-TS													12	12	9	12	12	9
17	SPL-AST-IR-TS				6	5	5	5	5	3	11	9	3				22	19	11
18	SPL-VLS-TAS				8	8	7	7	7	5							15	15	12
19	SPL-HYPT-IR-TS				7	7	6										7	7	6
TOTAL		**34**	**33**	**31**	**117**	**114**	**104**	**93**	**93**	**75**	**111**	**102**	**78**	**81**	**81**	**62**	**436**	**423**	**350**
% of CD Trial/PR Trial		97.1			97.4			100.00			91.9			100.0			97.0		
% of RT Trial/CD Trial		93.9			91.2			80.6			76.5			76.5			82.7		
Trials Rejected by Monitoring Team		1			5			9			8			8			31		

Abbreviations used in the Text

Yield	
Rk	Rank
G	Group (First non-significant)
S.E. (M)	Standard error of the means
C.D.	Critical difference
C.V.	Coefficient of variance
Rusts	
Bl	Black or stem rust
Br	Brown or leaf rust
Yl	Yellow or stripe rust
R	Resistant type of pustule
S	Susceptible type of pustule
MS	Moderately susceptible type of pustule
X/MRMS	Mixed type of reaction, i.e., presence of both resistant and susceptible types of pustules
0	No infection
tS	Trace Susceptible response
tR	Trace Resistant response
5S	First figure (5) represents the severity and the later (S) for the type of pustule response
MR	Moderately resistant type of pustules
ACI	Average coefficient of infection
Loose smut (LS)	
F	Free
tS	Susceptible in traces
S	Susceptible
Other diseases (OD)	
KB	Karnal bunt (%)
LB	Leaf blight (severity scoring based on double digit method)
PM	Powdery mildew (scale 0-9)
BP	Black point (%)
Agronomic characters	
Hd.R	Heading range (days)
Hd.M	Heading mean (days)
Mat.R	Maturity range (days)
Mat.M	Maturity mean (days)
Ht.R	Plant height range (cm)
Ht.M	Plant height mean (cm)
Thr.	Threshability; Ey = easy; M=medium; H = hard
Lod.	Lodging percentage
Grain characteristics	
Col.	Colour of the grain: A= amber; W= white; LR= light red; R= red
Tex	Texture; H= hard; SH= semi-hard; so= soft
TGW.R	1000-grains weight Range (g)
TGW.M	1000-grains weight Mean (g)

Other symbols	
C	Check variety
(I)	Identified variety
(d)	Durum
*	Final year test entry
#	Entry resistant to wheat blast disease
B	Biofortfied entry
AVT	Advanced Varietal Trial
NIVT	National Initial Varietal Trial
IVT	Initial Varietal Trial
IR	Irrigated
RF	Rainfed
RI	Restricted irrigation
TS	Timely sown
LS	Late sown
ES	Early sown
Q	Entry good in quality traits
M	Entry derived through Marker Assisted Backcross Breeding
TAS	*Triticum aestivum*
TAD	*Triticum aestivum* + *T. durum*
TDM	*Triticum durum*
DIC	*Triticum dicoccum*
VLS	Very late sown trial

Zones	
NHZ	Northern Hills Zone
NWPZ	North Western Plains Zone
NEPZ	North Eastern Plains Zone
CZ	Central Zone
PZ	Peninsular Zone
NAT ZONE	National Zone – Trial conducted in two or more zones

Reasons for not reporting the data	
LSM	Low site mean
UY	Unrealistic yield
LS	Late sowing
HCV	High coefficient of variation
LCV	Low coefficient of variation
RMT	Rejected by monitoring team
DNR	Data not reported

Parentage Details

Parentage of Wheat and Triticale Genotypes, 2018-19

Contributing Centres

SN	Centre	Symbols
1.	Akola, PDKV	AKAW, AKDW
2.	Sabour, BAU	BRW
3.	Bilaspur, IGKVV	CG
4.	Karnal, IIWBR	DBW, DDW, WB
5.	Vijapur, SDAU	GW
6.	Junagarh, JAU	GW
7.	New Delhi, IARI	HD
8.	Indore, IARI, RS	HI
9.	Pusa, IARI, RS	HP
10.	Shimla, IARI, RS	HS
11.	Wellington, IARI, RS	HW
12.	Varanasi, BHU	HUW
13.	Malan, CSKHPKV	HPW
14.	Jammu, SKUAST	JAUW
15.	Ranchi, BAU	JKW
16.	Kanpur, CSAUA&T	K
17.	Karnal, CSSRI	KRL
18.	Sanosara, Lokbharti	LOK
19.	Pune, ARI	MACS
20.	Powarkheda, JNKVV	MP, MPO
21.	Jabalpur, JNKVV	MP
22.	Mohali, NABI	NABIMG
23.	Faizabad, NDUA&T	NW
24.	Nuzivedu Seeds	NWS
25.	Niphad, MPKV	NIAW, NIDW
26.	Ludhiana, PAU	PBW, PDW
27.	Durgapura, SKRAU	RAJ
28.	Kota, AU	RKD
29.	Gwalior, RVSKVV	RVW
30.	Mumbai, BARC	TAW
31.	Dharwad, UAS	UAS, DDK
32.	Pantnagar, GBPUA&T	UP
33.	Almora, VPKAS	VL
34.	Hisar, CCSHAU	WH, WHD

Parentage, 2018-19

PDKV, Akola (Maharashtra)

1.	AKAW4927	DL-1-57-5/AKW 619

Bihar Agricultural University, Sabour, Bhagalpur (Bihar)

1.	BRW3806	NI5439/MACS2496
2.	BRW3838	PBW 550/BL1804
3.	BRW3829	RAJ 4120/IC 549912
4.	BRW3847	PRL/2*PASTOR//PBW343*2/KUKUNA/3/ROLF07/4/BERKUT

IGKVV, TCB College of Agriculture, Bilaspur (Chhattisgarh)

1.	CG1029	HW 2004/PHS725
2.	CG1031	PBW 602/GW322
3.	CG1032	MP4010/HS485
4.	CG1033	MACS6221/WR1873

Indian Institute of Wheat & Barley Research, Karnal (Haryana)

1.	DBW187	NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2*PASTOR/5/KACHU/6/KACHU
2.	DBW221	36IBWSN284/22ESWYT28
3.	DBW222	KACHU/SAUAL/8/ATTILA*2/PBW65/6/PVN//CAR422/ANA/5/BOW/CROW/ / BUC/PVN/3/YR/4/TRAP#1/7/ATTILA/2*PASTOR
4.	DBW252	PFAU/MILAN/5/CHEN/AE.SQ(TAUS)//BCN/3/VEE#7/BOW/4/PASTOR
5.	DBW257	HUW640/HD3055
6.	DBW273	FRANCOLIN #1*2//ND 643/2* WBLLI
7.	DBW277	NI 5439/ MACS 2496
8.	DBW281	PBW 175/Ovata//*2PBW 175
9.	DBW282	UP2556//ID13.1/MLT/3/ESWYT70
10.	DBW283	CROC_1/AE.SQUARROSA(210)//WBLL1*2/BRAMBLING/3/VILLA JUAREZ F2009/5/BAV92//IRENA/KAUZ/3/HUITES*2/4/MURGA
11.	DBW284	BABAX/LR42//BABAX*2/3/PAVON 7S3,+LR47/4/ROLF07/YANAC//TACUPETO F2001/BRAMBLING
12.	DBW285	PBW 550/SW89-5422
13.	DBW286	DBW 43/DPW 621-50
14.	DBW287	35th IBWSN-68/DBW16
15.	DBW288	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/GLADIUS(23rd SAWYT 326)
16.	DBW289	HD2967/PBW703
17.	DBW290	QUAIU#1/5/KIRITATI/4/2*SERI.1B*2/3/KAUZ*2/BOW//KAUZ/6/BECARD(35th ESWYT 140)
18.	DBW291	KRL236/DBW16
19.	DBW292	EC609395/PBW639
20.	DBW293	DBW71/BH1146
21.	DBW294	DBW14/GW 173
22.	DBW295	PBN142/DBW30
23.	DBW296	DBW16/BH1146
24.	DBW297	SOKOLL/3/PASTOR//HXL 7573/2*BAU/4/MASSIV/PPR47.89C(23rd SAWYT 321)
25.	DBW298	35IBWSN-68/HD2967
26.	DBW299	NP846/HUW468
27.	DBW300	WAXWING*2/KRONSTAD F2004*2//BECARD
28.	DBW301	SR 39/DPW621-50
29.	DBW302	DBW112/HD3108
30.	DBW303	WBLL1*2/BRAMBLING/4/BABAX/LR42//BABAX*2/3/SHAMA*2/5/PBW343*2/KUKUNA*2//FRTL/PIFED
31.	DBW304	NADI/3/KINGBIRD#1//INQALAB91*2/TUKURU/4/NADI
Durum		
32.	DDW47	PBW34/RAJ1555//PDW314
33.	DDW48	HI8498/PDW233//PDW291
34.	DDW49	PDW314/PDW233
35.	DDW50	PBW 274/PBW314//HI 8498
36.	DDW51	HI 8727/MPO215//PDW 233
37.	DDW52	HI 8713/DBP01-9//PDW 233

SDAU, Vijapur (Gujarat)

1.	GW509	GW 388/MP 4010
2.	GW513	PBW559/WR 1873
3.	GW514	GW 336/RAJ4027//GW 496
4.	GW518	GW 273/MP 4010
5.	GW520	RAJ 4142/PBW 575
Durum		
6.	GW1348	ERP'S'.GEN(2).YEN(2).FEGI'S'/GW 1113// DBPY 2003-2
7.	GW1346	GW1236/AR06-3
8.	GW1351	RD 1018/HI 8663
9.	GW1352	NIDW 392//GW 1087/IWP5061
10.	GW1353	GW-1205/GW-1242

JAU, Junagadh (Gujarat)

1.	GW519	GW 394/PBW 519//AKAW 4627

Indian Agricultural Research Institute, New Delhi

1.	HD3249	PBW343*2/KUKUNA//SRTU/3/PBW343*2/KHVAKI
2.	HD3277	CHEN/AEG.SQUARROSA//BCN/3/BAV92/4/BERKUT
3.	HD3293	HD2967/DBW46
4.	HD3340	DPW621-50/DW1293//DW1285
5.	HD3271	CHIRIYA7/HD2824
6.	HD3298	CL1449/PBW343//CL882/HD2009
7.	HD3313	CL1705/HD 2687
8.	HD3318	DBW50/HD2859//HD2307
9.	HD3319	18th HRWYT214/18thHRWYT229
10.	HD3320	HD3016/HD2997
11.	HD3321	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/BECARD
12.	HD3322	HD2874/HD2967//43rdIBWSN-1148
13.	HD3323	HD2967//WR567//HD2687
14.	HD3324	MTR WA92.161/PRINIA/5/SERI*3/RL6010/4*YR/3/PASTOR/4/BAV92
15.	HD3325	HD 2009/PBW 498//43rd IBWSN1157
16.	HD3326	KS82W418/SPN/3/CHEN/AE.SQ//2*OPATA/4/FRET2/5/2*SOKOLL/3/PASTOR//HXL7573/2*BAU
17.	HD3327	18thHRWYT222//VL849/UP2571
18.	HD3328	18thHRWYT214/18thHRWYT229
19.	HD3329	HI1563/7/SFW/4/DARF*6/3AG#3.KITE//DL249/3/HD2329/5/VAISHALI/DL1014/6/PBW343
20.	HD3330	HUHWA1/BAJ#1
21.	HD3331	31stESWYT-135/3/HD2329/WR544//PBW343/NW3041
22.	HD3332	PFAU/SERI.1B
23.	HD3333	HD 2967/HD3016//WH730
24.	HD3334	DBW 50/WR2502
25.	HD3335	AL.FROG/HD2687//RS560
26.	HD3336	HD 3016/HD2997
27.	HD3337	BWSH70/CBW38
28.	HD3338	TC870344/GUI//TEMPORALERA M 87/AGR/3/2*WBLLI/5/ CROC_1 /AE.SQUARROSA(205)//BORL95/3/PRL/SARA//TSI/VEE#5/4/FRET2
29.	HD3339	FRANCOLIN#1//WBLL1*2/BRAMBLING
30.	HD3344	HD3059/HD2851
31.	HD3347	HD3086/HD2997
32.	$HD3343^{M}$	HI1500/2*GW322
33.	$HD3345^{B}$	T.DICOCCON CI9309/AE.SQUARROSA (409)//MUTUS/3/2*MUTUS /5/PFAU/WEAVER*2/4/BOW/NKT//CBRD/3/CBRD

IARI Regional Station, Indore (M.P.)

1.	HI1628	FRET2*2/4/SNI/TRAP#1/3/KAUZ*2/TRAP//KAUZ/5/PFAU/ WEAVER//BRAMBLING
2.	HI1633	GW-322 / PBW-498
3.	HI1634	GW 322 / PBW 498
4.	HI1636	DL 788-2/HW4032
5.	HI1637	GW 366/K 9465
6.	HI1638	GW322/HI1544//HI1406
7.	HI1639	GW-366/HW-3083
8.	HI1640	HI 1544/HD 2987

9.	HI1641	HI 1544/RAJ 3777
10.	HI1642	CAPAN 4068/MACS 2496
11.	HI 1643	GW295/HW 4028//HD 2987
12.	HI1644	HI 1531/HI 1544
13.	HI1645	GW322/HI 1544//HI 1406
14.	HI1646	DANPHE/3/PBW343*2/KUKUNA//PBW343*2/KUKUNA
Durum		
15.	HI8811	HI 8627/ HI 8663//HI 8663
16.	HI8812	HI 8680/ HI 8663
17.	HI8807	HI 8695/ HI 8663// HI 8663
18.	HI8808	HI 8680 / HI 8663
19.	HI8802	HI8627/HI8653
20.	HI8805	IWP5070/HI8638//HI8663
21.	HI8818	HI 8682/WH896
22.	HI8819	HI 8713/HI 8663
23.	HI8820	WH896/HI 8663
24.	HI8821	HI 8627/HI 8663//HI 8663
25.	HI8822	HG 888/HI 8663//HI 8663
26.	HI8823	HI 8709/HD 4676
27.	HI8824	HI 8663/HI 8627

IARI Regional Station, Shimla (H.P.)

1.	HS652	HD2888/EC463658//VL906
2.	HS673	HD2888/FRTL/AGRI/NAC//FLW3
3.	HS674	WBM2112/FLW13
4.	HS667	HPW251/FLW3//HS431
5.	HS668	VL906/FLW13
6.	HS669	VL907/VL876

IARI Regional Station, Wellington (Tamil Nadu)

1.	HW1904	HD2833/HW4444

Banaras Hindu University, Varanasi (U.P.)

1.	HUW833	WBLL1*2/BRAMBLING/4/BABAX/LR42//BABAX*2/3/SHAMA*2/5/PBW343*2/ KUKUNA*2//FRTL/PIFED
2.	HUW834	TRCH/5/REH/HARE//2*BCN/3/CROC_1/AE.SQUARROSA(213)//PGO/4/HUITES/ 6/SAUAL/3/C80.1/3*BATAVIA//2*WBLL1/4/SITE/MO//PASTOR/3/TILHI
3.	HUW835	WBLL1*2/BRAMBLING/4/BABAX/LR42//BABAX*2/3/SHAMA*2/5/PBW343*2/ KUKUNA*2//FRTL/PIFED
4.	HUW838	WBLL1*2/BRAMBLING/4/BABAX/LR42//BABAX*2/3/SHAMA*2/5/PBW343*2/ KUKUNA*2//FRTL/PIFED

CSKHPKV, Malan (H.P.)

1.	HPW467	HP155/VL864
2.	HPW468	BOW/URES//KEA/3/SITE
3.	HPW462	VL804/PBW498
4.	HPW463	HPW155/HW4024 (P6)
5.	HPW464	Raj 3765/WR 251//HW 2045/PBW 493
6.	HPW466	PASTOR/HXL7573/2*BAU/3/SOKOLL/WBLL1

SKUAST, Jammu (J & K)

1.	JAUW673	FRNCLN/BECARD
2.	JAUW672	SERI.18*2/3/KAUZ*2/BOW//KAUZ/4/CROC

BAU, Ranchi (Jharkhand)

1.	JKW 260	PFAU/MILAN/3/BABAX/LR42//BABAX/4/WHEAR/KUKUNA/3/C80.1/3*BAT AVIA//2*WBLL1
2.	JKW261	ISENGRAIN/KBIRD//MUNAL#1
3.	JKW267	PREMIO/2*BAVIS
4.	JKW268	PBW698/DBW90

CSAUAT, Kanpur (U.P.)

1.	K1801	PBW 502/K 617

2.	K1803	K 922/2K21
3.	K1804	K 922/2K21
4.	K1805	K 922/2K21
5.	K1807	PBW 502/CBW 38
6.	K1808	HD 2329/HD2285
7.	K1809	DBW 14/K 0307
8.	K1810	K 0307/K9533

CSSRI, Karnal (Haryana)

1.	KRL423	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/GLADIUS
2.	KRL429	CPAN 3004/KHARCHILA 65//PBW343

Lokbharti, Sanosara (Gujarat)

1.	Lok 75	SAWSN3091//S.S./C.306/S.331/LOK-1//HS 295/HUW234/lr19//HPW226

Agharkar Research Institute, Pune (Maharashtra)

1.	MACS6695	NI5439*2/HD2934
2.	MACS6696	NI5439/HD2934
3.	MACS6745	C 306/UAS295
4.	MACS6747	MACS6222/HD2956
5.	MACS6742	MACS6221/Raj4037
6.	MACS6749	MACS6221/Raj4037
7.	MACS6752	PBW553/RAJ4083
8.	MACS6736	NI 5439/HD2934
	Durum	
9.	MACS4058	MACS3125/AKDW2997-16//MACS3125
10.	MACS4091	MACS 2846/DDW01//DBP01-1(d)
11.	MACS4090	MACS 3125/AKDW2997-16
12.	MACS4087	MACS 3125/NG-87(DHTON-23/Bijaga Yellow)//DWR 1005
	Dicoccum	
13.	MACS5052	DDK1009/MACS2971
14.	MACS5053	MACS2971/DDK1029

JNKVV, Powarkheda (M.P.)

1.	MP1359	VL849/HW 5037
2.	MP1360	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/GLADIUS/MP 1285
3.	MP1361	CHEN/AEGILOPS SQUARROSA (TAUS)//BCN/3/BAV92/4/BERKUT/5/BAVIS/JWS140
4.	MP1362	R9709/MS Song//WH 730
5.	MP1356	MP1202/PBW 343
6.	MP1358	KACHU*2/MUNAL#1/K1215
	Durum	
7.	MPO1364	HI 8381/Raj 1555
8.	MPO1365	GW 1261/MACS 1967
9.	MPO1366	BAJ#1/3 TRCH/SRTU//KACHU/AKDW4905
10.	MPO1357	PDW 02/Terter //GW 1133

JNKVV, Jabalpur (M.P.)

1.	MP3521	ATTILA*2/PBW65//TAM200/TUI/3/ATTILA*2/PBW65*2//KACHU/4/ATTILA*2/PBW65//KACHU
2.	MP3522	TACUPETOF2001/BRAMBLING/5/NAC/TH.AC/3*PVN/3/MIRLO/BUC/4/2*PASTOR*2/6/WAXWING/SRTU//WAXWING/KIRITATI
3.	MP3514	35IBWSN 244/DBW-17
4.	MP3516	(CROC_/Ae.Squarrosa224)//OPATA/3/HD 2177
5.	MP3512	MP 3323/MP 3298

National Agri-Food Biotechnology Institute, Mohali (PB.)

1.	NABIMG09	EC866732/2*PBW621
2.	NABIMG10	EC866732/2*PBW621
3.	NABIMG11	EC866732/2*PBW621

NDUA&T, Kumarganj, Faizabad (U.P.)

1.	NW7049	FRET2/KIRITATI/5/NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2*PASTOR*2/6/ PVN
2.	NW7060	PRL/2*PASTOR/4/CHOIX/STAR/3/HE1/3*CNO79//2*SERI*2/5/CHONTE

3.	NW7062	VORB/MUNAL
4.	NW7057	ND643/2*WBLL1/4/WHEAR/KUKUNA/3/C80.1/3*BATAVIA//2*WBLL1
5.	NW7064	WAXWING*2/TUKURU//KISKADEE#1/3/FRNCLN
6.	NW7075	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/SOKOLL//WBLL1
7.	NW7067	KAUZ*2/MNV//KAUZ/3/MILAN/4/BAV92/5/DANPHE#1
8.	NW7053	ND643/2*WBLL1//VILLAJUAREZF2009
9.	NW7062	VORB/MUNAL
10.	NW7069	PRL/2*PASTOR//KACHU

MPKV, Niphad (Maharashtra)

1.	NIAW3170	SKOLL/ROLF07
2.	NIAW3584	RAJ4083/NIAW1594
3.	NIAW3592	(LOK 62/RAJ 4083)// (HD 2967/LOK 1)
4.	NIAW3583	RAJ4083/LOK63
5.	NIAW3578	LOK62/NIAW1621
6.	NIAW3643	RAJ4083/NIAW1275
7.	NIAW3624	DL1022/NIAW1415
	Durum	
8.	NIDW1149	NIDW295 /NIDW15
9.	NIDW1158	NIDW295/NIDW15
10.	NIDW1302	DBPY04-3/NIDW15
11.	NIDW1316	BCRIS/BICUM//LLARETA INIA/3/DUKEM_12/2*RASCON_21/5/1A.1D 5 +1 -06/3*MOJO//RCOL/4/ARMENT//SRN_3/NIGRIS_4/3/CANELO_9.1
12.	NIDW1293	GW 2008-127/HI 8671

Nuzivedu Seeds (Private)

1.	NWS2106	WHEAR/KRONSTAD F2004
2.	NWS2118	T.DICOCCON CI9309/AE.SQUARROSA(409)/3/MILAN/ S87230// BAV92/ 4/2*MILAN/S87230//BAV92
3.	NWS2108	WAXWING*2/CIRCUS

PAU, Ludhiana (Punjab)

1.	PBW771	PBW550//YR15/6*AVOCET/3/2*PBW550
2.	PBW796	W15.92/4/PASTOR//HXL7573/2*BAU/3/ WBLL1*2/5/WHEAR/SOKOLL
3.	PBW781	PBW621/4/BW9250*3//Yr10/6* Avocet/3/ BW9250*3//Yr15/6* Avocet/5/2*PBW 621
4.	PBW797	PBW 621/BWL 0772
5.	PBW802	HD2967*2/BWL3278
6.	PBW803	BWL 0762/PBW621//HD 3086
7.	PBW804	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/HUW234+LR34/PRINIA//PBW343*2/KUKUNA/3/ROLF07
8.	PBW805	OASIS/SKAUZ//4*BCN/3/2*PASTOR/4/PBW631
9.	PBW807	PBW550MUTANT/PBW550
10.	PBW808	BAJ#1*2/5/SW89.5277/BORL 95//SKAUZ/3/PRL/2*PASTOR/4/HEILO
11.	PBW810	PBW677//WH1105
12.	PBW811	BECARD/2*FRNCLN
13.	PBW812	BWL 0762/PBW621//HD 3086
14.	PBW813	KRICHAUFF/4/2*BW9250*3//Yr10/6*Avocet/3/BW 9250*3//Yr 15/6*Avocet
15.	PBW814	K 9116/HD3121
16.	PBW815	PASTOR//HXL7573/2*BAU/3/SOKOLL/WBLL1/4/SUNCO/2*PASTOR//EXCALIBUR/5/W15.92/4/PASTOR//HXL 7573/2*BAU/3/WBLL1
17.	PBW816	HI 1579/WH1142
18.	PBW817	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/MEX94.27.1.20/3/SOKOLL//ATTILA/3*BCN
19.	PBW820[M]	WL711-Ae.ovata/CS(S)//WL711NN/3/ 4*PBW 621
20.	PBW821[M]	PBW550//Yr15/6*AVOCET/3/2*PBW550/4/GLUPRO/3*PBW568//3*PBW550
21.	PBW822[B]	PBW550//Yr15/6*AVOCET/3/2*PBW550/4/GLUPRO/3*PBW568//3*PBW550
22.	PBW823[B]	T. boeoticum 4992/2*PDW274//2*PBW703
23.	PBW824	WAXWING//INQALAB 91*2/KUKUNA/3/WBLL1*2/TUKURU/8/ 2*NG8201/KAUZ/4/ SHA7//PRL/VEE#6/3/FASAN/5/MILAN/ KAUZ/6/ACHYUTA/7/PBW343*2/KUKUNA
24.	PBW825	SAUAL/MUTUS*2//PICAFLOR #1
	Durum	
25.	PDW356	PDW314/PDW315

SKNAU, Durgapura, Jaipur (Rajasthan)

1.	Raj 4529	PHS 0624/WR1136
2.	RAJ4537	KLP768/DBW-16
3.	RAJ4538	UP2687/HD3002
4.	RAJ4539	UAS295/Raj4120
5.	RAJ4540	RWP2008-31/Raj1482
6.	RAJ4541	RWP2008-31/Raj4188
7.	RAJ4542	KLP237/PHS0727
8.	Raj4543	NW-3073/Raj3777
9.	Raj4544	LBPY-04-3/PHS0724

Agriculture University, Kota (Rajasthan)

Durum		
1.	RKD339	HI-8690/NIDW-577

RVSKVV Gwalior (MP)

1.	RVW4266	CBW38/HW5205
2.	RVW4265	HUW 206/DBW17
3.	RVW4276	WL 711-Ae. Ovata/CS phl // 3*WL711//PBW 343
4.	RVW4281	DBW26/PBW343

BARC, Mumbai (Maharashtra)

1.	TAW153	MUNAL#1/3/TRCH/SRTU//KACHU)X(TRCH/SRTU//KACHU
2.	TAW155	MUTUS/AKURI#1//MUTUS
3.	TAW154	(TACUPETO F2001/BRAMBLING/5/NAC/TH.AC//3*PVN/3/ MIRLO/BUC/4/2*PASTOR/6/TRCH/SRTU//KACHU)XWAXWING/KIRIT ATI//FISCAL*2/3/PVN

UAS, Dharwad (Karnataka)

1.	UAS3001	UAS259/GW322//HI 977
2.	UAS3002	RAJ4083/DWR195//HI 977
3.	UAS3005	UAS305//ND643/2*WAXWING
4.	UAS3006	UAS310/GRACKLE
5.	UAS3008	HI977/PBW 343/DBW14
6.	UAS3009	UAS312//NIAW 1415/C306
7.	UAS3010	DWR162/MP3299/UAS320
Durum		
8.	UAS466	AMRUTH//BIJAGA YELLOW/AKDW299-16
9.	UAS470	(STOT//ALTAR 84/ALD/3/PATKA_7/YAZI_1/4/SOMAT_3/PHAX_1)/UAS 415 /HI 8663
10.	UAS471	Bijaga Yellow/DWR 2006/UAS 405
11.	UAS472	Bijaga Yellow/(YAZI_1/AKAKI_4//SOMAT_3/3/AUK/GUIL//GREEN/5)
Dicoccum		
12.	DDK1056	DDK1009 /DDK1013/ DDK1015
13.	DDK1057	DDK 1013/ DDK1023 / DDK 1029

GBPUAT, Pantnagar (Uttarakhand)

1.	UP3025	MILAN/S87230//BABAX/LBPY 06-15(SERI/DUCULA/PBW343)
2.	UP3026	FRET2/TUKURU//FRET2/QLD31
3.	UP3027	KACHU/SAUAL*2/3/TACUPETO F 2001/BRAMBLING//KIRITATI
4.	UP3028	BECARD#1/CIRNO C 2008//BECARD
5.	UP3029	LIVINGSTON/5/2*W 15.92/4/PASTOR//HXL7573/2*BAU/3/WBLL 1
6.	UP3030	PBW 574/WH1080
7.	UP3031	MUTUS*2/KIRITATI
8.	UP3032	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES/UP2778
9.	UP3033	NIAW 1544/UP2763
10.	UP3034	HD3070/UP2748
11.	UP3035	AKAW4510/LBPY06-15(SERI/DUCULA/PBW343)
12.	UP3036	MILAN/KAUZ//PRINIA/3/BABAX/DBW74
13.	UP3037	HUW 640/LBPY06-15(SERI/DUCULA/PBW343)
14.	UP3038	AKAW4510/AVOCET
15.	UP3039	HUW640/LBPY06-15(SERI/DUCULA/PBW343)
16.	UP3041	VHW6140P-1

17.	UP3042	CAL/NH//H567.71/3/SERI/4/CAL/NH//H567.71/5/2*KAUZ/6/WH576/7/WH 542/8/WAXWING/9/ATTILA*2/PBW65/6/PVN//CAR422/ANA/5/BOW/CROW/ /BUC/PVN/3/YR/4/TRAP#1/7/ATTILA/2*PASTOR/10/UP2338*2/KKTS*2//YA NAC
18.	UP3043	CHIBIA//PRLII/CM65531/3/SKAUZ/BAV92*2/4/HUW234+LR34/PRINIA//PB W343*2/KUKUNA/3/ROLF07

VPKAS (ICAR), Almora (Uttarakhand)

1.	VL2035	PRL/2*PASTOR//PBW343*2/KUKUNA/3/ROLF07/4/BERKUT//PBW343*2/KUKUNA
2.	VL2036	SW89.5277/BORL95//SKAUZ/3/PRL/2*PASTOR/4/HEILO/5/WHEAR/SOKOLL
3.	VL2037	HS485/RAJ4174//HS485-5
4.	VL2038	CHINA84-400022/PBW599
5.	VL3019	VW0865/KANACI//GW385
6.	VL3020	PHS0728/HS490//HS490
7.	VL3021	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/BECARD

CCSHAU, Hisar (Haryana)

1	WH1239	TAM200/PASTOR//TOBA97
2	WH1223	WAXWING*2/TUKURU//2*FRNCLN
3	WH1228	WAXWING*2/VIVITSI
4	WH1254	PRL/2*PASTOR//PBW343*2/KUKUNA/WHEAR//INQALAB91*2/TUKURU//SOKO LL*2/4/CHEN/AEGILOPSSQUARROSA(TAUS.)//.....
5	WH1255	UP2338/WH542//P13043
6	WH1256	SHA7//PRL/VEE#6/3/FASAN/4/HAAS8446/2*FASAN/5/CBRD/KAUZ/6/MILAN/A MSEL/7/FRET2*2/KUKUNA/8/2*WHEAR/SOKOLL
7	WH1257	FRNCLN/3/ND643//2*PRL/2*PASTOR/4/FRANCOLIN#1
8	WH1258	CROC_1/AE.SQUARROSA(210)//WBLL1*2/BRAMBLING/3/VILLA JUAREZ F2009/5/BAV92//IRENA/KAUZ/3/HUITES*2/4/MURGA
9	WH1259	SNB//CMH79A.955/3*CNO79/3/ATTILA/4/CHEN/AEGILOPSSQUARROSA (TAUS)//BCN/3/2*KAUZ/5/KINGBIRD#1
10	WH1260	P12968/WH542
11	WH1262	92.001E7.32.5/SLVS/5/NS-732/HER/3/PRL/SARA//TSI/VEE#5/4/FRET2/6/ SOKOLL/3/PASTOR//HXL7573/2*BAU
12	WH1263	P13043/P13038//P13036
13	WH1264	P12256/P12332//WH1142
14	WH1265	P11906/P11925//P11906
15	WH1266	MILAN/KAUZ//PRINIA/3/BAV92/4/BAVIS
16	WH1267	WHEAR//2*PRL/2*PASTOR/3/KIRITATI/2*TRCH/4/WHEAR//2*PRL/2*PASTOR
17	WH1268	CHEWINK#1/MUTUS
18	WH1269	PRL/2*PASTOR*2//FH6-1-7
19	WH1270	SHA7//PRL/VEE#6/3/FASAN/4/HAAS8446/2*FASAN/5/CBRD/KAUZ/6/MILAN/A MSEL/7/FRET2*2/KUKUNA/8/2*WHEAR/SOKOLL
Durum		
20	WHD963	BCRIS/BICUM/LLARETA INIA/3/DUKEM_12/2*RASCON_21/5/SOMAT_3/ GREEN_22/4/GODRIN/GUTROS/DUKEM/3/THKNEE_11
21	WHD964	D86135/ACO89//PORRON_4/3/SNITAN/10/PLATA_10/6/MQUE/4/USDA573//QF N/AA_7/3/ALBAD/5/AVO/HUI/7/PLATA_13/8/THKNEE_11/9/CHEN/ALTAR84/3/ HUI/POC//BUB/RUFO/4/FNFOOT/11/CANELO_8//SORA/2*PLATA_12/12/TADIZ /9/USDA595/3/D67.3/RABI//CRA/4/ALO/5/HUI/YAV_1/6/ARDENTE/7/H

Checks

SN	Variety	Parentage
1.	DBW107	TUKURU/INQLAB 91
2.	DBW110	KIRITATI/4/2*SERI1B*2/3/KAUZ*2/BOW//KAUZ
3.	DBW14	RAJ3765/PBW343
4.	DBW173	KAUZ/AA//KAUZ//PBW602
5.	DBW187	NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2*PASTOR/5/KACHU/6/KACHU
6.	DBW39	ATTILA/HUI
7.	DBW71	PRINIA/UP2425
8.	DBW88	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES
9.	DBW93	WHEAR/TUKURU//WHEAR
10.	DPW621-50	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES
11.	GW 322	PBW173/GW196
12.	HD2733	ATTILA/3/TUI/CARC//CHEN/CHTO/4/ATTILA
13.	HD2864	DL509-2/DL377-8
14.	HD2888	C306/*T.SPHAEROCOCCUM*//HW2004
15.	HD2932	KAUZ/STAR//HD2643
16.	HD2967	ALD/CUC//URES/HD2160M/HD2278
17.	HD3043	PJN/BOW//OPATA*2/3CROC_1/*A.SQUARROSA*(224)//OPATA
18.	HD3059	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES
19.	HD3086	DBW14/HD2733//HUW468
20.	HD3090	SFW/VAISHALI//UP2425
21.	HD3171	PBW343/HD2879
22.	HD3226	GRACKLE/HD2894
23.	HD3237	HD3016/HD2967
24.	HI1544	HINDI62/BOBWHITE/CPAN2099
25.	HI1563	MACS 2496*2/MC 10
26.	HI1605	BOW/VEE/5/ND/VG9144//KAL//BB/3/YACO/4/CHIL/6/CASKOR/3/CROC_1/A.SQUARROSA(224)//OPATA/7/PASTOR//MILAN/KAUZ/3/BAV92
27.	HI1612	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES
28.	HI1620	NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2*PASTOR/5/KACHU/6/KACHU
29.	HPW349	NAC/TH.AC//3*MIRLO/BUC/4/2*PASTOR
30.	HS490	HS364/HPW114//HS240//HS346
31.	HS507	KAUZ/MYNA/VUL//BUC/FLK/4/MILAN
32.	HS562	OASIS/SKUAZ//4*BCN/3/2*PASTOR
33.	K0307	K8321/UP2003
34.	K1006	PBW343/HP1731
35.	K1317	K0307/K9162
36.	K8027	HD1696/2*K852
37.	Kharchia65	KHARCHIA LOCAL/ EG 953
38.	KRL19	PBW255/KRL 1-4
39.	KRL210	PBW65/2*PASTOR
40.	MACS6222	HD2189*2/MACS2496
41.	MACS6478	CS/TH.SC//3*VN/3/MIRLO/BUC/4/MILAN/5/TILHI
42.	MP3288	DOVE/BUC/DL788-2
43.	MP3336	HD 2402/GW 173
44.	MP4010	ANGOSTURA 88
45.	PBW550	WH 594/RAJ 3856//W 485
46.	PBW644	PBW175/HD2643
47.	PBW752	PBW621/4/PBW343//YR10/6*AVOCET/3/3*PBW343/5/PBW621
48.	PBW757	PBW550/YR15/6*AVOCET/3/2*PBW550/4/PBW568+YR36/3*PBW550
49.	Raj4083	PBW 343/UP 2442//WR 258/UP 2425
50.	VL892	WH542/PBW226
51.	VL907	DYBR1982-83842ABVD50/VW9365//PBW343
52.	WH1021	NYOT95/SONAK
53.	WH1080	PRL/*2PASTOR
54.	WH1105	MILAN/S87230//BABAX
55.	WH1124	MUNIA/CHTO//AMSEL
56.	WH1142	OEN/*Ae.Sq.*(TAUS)/FCT/3/2*WEAVER
57.	WR544	KALYANSONA/HD1999//HD2204/DW38
Durum		
58.	AKDW2997-16	CPAN6140/RAJ1555
59.	HI8627	HD4672/PDW233
60.	HI8713	HD 4672/PDW 233
61.	HI8737	HI8177/HI8158//HI8498
62.	MACS3949	STOT//ALTAR84/ALD/3/THB/CEP7780//2*MUSK_4
63.	UAS428	GREEN-14/YAN-10/AUK/UAS402
64.	UAS446	DWR185/DWR2006//UAS419
Dicocum		
65.	DDK1029	DDK1012/HW1093//276-15
66.	HW1098	NILGIRI LOCAL (Mutagen treated-25Kr)

Entries with common pedigree during 2018-19

1. 2.	HD3319 HD3328	18th HRWYT214/18th HRWYT229
3. 4. 5.	NABIMG09 NABIMG10 NABIMG11	EC866732/2*PBW621
6. 7.	PBW803 PBW812	BWL 0762/PBW621//HD 3086
8. 9.	DBW283 WH1258	CROC_1/AE.SQUARROSA(210)//WBLL1*2/BRAMBLING/3/VILLA JUAREZ F2009/5/BAV92//IRENA/KAUZ/3/HUITES*2/4/MURGA
10. 11.	HI1634 HI1633	GW 322 / PBW 498
12. 13.	HD3237 HD3320	HD3016/HD2967
14. 15.	HI8811 HI8821	HI 8627/HI 8663//HI 8663
16. 17.	HI8808 HI8812	HI 8680 / HI 8663
18. 19. 20.	K1803 K1804 K1805	K 922/2K21
21. 22.	UP3037 UP3039	HUW640/LBPY06-15(SERI/DUCULA/PBW343)
23. 24.	MACS6742 MACS6749	MACS6221/Raj4037
25. 26.	DBW187 HI1620	NAC/TH.AC//3*PVN/3/MIRLO/BUC/4/2*PASTOR/5/KACHU/6/KACHU
27. 28.	MACS6736 MACS6696	NI 5439/HD2934
29. 30.	DBW277 BRW3806	NI 5439/ MACS 2496
31. 32.	NIDW1149 NIDW1158	NIDW295/NIDW15
33. 34. 35. 36.	DBW88 DPW621-50 HI1612 HD3059	KAUZ//ALTAR84/AOS/3/MILAN/KAUZ/4/HUITES
37. 38.	PBW821M PBW822B	PBW550//Yr15/6*AVOCET/3/2*PBW550 /4/GLUPRO/3*PBW568//3*PBW550
39. 40.	WH1256 WH1270	SHA7//PRL/VEE#6/3/FASAN/4/HAAS8446/2*FASAN/5/CBRD/ KAUZ/6/MILAN/AMSEL/7/FRET2*2/KUKUNA/8/2*WHEAR/SOKOLL
41. 42.	HD3321 VL3021	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/BECARD
43. 44.	KRL423 DBW288	SOKOLL/3/PASTOR//HXL7573/2*BAU/4/GLADIUS
45. 46. 47. 48.	DBW303 HUW833 HUW835 HUW838	WBLL1*2/BRAMBLING/4/BABAX/LR42//BABAX*2/3/SHAMA*2/5/ PBW343*2/KUKUNA*2 //FRTL/PIFED

National Initial Varietal Trial

1801-NIVT-1A-IR-TS-TAS-NAT-ZONE, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	NWPZ																	
			Delhi			Jammu			Punjab						Haryana					
			Delhi			Jammu			Ludhiana			Gurdaspur			Hisar			IIWBR-Karnal		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	NW 7060	N-101	65.4	12	0	53.1	12	0	56.3	26	0	57.0	25	0	58.4	13	0	73.2	23	0
2	DBW 282	N-102	57.6	20	0	63.5	5	1	54.1	27	0	49.2	30	0	56.3	16	0	87.7	4	1
3	HD 3318	N-104	66.0	8	0	39.6	32	0	46.4	29	0	53.6	28	0	58.5	12	0	53.1	36	0
4	Raj 4539	N-106	40.2	34	0	33.9	33	0	45.2	30	0	37.1	36	0	40.0	36	0	80.9	13	1
5	NABIMG 09	N-107	41.8	33	0	28.1	36	0	41.5	32	0	53.8	27	0	46.3	34	0	70.2	29	0
6	HD 3323	N-108	64.5	14	0	50.0	15	0	65.4	18	0	63.8	16	0	54.9	22	0	84.2	7	1
7	UP 3028	N-109	49.6	29	0	45.3	24	0	69.3	13	1	62.1	18	0	55.9	18	0	75.6	21	0
8	K 1801	N-110	63.4	15	0	47.9	20	0	39.6	35	0	38.3	35	0	53.6	25	0	72.0	25	0
9	WH 1256	N-111	73.0	1	1	57.8	9	0	71.9	9	1	57.3	23	0	64.5	9	0	88.9	3	1
10	HUW 833	N-112	64.7	13	0	51.0	13	0	73.7	2	1	70.3	7	1	74.7	2	1	84.7	6	1
11	UP 3026	N-113	46.5	32	0	66.1	4	1	69.9	12	1	54.6	26	0	53.2	28	0	76.1	20	0
12	WH 1257	N-114	47.7	31	0	46.6	23	0	66.6	17	0	76.1	2	1	55.4	21	0	78.2	16	1
13	HD 3319	N-115	66.7	6	0	47.7	22	0	62.0	22	0	65.6	13	0	51.8	30	0	76.3	18	0
14	HD 3320	N-116	66.0	9	0	42.7	28	0	72.5	7	1	59.6	22	0	59.5	11	0	68.5	33	0
15	DBW 281	N-117	71.0	3	1	47.9	20	0	72.9	5	1	78.3	1	1	53.2	27	0	80.3	14	1
16	HD 3322	N-118	62.4	17	0	49.5	16	0	72.9	5	1	63.5	17	0	62.0	10	0	83.1	10	1
17	NABIMG 11	N-119	38.2	35	0	41.6	29	0	45.2	31	0	38.6	34	0	55.6	20	0	58.8	35	0
18	DBW 284	N-120	55.2	23	0	54.7	11	0	73.6	3	1	67.7	9	0	55.9	19	0	78.8	15	1
19	Raj 4537	N-121	54.8	25	0	44.8	25	0	63.4	20	0	61.7	20	0	71.3	3	0	83.4	9	1
20	PBW 803	N-122	65.9	10	0	70.6	3	1	68.9	15	1	73.3	5	1	75.2	1	1	92.3	2	1
21	UP 3025	N-123	70.0	5	1	50.5	14	0	71.4	10	1	51.0	29	0	49.9	31	0	69.8	31	0
22	HD 3321	N-124	57.7	19	0	60.9	8	0	58.6	24	0	68.6	8	1	49.6	33	0	75.4	22	0
23	WH1 255	N-125	54.9	24	0	62.0	7	0	71.0	11	1	74.0	3	1	56.4	15	0	82.4	11	1
24	DBW 283	N-126	54.3	26	0	71.4	1	1	62.3	21	0	67.7	9	0	56.1	17	0	81.9	12	1
25	NABIMG 10	N-127	56.7	21	0	40.6	31	0	67.6	16	1	67.0	11	0	53.5	26	0	69.3	32	0
26	PBW 805	N-128	65.7	11	0	44.8	25	0	73.9	1	1	71.4	6	1	66.1	6	0	92.4	1	1
27	NW 7067	N-129	48.3	30	0	49.0	19	0	56.3	25	0	64.6	14	0	52.4	29	0	71.7	27	0
28	UP 3027	N-130	70.0	4	1	49.2	18	0	72.2	8	1	64.0	15	0	65.6	8	0	71.9	26	0
29	PBW 802	N-131	60.7	18	0	70.8	2	1	61.4	23	0	66.7	12	0	53.8	24	0	71.1	28	0
30	WH 1258	N-132	56.0	22	0	63.0	6	1	65.2	19	0	60.0	21	0	54.4	23	0	76.2	19	0
31	PBW 804	N-133	71.6	2	1	41.4	30	0	69.2	14	1	61.9	19	0	70.4	4	0	87.2	5	1
32	Raj 4538	N-135	34.3	36	0	33.3	34	0	40.6	34	0	41.5	32	0	45.6	35	0	70.1	30	0
33	HD 3086 (C)	N-103	63.3	16	0	55.7	10	0	73.4	4	1	57.3	23	0	65.8	7	0	84.0	8	1
34	HD 2967 (C)	N-105	50.9	28	0	43.4	27	0	40.9	33	0	39.7	33	0	57.2	14	0	76.5	17	0
35	K 1006 (C)	N-134	51.8	27	0	49.5	16	0	39.3	36	0	47.1	31	0	49.9	32	0	73.1	24	0
36	DBW 88 (C)	N-136	66.5	7	0	29.2	35	0	52.8	28	0	73.4	4	1	70.0	5	0	67.7	34	0
G.M.			58.1			49.9			61.3			59.9			57.6			76.9		
S.E.(M)			2.348			3.721			2.937			4.245			1.400			6.122		
C.D. (10%)			5.6			8.9			7.0			10.1			3.4			14.6		
C.V.			5.7			10.5			6.8			10.0			3.4			11.3		
D.O.S.(dd.mm.yy)			15.11.18			01.11.18			10.11.18			13.11.18			05.11.18			01.11.18		

No. of Trials: Proposed = 18 Conducted = 18

1801-NIVT-1A-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	NWPZ									NEPZ								
			Uttarakhand			Rajasthan			U.P.			U.P.								
			Pantnagar			Durgapura			Bulandshahr			Kanpur			Faizabad			Varanasi		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	NW 7060	N-101	60.5	5	1	57.9	21	0	61.3	11	0	55.2	22	0	51.6	18	0	40.7	31	0
2	DBW 282	N-102	64.0	2	1	60.3	15	0	61.5	10	0	40.3	35	0	44.5	32	0	48.2	11	0
3	HD 3318	N-104	60.3	7	1	70.1	7	0	65.6	3	1	55.7	21	0	59.6	11	0	44.0	27	0
4	Raj 4539	N-106	59.5	12	0	48.8	33	0	58.2	18	0	38.5	36	0	41.4	36	0	36.1	36	0
5	NABIMG 09	N-107	51.2	30	0	49.1	32	0	64.6	6	1	54.8	24	0	44.5	32	0	47.5	12	0
6	HD 3323	N-108	59.5	11	0	58.9	18	0	56.0	25	0	61.0	4	1	50.0	24	0	38.8	33	0
7	UP 3028	N-109	58.1	17	0	83.2	1	1	64.4	7	1	55.7	20	0	60.9	10	0	45.9	18	0
8	K 1801	N-110	54.6	24	0	48.5	34	0	57.1	21	0	49.1	29	0	44.5	32	0	45.7	20	0
9	WH 1256	N-111	64.1	1	1	64.9	10	0	60.8	12	0	56.3	18	0	62.5	8	0	45.6	21	0
10	HUW 833	N-112	59.6	10	0	64.7	11	0	59.3	15	0	44.1	31	0	58.3	13	0	49.2	8	0
11	UP 3026	N-113	55.2	23	0	53.0	27	0	55.9	26	0	58.9	15	1	45.8	30	0	43.0	29	0
12	WH 1257	N-114	57.2	20	0	51.2	29	0	57.6	19	0	59.0	14	1	56.8	14	0	45.5	22	0
13	HD 3319	N-115	51.1	31	0	53.5	25	0	56.9	22	0	51.4	26	0	50.3	22	0	46.5	16	0
14	HD 3320	N-116	54.3	27	0	60.0	17	0	65.0	4	1	41.9	33	0	65.1	4	0	49.0	9	0
15	DBW 281	N-117	56.0	22	0	72.2	4	0	53.1	31	0	60.8	5	1	65.9	3	1	48.5	10	0
16	HD 3322	N-118	63.9	3	1	62.6	13	0	65.9	2	1	42.5	32	0	61.2	9	0	44.7	25	0
17	NABIMG 11	N-119	42.8	36	0	36.4	36	0	58.8	16	0	44.4	30	0	41.9	35	0	38.7	34	0
18	DBW 284	N-120	57.6	19	0	50.7	31	0	55.1	28	0	50.6	28	0	55.2	16	0	45.5	23	0
19	Raj 4537	N-121	53.6	28	0	57.2	22	0	51.1	34	0	59.6	11	1	50.5	21	0	51.0	5	0
20	PBW 803	N-122	58.0	18	0	65.8	9	0	60.1	14	0	60.2	7	1	59.6	11	0	46.9	15	0
21	UP 3025	N-123	51.9	29	0	77.5	3	1	54.3	29	0	59.5	12	1	49.7	25	0	52.2	3	0
22	HD 3321	N-124	54.6	24	0	53.3	26	0	53.5	30	0	59.9	8	1	45.8	30	0	51.7	4	0
23	WH1 255	N-125	58.4	15	0	58.2	20	0	62.8	8	1	55.2	23	0	62.8	7	0	49.4	6	0
24	DBW 283	N-126	45.0	35	0	62.2	14	0	62.6	9	1	56.3	19	0	47.4	27	0	47.1	13	0
25	NABIMG 10	N-127	54.5	26	0	56.7	23	0	60.5	13	0	59.9	10	1	55.5	15	0	43.0	30	0
26	PBW 805	N-128	48.1	33	0	60.1	16	0	51.8	33	0	63.3	1	1	65.1	4	0	58.5	1	1
27	NW 7067	N-129	58.7	13	0	52.8	28	0	56.8	23	0	59.9	9	1	48.7	26	0	39.3	32	0
28	UP 3027	N-130	47.5	34	0	71.9	5	0	50.7	35	0	59.3	13	1	51.6	18	0	45.7	19	0
29	PBW 802	N-131	59.7	9	1	70.5	6	0	56.5	24	0	41.5	34	0	70.8	2	1	47.1	14	0
30	WH 1258	N-132	63.1	4	1	58.8	19	0	58.4	17	0	56.5	17	0	47.4	27	0	43.2	28	0
31	PBW 804	N-133	60.0	8	1	62.8	12	0	55.6	27	0	61.8	3	1	72.1	1	1	49.3	7	0
32	Raj 4538	N-135	58.5	14	0	44.0	35	0	50.4	36	0	51.4	27	0	50.3	22	0	37.9	35	0
33	HD 3086 (C)	N-103	60.5	6	1	80.8	2	1	64.8	5	1	60.5	6	1	65.1	4	0	54.7	2	0
34	HD 2967 (C)	N-105	50.6	32	0	56.4	24	0	66.0	1	1	52.9	25	0	54.4	17	0	44.3	26	0
35	K 1006 (C)	N-134	56.1	21	0	51.0	30	0	53.1	32	0	57.5	16	1	47.4	27	0	46.2	17	0
36	DBW 88 (C)	N-136	58.1	16	0	67.5	8	0	57.3	20	0	61.8	2	1	51.3	20	0	44.9	24	0
G.M.			56.3			59.8			58.4			54.4			54.3			46.0		
S.E.(M)			1.881			3.098			1.778			2.614			2.904			1.076		
C.D. (10%)			4.5			7.5			4.3			6.3			6.9			2.6		
C.V.			4.7			7.3			4.3			6.8			7.6			3.3		
D.O.S.(dd.mm.yy)			14.11.18			14.11.18			14.11.18			25.11.18			22.11.18			22.11.18		

1801-NIVT-1A-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	NEPZ																	
			Bihar						Jharkhand			W.B.								
			IARI-Pusa			Sabour			Ranchi			Kalyani			Manichak			Coochbehar		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	NW 7060	N-101	51.9	20	0	40.4	25	0	57.6	18	0	47.6	6	0	55.4	9	1	42.4	13	0
2	DBW 282	N-102	58.2	3	1	43.3	16	0	62.5	6	1	43.4	12	0	53.5	10	1	39.7	22	0
3	HD 3318	N-104	46.3	26	0	45.2	11	0	49.8	31	0	43.2	14	0	56.4	6	1	40.8	17	0
4	Raj 4539	N-106	41.1	35	0	39.7	28	0	41.7	34	0	43.7	10	0	47.2	22	0	32.6	34	0
5	NABIMG 09	N-107	43.4	31	0	34.9	34	0	43.0	33	0	33.8	31	0	33.5	36	0	37.3	26	0
6	HD 3323	N-108	57.5	6	1	42.4	19	0	60.5	9	1	35.7	27	0	36.6	34	0	40.9	15	0
7	UP 3028	N-109	42.4	34	0	41.9	21	0	56.3	22	0	50.6	1	1	43.8	28	0	33.3	33	0
8	K 1801	N-110	57.7	4	1	48.6	6	0	54.2	26	0	44.2	8	0	39.8	31	0	44.4	9	0
9	WH 1256	N-111	56.0	9	1	47.4	8	0	60.3	10	1	38.4	21	0	53.4	11	1	27.8	35	0
10	HUW 833	N-112	44.1	29	0	37.5	32	0	58.8	16	0	39.3	20	0	46.4	23	0	40.3	20	0
11	UP 3026	N-113	54.3	13	1	41.8	22	0	50.7	29	0	44.2	9	0	44.2	27	0	41.8	14	0
12	WH 1257	N-114	43.5	30	0	50.2	4	1	54.8	24	0	37.3	24	0	50.2	17	0	40.8	18	0
13	HD 3319	N-115	52.7	16	0	39.9	26	0	50.3	30	0	33.2	32	0	52.4	12	1	26.7	36	0
14	HD 3320	N-116	43.1	32	0	50.2	3	1	55.3	23	0	48.2	5	0	50.4	15	0	37.5	25	0
15	DBW 281	N-117	62.2	1	1	44.7	13	0	67.3	1	1	37.3	25	0	48.3	19	0	37.0	27	0
16	HD 3322	N-118	53.4	15	1	46.7	9	0	63.1	5	1	42.6	15	0	62.4	1	1	56.3	1	1
17	NABIMG 11	N-119	43.0	33	0	28.9	36	0	47.8	32	0	35.2	29	0	50.3	16	0	38.0	24	0
18	DBW 284	N-120	46.4	25	0	38.9	30	0	41.4	35	0	37.0	26	0	48.2	20	0	34.3	32	0
19	Raj 4537	N-121	51.6	21	0	33.7	35	0	58.3	17	0	48.3	4	1	48.4	18	0	46.7	7	1
20	PBW 803	N-122	52.3	17	0	49.3	5	1	51.6	28	0	33.1	33	0	50.5	14	0	50.8	3	1
21	UP 3025	N-123	52.0	19	0	41.1	23	0	66.2	2	1	43.4	11	0	58.4	4	1	40.5	19	0
22	HD 3321	N-124	55.7	10	1	43.9	15	0	59.1	14	0	37.9	23	0	55.7	8	1	40.9	16	0
23	WH1 255	N-125	56.4	8	1	44.6	14	0	63.7	4	1	42.5	16	0	60.6	3	1	35.1	30	0
24	DBW 283	N-126	53.7	14	1	42.9	18	0	59.0	15	0	45.6	7	0	56.7	5	1	51.5	2	1
25	NABIMG 10	N-127	46.7	24	0	43.0	17	0	64.5	3	1	39.7	19	0	34.1	35	0	46.8	5	1
26	PBW 805	N-128	57.6	5	1	39.7	27	0	54.2	27	0	38.4	22	0	56.4	6	1	44.2	10	0
27	NW 7067	N-129	48.4	23	0	38.3	31	0	56.9	21	0	25.8	36	0	39.7	32	0	36.2	28	0
28	UP 3027	N-130	45.0	27	0	53.3	1	1	61.2	8	1	35.0	30	0	52.2	13	1	40.0	21	0
29	PBW 802	N-131	48.8	22	0	37.0	33	0	60.1	12	1	43.4	13	0	41.9	30	0	35.8	29	0
30	WH 1258	N-132	45.0	28	0	41.9	20	0	61.5	7	1	39.9	18	0	43.1	29	0	50.1	4	1
31	PBW 804	N-133	52.3	18	0	52.7	2	1	57.0	20	0	49.1	3	1	61.7	2	1	44.0	11	0
32	Raj 4538	N-135	40.5	36	0	39.0	29	0	39.2	36	0	35.6	28	0	45.1	25	0	34.7	31	0
33	HD 3086 (C)	N-103	59.0	2	1	40.9	24	0	57.0	19	0	40.4	17	0	46.0	24	0	45.3	8	0
34	HD 2967 (C)	N-105	56.9	7	1	45.6	10	0	60.1	11	1	31.9	34	0	38.4	33	0	44.0	12	0
35	K 1006 (C)	N-134	55.3	11	1	48.3	7	0	54.6	25	0	50.2	2	1	47.9	21	0	46.7	6	1
36	DBW 88 (C)	N-136	54.7	12	1	45.0	12	0	60.0	13	1	31.5	35	0	45.0	26	0	39.6	23	0
G.M.			50.8			42.9			56.1			40.2			48.7			40.7		
S.E.(M)			3.694			1.913			3.130			0.990			4.806			4.013		
C.D. (10%)			8.8			4.6			7.6			2.4			11.5			9.6		
C.V.			10.3			6.3			7.9			3.5			13.9			13.9		
D.O.S.(dd.mm.yy)			25.11.18			24.11.18			16.11.18			18.11.18			22.11.18			24.11.18		

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ZONAL AND NATIONAL MEANS (q/ha)

S.N	Variety	Code	NWPZ			NEPZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	NW 7060	N-101	60.3	20	0	49.2	15	0	54.8	18	0
2	DBW 282	N-102	61.6	16	0	48.2	20	0	54.9	17	0
3	HD 3318	N-104	57.0	28	0	49.0	16	0	53.0	26	0
4	Raj 4539	N-106	49.3	34	0	40.2	36	0	44.8	34	0
5	NABIMG 09	N-107	49.6	33	0	41.4	34	0	45.5	33	0
6	HD 3323	N-108	61.9	14	0	47.1	28	0	54.5	21	0
7	UP 3028	N-109	62.6	12	0	47.9	22	0	55.2	14	0
8	K 1801	N-110	52.8	31	0	47.6	25	0	50.2	32	0
9	WH 1256	N-111	67.0	3	0	49.7	13	0	58.4	7	0
10	HUW 833	N-112	67.0	4	0	46.4	29	0	56.7	10	0
11	UP 3026	N-113	58.9	26	0	47.2	27	0	53.1	25	0
12	WH 1257	N-114	59.6	23	0	48.7	18	0	54.2	23	0
13	HD 3319	N-115	59.1	25	0	44.8	30	0	51.9	28	0
14	HD 3320	N-116	60.9	18	0	49.0	17	0	54.9	16	0
15	DBW 281	N-117	65.0	6	0	52.4	4	0	58.7	5	1
16	HD 3322	N-118	65.1	5	0	52.5	3	0	58.8	4	1
17	NABIMG 11	N-119	46.2	36	0	40.9	35	0	43.6	36	0
18	DBW 284	N-120	61.0	17	0	44.2	31	0	52.6	27	0
19	Raj 4537	N-121	60.1	22	0	49.8	12	0	55.0	15	0
20	PBW 803	N-122	70.0	1	1	50.5	9	0	60.3	1	1
21	UP 3025	N-123	60.7	19	0	51.5	7	0	56.1	11	0
22	HD 3321	N-124	59.1	24	0	50.1	11	0	54.6	20	0
23	WH1 255	N-125	64.4	8	0	52.2	5	0	58.3	8	0
24	DBW 283	N-126	62.6	11	0	51.1	8	0	56.9	9	0
25	NABIMG 10	N-127	58.5	27	0	48.1	21	0	53.3	24	0
26	PBW 805	N-128	63.8	9	0	53.1	2	0	58.4	6	0
27	NW 7067	N-129	56.7	29	0	43.7	32	0	50.2	31	0
28	UP 3027	N-130	62.5	13	0	49.3	14	0	55.9	12	0
29	PBW 802	N-131	63.5	10	0	47.4	26	0	55.4	13	0
30	WH 1258	N-132	61.7	15	0	47.6	23	0	54.6	19	0
31	PBW 804	N-133	64.5	7	0	55.5	1	1	60.0	2	1
32	Raj 4538	N-135	46.5	35	0	41.5	33	0	44.0	35	0
33	HD 3086 (C)	N-103	67.3	2	0	52.1	6	0	59.7	3	1
34	HD 2967 (C)	N-105	53.5	30	0	47.6	24	0	50.6	30	0
35	K 1006 (C)	N-134	52.3	32	0	50.5	10	0	51.4	29	0
36	DBW 88 (C)	N-136	60.3	21	0	48.2	19	0	54.2	22	0
G.M.			59.8			48.2			54.0		
S.E.(M)			1.121			1.017			0.757		
C.D. (10%)			2.6			2.4			1.8		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: NIVT-1A-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics								Grain Characteristics			
			Yl	ACI	Br	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	NW7060	N-101	20S	6.0	5S	1.0	91-128	105	140-170	152	100-130	113	10	Ey	A	SH	32-43	38
2	DBW282	N-102	5MS	0.7	5S	1.2	95-125	105	142-170	153	96-110	104	20	Ey	A	SH	35-45	39
3	HD3318	N-104	60S	23.0	5S	1.0	90-125	105	140-170	151	92-110	102	10	Ey	A	SH	27-44	37
4	Raj4539	N-106	10S	3.5	5S	1.2	91-125	102	145-170	153	105-130	116	20	Ey	A	SH	39-48	42
5	NABIMG 09	N-107	60S	28.6	tMS	0.2	90-130	107	145-173	154	90-109	101	0	Ey	Gr-Blue	SH	29-39	35
6	HD3323	N-108	20MS	3.1	0.0	0.0	94-130	109	145-173	154	100-121	110	10	Ey	A	SH	30-41	37
7	UP3028	N-109	20S	5.2	5S	1.2	82-125	101	140-170	151	94-116	107	0	Ey	A	SH	40-54	46
8	K1801	N-110	40S	9.8	5S	2.0	89-125	104	141-165	152	99-125	115	35	Ey	A	SH	32-41	38
9	WH1256	N-111	5S	0.8	0.0	0.0	91-128	104	142-170	153	97-113	106	5	Ey	A	SH	34-49	42
10	HUW 833	N-112	40S	8.5	5MS	0.8	86-122	101	141-168	151	98-118	108	5	Ey	A	SH	35-44	39
11	UP3026	N-113	20MS	4.4	5S	1.0	92-128	108	144-170	154	102-124	114	15	Ey	A	SH	34-42	39
12	WH1257	N-114	60S	10.1	5S	1.0	87-122	104	142-170	152	98-115	107	10	Ey	A	SH	36-45	41
13	HD3319	N-115	5S	1.4	0.0	0.0	92-125	105	142-170	152	90-120	109	10	Ey	A	SH	36-46	41
14	HD3320	N-116	20S	5.5	20S	9.0	90-118	104	142-168	153	95-115	105	0	Ey	A	SH	39-49	41
15	DBW281	N-117	20S	4.6	30S	11.0	87-122	101	140-170	151	100-120	108	5	Ey	A	SH	41-50	44
16	HD3322	N-118	10MS	2.4	5MS	0.8	89-125	106	141-170	153	100-124	112	5	Ey	A	SH	38-50	43
17	NABIMG 11	N-119	20S	10.9	tS	0.4	89-125	108	144-170	155	102-121	109	15	Ey	Black	SH	30-39	35
18	DBW284	N-120	20MS	4.5	0.0	0.0	90-125	106	143-170	153	100-119	109	10	Ey	A	SH	39-49	43
19	Raj4537	N-121	20S	4.8	0.0	0.0	83-120	100	142-170	152	95-120	107	10	Ey	A	SH	34-48	41
20	PBW803	N-122	20S	3.6	0.0	0.0	81-125	98	139-170	151	95-119	107	0	Ey	A	SH	41-47	44
21	UP3025	N-123	5MS	1.3	20S	6.4	88-125	105	142-173	152	110-132	117	15	Ey	A	SH	39-49	43
22	HD3321	N-124	10MS	2.3	0.0	0.0	95-125	108	143-173	154	110-136	125	10	Ey	A	SH	35-43	40
23	WH1255	N-125	20S	6.7	0.0	0.0	90-125	104	141-170	151	102-116	108	0	Ey	A	SH	35-46	42
24	DBW283	N-126	tMS	0.1	0.0	0.0	94-125	110	145-170	155	105-122	111	5	Ey	A	SH	40-49	44
25	NABIMG 10	N-127	40S	6.0	5MR	0.4	92-120	106	142-170	153	90-107	100	0	Ey	Brown	SH	30-40	35
26	PBW805	N-128	60S	12.7	20S	5.2	85-125	100	141-170	151	98-124	111	15	Ey	A	SH	39-55	44
27	NW7067	N-129	40S	8.6	10S	2.0	92-125	105	143-170	152	103-133	118	15	Ey	A	SH	35-43	40
28	UP3027	N-130	60S	12.9	0.0	0.0	88-125	104	141-170	151	100-120	110	5	Ey	A	SH	39-47	42
29	PBW802	N-131	tMS	0.3	10S	5.2	90-126	108	143-173	153	97-123	106	15	Ey	A	SH	34-43	39
30	WH1258	N-132	5S	1.3	0.0	0.0	89-125	109	142-173	155	98-115	107	15	Ey	A	SH	31-50	43
31	PBW804	N-133	20S	5.3	tS	0.2	92-130	105	140-173	153	102-122	109	10	Ey	A	SH	40-50	45
32	Raj4538	N-135	20MS	4.3	5MR	0.3	90-125	104	145-170	154	100-125	112	25	Ey	A	SH	39-46	42
33	HD3086 (C)	N-103	40S	7.1	10S	3.0	85-125	100	141-170	151	90-116	104	0	Ey	A	SH	37-50	42
34	HD2967 (C)	N-105	60S	27.1	5S	1.2	95-128	111	146-170	155	101-120	108	15	Ey	A	SH	31-45	40
35	K1006 (C)	N-134	60S	15.4	15S	3.2	87-130	104	142-173	153	102-123	111	5	Ey	A	SH	31-42	38
36	DBW88 (C)	N-136	60S	20.8	tMS	0.2	87-114	101	141-165	152	98-116	107	5	Ey	A	SH	30-48	39

1. Ancillary data from Bulandhahar, Delhi, Durgapura, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, and Pantnagar. 2. Yellow rust data from Delhi, Jammu, Gurdaspur, Karnal, Hisar, Ludhiana and Pantnagar; 3. Brown rust data from Hisar, Karnal, Ludhiana, Gurdaspur and Pantnagar. 4. Lodging data from Bulandshahar, Durgapura, Hisar, Jammu and Gurdaspur

NIVT-1A-IR-TS-TAS, 2018-19
North Western Plains Zone
Individual Station Rust Data

SN	Variety	Code	Delhi	Jammu	Ludhiana		Hisar		Karnal		Gurdaspur		Pantnagar	
			Yl	Yl	Yl	Br	Yl	Br	Yl	Br	Yl	Br	Yl	Br
1	NW7060	N-101	10S	20S	5MR	0.0	tMS	0.0	5S	5S	5MS	0.0	0	0.0
2	DBW282	N-102	0	5MS	tMR	0.0	0	tMS	0	5S	tMS	0.0	0	0.0
3	HD3318	N-104	0	60S	20S	0.0	tMS	5S	20S	0.0	60S	0.0	0	0.0
4	Raj4539	N-106	0	10S	10MR	0.0	0	tMS	tMR	5S	10S	0.0	0	0.0
5	NABIMG 09	N-107	0	80S	60S	0.0	0	tMS	20S	0.0	40S	0.0	0	0.0
6	HD3323	N-108	0	5S	20MS	0.0	R	0.0	tMR	0.0	tR	0.0	0	0.0
7	UP3028	N-109	0	10MS	20S	0.0	0	0.0	tMR	5S	10MS	tMS	0	0.0
8	K1801	N-110	0	5MS	40S	0.0	5MS	0.0	tMR	5S	20S	0.0	0	5S
9	WH1256	N-111	0	5S	tMR	0.0	0	0.0	0	0.0	tR	0.0	0	0.0
10	HUW 833	N-112	10MS	40S	10S	0.0	0	5MS	tMR	0.0	tMS	0.0	0	0.0
11	UP3026	N-113	0	20MS	5S	0.0	0	0.0	0	5S	10S	0.0	0	0.0
12	WH1257	N-114	0	60S	5S	0.0	0	0.0	5MR	5S	5MS	tR	0	0.0
13	HD3319	N-115	0	5S	0S	0.0	0	0.0	0	0.0	5S	0.0	0	0.0
14	HD3320	N-116	0	20S	10MS	0.0	0	0.0	tMR	20S	10S	5S	0	20S
15	DBW281	N-117	0	20S	5MR	0.0	0	10S	tMR	30S	10S	10S	0	5s
16	HD3322	N-118	0	5MS	5MS	0.0	R	0.0	tMS	5MS	10MS	0.0	0	0.0
17	NABIMG 11	N-119	0	40S	20S	0.0	0	tMS	tMR	tS	20MS	0.0	0	0.0
18	DBW284	N-120	0	10S	20MS	0.0	R	0.0	0	0.0	5S	0.0	0	0.0
19	Raj4537	N-121	0	10S	20S	0.0	tMS	0.0	5MR	0.0	tMS	0.0	0	0.0
20	PBW803	N-122	0	20S	tMS	0.0	0	0.0	tMR	0.0	5MS	0.0	0	0.0
21	UP3025	N-123	0	5MS	5MS	0.0	0	5MS	0	20S	tR	10MS	0	0.0
22	HD3321	N-124	0	10MS	tMR	0.0	0	0.0	0	0.0	10MS	0.0	0	0.0
23	WH1255	N-125	0	20S	5MR	0.0	tMS	0.0	5MS	0.0	20S	0.0	0	0.0
24	DBW283	N-126	0	tMS	0S	0.0	0	0.0	0	0.0	tR	0.0	0	0.0
25	NABIMG 10	N-127	0	40S	tMS	0.0	tMR	0.0	0	5MR	tMS	0.0	0	0.0
26	PBW805	N-128	0	60S	5S	0.0	0	5S	5MS	20S	20S	tMS	0	5S
27	NW7067	N-129	0	40S	10S	0.0	0	0.0	tMR	10S	10S	0.0	0	0.0
28	UP3027	N-130	0	60S	10MS	0.0	R	0.0	5MR	0.0	20S	0.0	0	0.0
29	PBW802	N-131	0	tMS	tMR	0.0	0	tMS	tMR	10S	tR	5MS	0	10s
30	WH1258	N-132	0	5S	5MS	0.0	0	0.0	0	0.0	0	0.0	0	0.0
31	PBW804	N-133	0	20S	5MR	0.0	0	0.0	10S	tS	5S	0.0	0	0.0
32	Raj4538	N-135	0	10MS	20MS	0.0	tMR	tMS	tMR	5MR	5S	tR	0	0.0
33	HD3086 (C)	N-103	0	40S	0	5S	tS	10S	tMS	0.0	10MS	0.0	0	0.0
34	HD2967 (C)	N-105	0	40S	60S	0.0	10S	tS	30S	5S	40S	0.0	10S	0.0
35	K1006 (C)	N-134	0	10MS	60S	0.0	5S	tMS	15S	15S	20S	0.0	0	0.0
36	DBW88 (C)	N-136	0	60S	60S	0.0	tMS	tMS	15S	tR	10S	0.0	0	0.0

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: NIVT-1A-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions		Agronomic Characteristics								Grain Characteristics			
			Br	Leaf Blight HS(Av.)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	NW7060	N-101	-	35(13)	74-91	83	116-129	123	87-116	102	10	Ey	A	SH	32-43	38
2	DBW282	N-102	-	57(23)	74-93	83	114-130	123	87-99	94	20	Ey	A	H	36-46	40
3	HD3318	N-104	-	46(34)	69-85	79	114-134	123	87-99	92	40	Ey	A	SH	34-42	38
4	Raj4539	N-106	-	59(46)	71-87	81	115-131	124	95-113	103	75	Ey	A	SH	36-47	41
5	NABIMG 09	N-107	-	46(24)	70-97	85	117-138	127	86-103	92	20	Ey	Gr-Blue	SH	31-40	35
6	HD3323	N-108	-	68(35)	81-96	87	122-138	128	87-105	96	0	Ey	A	SH	32-44	38
7	UP3028	N-109	-	68(46)	69-87	79	114-133	122	81-102	95	20	Ey	A	SH	36-51	41
8	K1801	N-110	-	35(24)	71-92	83	114-132	123	91-116	105	60	Ey	A	SH	34-47	40
9	WH1256	N-111	-	68(34)	74-90	83	114-129	123	83-104	94	20	Ey	A	SH	36-51	44
10	HUW 833	N-112	-	46(34)	74-90	80	114-128	123	88-102	95	35	Ey	A	SH	35-48	42
11	UP3026	N-113	-	57(35)	74-92	86	120-138	126	93-109	103	10	Ey	A	SH	32-43	37
12	WH1257	N-114	-	45(25)	77-93	84	114-133	124	93-109	98	40	Ey	A	SH	35-47	41
13	HD3319	N-115	-	57(34)	77-93	83	116-138	125	93-111	101	0	Ey	A	SH	34-48	40
14	HD3320	N-116	tR	46(35)	74-95	83	114-129	124	88-106	98	30	Ey	A	SH	36-50	41
15	DBW281	N-117	-	57(35)	72-90	80	114-130	122	85-101	95	20	Ey	A	SH	35-46	41
16	HD3322	N-118	-	45(35)	81-94	86	120-138	127	93-110	101	5	Ey	A	SH	36-48	42
17	NABIMG 11	N-119	-	68(34)	78-95	86	118-138	126	85-105	97	10	Ey	Black	SH	29-37	33
18	DBW284	N-120	-	68(35)	78-91	85	120-134	126	90-109	100	15	Ey	A	SH	36-49	42
19	Raj4537	N-121	-	46(24)	71-85	79	118-131	124	92-107	99	15	Ey	A	SH	34-47	39
20	PBW803	N-122	-	67(45)	73-83	78	114-128	121	84-106	96	50	Ey	A	SH	34-54	46
21	UP3025	N-123	tR	68(35)	72-90	83	116-130	124	94-110	101	30	Ey	A	SH	34-46	42
22	HD3321	N-124	-	46(34)	82-97	89	122-135	128	95-122	107	15	Ey	A	SH	32-47	39
23	WH1255	N-125	-	68(35)	73-91	83	117-131	123	91-108	97	20	Ey	A	SH	33-45	38
24	DBW283	N-126	-	23(23)	82-98	89	116-138	127	93-111	99	0	Ey	A	SH	36-50	44
25	NABIMG 10	N-127	-	41(23)	73-93	84	118-138	126	77-93	87	0	Ey	Brown	SH	29-44	36
26	PBW805	N-128	-	46(34)	68-91	80	119-129	124	91-112	102	45	Ey	A	SH	38-51	44
27	NW7067	N-129	-	35(34)	74-92	84	120-138	126	95-118	106	50	Ey	A	SH	32-46	38
28	UP3027	N-130	-	52(33)	73-91	83	118-133	125	94-107	100	20	Ey	A	SH	36-48	41
29	PBW802	N-131	-	68(46)	83-96	88	122-138	129	84-99	92	0	Ey	A	SH	33-44	39
30	WH1258	N-132	-	46(24)	81-95	88	120-138	128	88-104	96	0	Ey	A	SH	36-52	44
31	PBW804	N-133	-	56(35)	72-95	84	114-131	124	88-110	98	30	Ey	A	SH	34-53	43
32	Raj4538	N-135	-	67(35)	67-91	80	114-132	123	90-112	104	50	Ey	A	SH	36-47	42
33	HD3086 (C)	N-103	tR	56(34)	72-89	79	112-130	121	89-106	97	20	Ey	A	SH	36-45	41
34	HD2967 (C)	N-105	-	23(13)	83-99	90	124-138	132	70-108	95	0	Ey	A	SH	31-43	38
35	K1006 (C)	N-134	-	46(35)	71-89	82	114-130	123	91-111	102	30	Ey	A	SH	35-44	40
36	DBW88 (C)	N-136	-	46(34)	73-90	82	120-134	125	83-103	92	0	Ey	A	SH	30-47	40

1. Ancillary data from Coochbehar, Faizabad, Kalyani, Kanpur, Manikchak, Ranchi, Sabour and Varanasi; Brown rust data from Sabour centre. 3. Lodging data from Kalyani. 4. Leaf blight data from Coochbehar, Faizabad, Kalyani and Sabour

NIVT-1A-IR-TS-TAS, 2018-19
North Eastern Plains Zone
Individual Station Leaf Blight Data

SN	Variety	Code	Coochbehar	Faizabad	Kalyani	Sabour
1	NW7060	N-101	35	12	01	24
2	DBW282	N-102	35	12	12	57
3	HD3318	N-104	45	24	12	46
4	Raj4539	N-106	45	46	23	59
5	NABIMG 09	N-107	23	12	23	46
6	HD3323	N-108	56	12	12	68
7	UP3028	N-109	56	45	23	68
8	K1801	N-110	35	12	12	35
9	WH1256	N-111	45	12	12	68
10	HUW 833	N-112	34	23	12	46
11	UP3026	N-113	35	24	01	57
12	WH1257	N-114	45	24	01	25
13	HD3319	N-115	56	12	12	57
14	HD3320	N-116	45	36	23	46
15	DBW281	N-117	34	35	12	57
16	HD3322	N-118	45	24	01	03
17	NABIMG 11	N-119	35	12	12	68
18	DBW284	N-120	35	12	01	68
19	Raj4537	N-121	35	12	12	46
20	PBW803	N-122	67	24	12	57
21	UP3025	N-123	35	24	12	68
22	HD3321	N-124	23	46	12	35
23	WH1255	N-125	35	35	12	68
24	DBW283	N-126	23	12	01	03
25	NABIMG 10	N-127	35	12	12	41
26	PBW805	N-128	45	24	12	46
27	NW7067	N-129	35	24	23	35
28	UP3027	N-130	35	24	12	52
29	PBW802	N-131	57	23	01	68
30	WH1258	N-132	46	12	01	23
31	PBW804	N-133	56	46	12	35
32	Raj4538	N-135	56	12	01	67
33	HD3086 (C)	N-103	56	23	12	35
34	HD2967 (C)	N-105	23	12	12	13
35	K1006 (C)	N-134	46	24	23	46
36	DBW88 (C)	N-136	35	12	23	46

1802-NIVT-1B-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NWPZ															
			Delhi			Punjab						HARYANA						Uttarakhand
			Delhi			Ludhiana			Gurdaspur			Hisar			IIWBR-Karnal			Pantnagar		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	HD 3326	N-202	61.9	12	0	66.4	16	0	71.4	7	0	70.4	2	1	72.4	15	0	57.3	10	0
2	HUW 834	N-203	61.2	13	0	63.5	20	0	53.8	26	0	69.7	3	1	76.5	11	1	56.4	14	0
3	K 1803	N-204	59.1	20	0	69.5	12	1	76.0	2	1	57.9	25	0	81.4	7	1	53.6	19	0
4	DBW 286	N-205	64.8	7	0	69.5	13	1	62.9	17	0	61.5	16	0	76.8	10	1	60.4	4	1
5	DBW 287	N-206	66.3	5	1	74.8	1	1	47.9	32	0	70.8	1	1	78.0	9	1	64.1	1	1
6	UP 3029	N-207	55.7	30	0	73.8	4	1	66.7	12	0	57.6	26	0	87.1	2	1	52.9	20	0
7	Raj 4540	N-208	34.1	35	0	58.7	22	0	59.4	21	0	49.8	33	0	82.7	5	1	37.1	35	0
8	NW 7064	N-210	54.5	31	0	69.8	11	1	52.4	28	0	62.6	11	0	67.7	26	0	54.8	17	0
9	UP 3031	N-211	59.2	19	0	69.5	14	1	62.5	18	0	60.9	18	0	89.7	1	1	58.9	7	0
10	PBW 807	N-212	63.2	9	0	71.8	8	1	72.9	4	0	62.7	10	0	74.7	12	1	51.0	25	0
11	BRW 3829	N-213	24.2	36	0	43.0	34	0	46.9	35	0	25.3	36	0	45.4	36	0	35.3	36	0
12	NWS 2106	N-214	62.6	10	0	72.1	7	1	71.9	6	0	60.2	21	0	72.6	14	1	51.2	24	0
13	WH 1259	N-215	74.5	1	1	72.2	6	1	66.5	14	0	62.5	12	0	72.1	17	0	52.6	22	0
14	HUW 835	N-216	70.8	2	1	65.1	17	0	57.8	23	0	62.9	9	0	81.6	6	1	52.7	21	0
15	Raj 4541	N-217	60.9	15	0	58.2	25	0	47.9	32	0	50.5	32	0	65.6	28	0	47.9	30	0
16	PBW 808	N-218	60.5	17	0	69.2	15	1	71.0	8	0	64.3	7	0	71.8	18	0	50.9	26	0
17	DBW 305	N-219	68.2	4	1	52.9	30	0	66.6	13	0	47.7	35	0	79.6	8	1	47.5	31	0
18	HD 3327	N-220	57.6	24	0	57.9	26	0	69.1	11	0	58.4	24	0	69.1	24	0	56.8	12	0
19	BRW 3838	N-221	41.8	34	0	48.5	33	0	47.9	32	0	49.2	34	0	62.5	34	0	42.3	33	0
20	HD 3328	N-222	56.9	25	0	65.0	18	0	64.5	16	0	56.5	28	0	69.4	23	0	49.5	28	0
21	NW 7057	N-223	64.8	6	0	71.4	9	1	50.8	29	0	61.9	13	0	86.2	3	1	59.3	6	0
22	DBW 288	N-224	63.2	8	0	74.0	3	1	72.9	4	0	63.0	8	0	84.3	4	1	49.3	29	0
23	NW 7075	N-226	56.0	29	0	57.6	27	0	58.5	22	0	67.5	4	1	65.2	30	0	60.7	3	1
24	K 1804	N-228	56.7	27	0	52.4	31	0	64.8	15	0	60.4	19	0	64.3	31	0	39.7	34	0
25	WH 1260	N-229	58.1	22	0	55.2	28	0	49.2	30	0	55.3	30	0	66.6	27	0	56.6	13	0
26	HD 3325	N-230	68.5	3	1	58.5	24	0	55.9	25	0	59.4	23	0	69.5	22	0	57.8	9	0
27	UP 3030	N-231	58.7	21	0	53.2	29	0	69.8	9	0	61.9	13	0	63.7	32	0	50.6	27	0
28	DBW 285	N-232	58.1	23	0	64.6	19	0	48.2	31	0	59.6	22	0	65.3	29	0	55.6	16	0
29	K 1805	N-233	52.9	32	0	58.5	23	0	56.3	24	0	55.7	29	0	72.3	16	0	54.1	18	0
30	HD 3324	N-234	56.6	28	0	72.4	5	1	69.8	9	0	61.1	17	0	70.2	21	0	59.5	5	0
31	KRL 429	N-235	60.5	16	0	60.2	21	0	53.1	27	0	61.5	15	0	71.5	19	0	57.2	11	0
32	KRL 423	N-236	59.4	18	0	71.3	10	1	73.2	3	1	64.6	6	0	70.5	20	0	55.8	15	0
33	HD 2967 (C)	N-201	56.8	26	0	41.8	36	0	44.8	36	0	60.4	19	0	63.6	33	0	57.8	8	0
34	DBW 88 (C)	N-209	62.1	11	0	51.8	32	0	61.5	19	0	57.2	27	0	68.3	25	0	52.0	23	0
35	HD 3086 (C)	N-225	60.9	14	0	74.7	2	1	81.8	1	1	66.7	5	1	72.7	13	1	62.2	2	1
36	K 1006 (C)	N-227	49.1	33	0	42.2	35	0	61.5	20	0	52.2	31	0	59.2	35	0	45.3	32	0
G.M.			58.3			62.5			61.3			59.2			72.0			53.0		
S.E.(M)			3.623			3.361			3.682			1.916			7.085			1.637		
C.D. (10%)			8.8			8.1			8.8			4.6			17.1			4.0		
C.V.			8.8			7.6			8.5			4.6			13.9			4.4		
D.O.S.(dd.mm.yy)			15.11.18			10.11.18			11.11.18			05.11.18			01.11.18			14.11.18		

No. of Trials : Proposed and Conducted = 18

Trials not reported (01) = Shillongani (LSM, HCV)

802-NIVT-1B-IR-TS-TAS-NAT-ZONE, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NWPZ			NEPZ														
			Rajasthan			U.P.									Bihar					
			Durgapura			Kanpur			Faizabad			Varanasi			IARI-Pusa			Sabour		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	HD 3326	N-202	83.7	2	1	52.3	21	0	61.2	6	0	48.4	4	1	47.4	21	1	51.5	5	0
2	HUW 834	N-203	63.5	18	0	48.7	30	0	47.4	28	0	43.9	17	0	51.3	9	1	57.7	1	1
3	K 1803	N-204	62.4	21	0	61.7	1	1	41.7	36	0	40.0	27	0	49.0	13	1	40.0	26	0
4	DBW 286	N-205	61.7	25	0	58.9	5	1	59.6	14	0	42.4	20	0	56.4	1	1	49.4	10	0
5	DBW 287	N-206	67.7	12	0	52.1	22	0	58.3	16	0	50.9	1	1	48.0	17	1	37.6	30	0
6	UP 3029	N-207	57.7	31	0	47.1	32	0	58.6	15	0	37.8	29	0	52.8	6	1	45.8	12	0
7	Raj 4540	N-208	63.5	19	0	58.1	7	1	57.8	17	0	41.9	22	0	41.5	32	0	32.8	36	0
8	NW 7064	N-210	72.2	8	0	52.1	22	0	54.2	23	0	44.9	12	0	39.9	34	0	39.1	28	0
9	UP 3031	N-211	59.7	28	0	50.3	27	0	47.1	31	0	42.3	21	0	52.1	7	1	43.5	17	0
10	PBW 807	N-212	77.6	4	0	59.1	4	1	52.9	25	0	41.2	24	0	47.6	19	1	44.3	15	0
11	BRW 3829	N-213	58.6	30	0	41.4	36	0	53.1	24	0	34.8	34	0	45.9	27	0	40.7	23	0
12	NWS 2106	N-214	66.3	15	0	59.9	3	1	60.4	10	0	46.1	6	0	46.9	23	0	43.8	16	0
13	WH 1259	N-215	85.4	1	1	56.5	13	1	62.5	3	0	45.0	11	0	46.5	25	0	45.6	13	0
14	HUW 835	N-216	81.0	3	1	51.3	26	0	54.4	22	0	29.5	36	0	43.2	29	0	52.0	3	0
15	Raj 4541	N-217	69.1	9	0	54.7	16	0	47.4	28	0	47.4	5	1	53.9	3	1	40.7	22	0
16	PBW 808	N-218	61.8	24	0	57.0	11	1	55.5	21	0	40.5	25	0	47.6	18	1	51.4	6	0
17	DBW 305	N-219	62.0	22	0	53.4	18	0	46.1	32	0	44.6	14	0	33.7	36	0	42.7	20	0
18	HD 3327	N-220	76.4	6	0	55.2	14	0	55.7	19	0	39.6	28	0	43.1	30	0	34.5	35	0
19	BRW 3838	N-221	59.1	29	0	46.4	33	0	59.9	12	0	45.4	10	0	43.6	28	0	34.9	34	0
20	HD 3328	N-222	53.9	35	0	53.1	19	0	57.0	18	0	43.2	18	0	51.4	8	1	42.7	19	0
21	NW 7057	N-223	54.7	33	0	61.7	1	1	61.2	6	0	45.7	8	0	49.6	12	1	36.2	32	0
22	DBW 288	N-224	54.3	34	0	50.3	27	0	63.8	2	1	49.4	3	1	42.0	31	0	47.7	11	0
23	NW 7075	N-226	69.1	10	0	58.6	6	1	70.8	1	1	41.5	23	0	48.7	14	1	49.7	9	0
24	K 1804	N-228	62.0	23	0	56.8	12	1	61.7	5	0	45.6	9	0	37.0	35	0	44.3	14	0
25	WH 1260	N-229	59.9	27	0	57.3	9	1	48.7	27	0	50.6	2	1	48.7	15	1	38.9	29	0
26	HD 3325	N-230	63.8	17	0	55.2	14	0	60.4	10	0	35.5	33	0	46.1	26	0	36.9	31	0
27	UP 3030	N-231	67.6	13	0	52.6	20	0	47.4	28	0	44.3	15	0	50.9	10	1	40.6	25	0
28	DBW 285	N-232	61.3	26	0	45.1	35	0	60.7	9	0	35.8	32	0	48.5	16	1	51.7	4	0
29	K 1805	N-233	65.7	16	0	58.1	7	1	44.5	34	0	44.1	16	0	46.9	22	0	39.2	27	0
30	HD 3324	N-234	63.4	20	0	49.2	29	0	51.6	26	0	40.0	26	0	47.5	20	1	43.0	18	0
31	KRL 429	N-235	73.2	7	0	54.7	16	0	59.9	12	0	46.1	7	0	54.3	2	1	35.6	33	0
32	KRL 423	N-236	68.6	11	0	51.8	24	0	55.7	19	0	36.6	31	0	46.8	24	0	50.8	8	0
33	HD 2967 (C)	N-201	50.6	36	0	57.3	9	1	62.0	4	0	42.6	19	0	53.3	4	1	40.6	24	0
34	DBW 88 (C)	N-209	57.0	32	0	51.6	25	0	45.8	33	0	44.6	13	0	50.1	11	1	41.9	21	0
35	HD 3086 (C)	N-225	77.2	5	0	45.8	34	0	60.9	8	0	37.3	30	0	41.0	33	0	55.9	2	1
36	K 1006 (C)	N-227	66.7	14	0	48.7	30	0	44.5	34	0	33.7	35	0	52.9	5	1	50.9	7	0
G.M.			65.5			53.4			55.3			42.3			47.4			43.7		
S.E.(M)			2.836			2.453			3.153			1.537			3.965			1.887		
C.D. (10%)			6.8			5.9			7.5			3.7			9.5			4.6		
C.V.			6.1			6.5			8.1			5.1			11.8			6.1		
D.O.S.(dd.mm.yy)			14.11.18			25.11.18			23.11.18			22.11.18			25.11.18			24.11.18		

1802-NIVT-1B-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NEPZ														
			Bihar			Jharkhand			W.B.								
			RPCAU-Pusa			Ranchi			Kalyani			Burdwan			Coochbehar		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	HD 3326	N-202	46.9	32	0	64.2	3	1	39.3	18	0	37.1	29	0	51.6	6	1
2	HUW 834	N-203	60.4	14	0	57.2	22	1	36.6	29	0	44.8	25	0	51.4	7	1
3	K 1803	N-204	58.3	21	0	61.0	11	1	35.7	31	0	51.1	17	0	41.9	28	0
4	DBW 286	N-205	62.5	7	1	58.9	16	1	39.6	17	0	47.2	23	0	37.9	32	0
5	DBW 287	N-206	45.3	35	0	53.5	28	0	39.0	23	0	58.1	4	1	51.1	10	1
6	UP 3029	N-207	64.1	3	1	52.3	30	0	42.2	12	0	35.4	31	0	31.8	36	0
7	Raj 4540	N-208	53.6	27	0	62.4	5	1	37.7	27	0	44.4	27	0	43.5	25	0
8	NW 7064	N-210	58.9	18	0	44.1	36	0	42.8	11	0	32.4	33	0	39.1	31	0
9	UP 3031	N-211	46.9	32	0	61.2	9	1	39.1	20	0	25.6	34	0	46.7	20	0
10	PBW 807	N-212	62.0	9	0	61.3	8	1	45.0	6	0	33.4	32	0	48.5	15	1
11	BRW 3829	N-213	45.8	34	0	48.6	33	0	47.2	3	0	22.2	36	0	37.7	33	0
12	NWS 2106	N-214	58.4	20	0	59.9	15	1	39.1	20	0	53.8	12	1	51.2	8	1
13	WH 1259	N-215	63.0	6	1	65.7	1	1	29.2	35	0	44.7	26	0	48.6	14	1
14	HUW 835	N-216	56.3	25	0	57.7	21	1	46.8	4	0	52.6	14	0	47.4	18	0
15	Raj 4541	N-217	60.4	14	0	58.7	17	1	55.6	1	1	22.5	35	0	42.7	26	0
16	PBW 808	N-218	63.5	5	1	52.3	29	0	37.5	28	0	58.1	4	1	42.4	27	0
17	DBW 305	N-219	62.5	7	1	56.9	23	1	42.9	10	0	58.6	3	1	51.1	9	1
18	HD 3327	N-220	53.6	27	0	50.9	31	0	31.7	34	0	48.6	21	0	41.0	29	0
19	BRW 3838	N-221	51.0	29	0	45.5	34	0	50.5	2	0	60.7	1	1	52.2	5	1
20	HD 3328	N-222	58.9	18	0	54.1	26	0	40.7	15	0	54.2	11	1	45.7	22	0
21	NW 7057	N-223	56.3	25	0	60.8	13	1	42.0	13	0	56.1	8	1	47.5	17	0
22	DBW 288	N-224	62.0	9	0	58.1	20	1	38.3	25	0	54.8	10	1	46.8	19	0
23	NW 7075	N-226	51.0	29	0	61.1	10	1	38.0	26	0	52.7	13	0	56.6	3	1
24	K 1804	N-228	42.7	36	0	45.1	35	0	36.1	30	0	49.2	20	0	35.1	34	0
25	WH 1260	N-229	57.8	22	0	58.6	18	1	46.6	5	0	56.0	9	1	49.4	12	1
26	HD 3325	N-230	59.4	16	0	49.4	32	0	38.4	24	0	50.3	18	0	45.5	24	0
27	UP 3030	N-231	49.0	31	0	58.1	19	1	34.0	33	0	48.3	22	0	39.6	30	0
28	DBW 285	N-232	56.8	24	0	61.6	7	1	39.2	19	0	58.8	2	1	58.8	1	1
29	K 1805	N-233	61.5	11	0	61.8	6	1	43.2	9	0	45.4	24	0	50.4	11	1
30	HD 3324	N-234	65.1	2	1	60.7	14	1	39.1	20	0	35.6	30	0	47.8	16	0
31	KRL 429	N-235	59.4	16	0	55.8	24	0	28.6	36	0	58.0	6	1	34.3	35	0
32	KRL 423	N-236	64.1	3	1	54.0	27	0	41.5	14	0	49.6	19	0	46.5	21	0
33	HD 2967 (C)	N-201	66.3	1	1	54.1	25	0	35.0	32	0	38.5	28	0	45.6	23	0
34	DBW 88 (C)	N-209	61.5	11	0	64.4	2	1	39.8	16	0	51.3	16	0	57.1	2	1
35	HD 3086 (C)	N-225	60.9	13	0	61.0	12	1	44.5	8	0	57.2	7	1	48.7	13	1
36	K 1006 (C)	N-227	57.3	23	0	62.6	4	1	44.8	7	0	52.6	14	0	52.5	4	1
G.M.			57.3			57.0			40.2			47.2			46.3		
S.E.(M)			1.614			3.663			1.384			2.936			4.257		
C.D. (10%)			3.9			8.8			3.3			7.0			10.3		
C.V.			4.0			9.1			4.9			8.8			13.0		
D.O.S.(dd.mm.yy)			20.11.18			16.11.18			19.11.18			22.11.18			22.11.18		

1802-NIVT-1B-IR-TS-TAS-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

S.N.	Variety	Code	NWPZ			NEPZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	HD 3326	N-202	69.1	3	1	50.0	14	0	57.8	3	1
2	HUW 834	N-203	63.5	18	0	49.9	15	0	55.5	14	0
3	K 1803	N-204	65.7	10	0	48.1	26	0	55.3	15	0
4	DBW 286	N-205	65.4	11	0	51.3	7	1	57.1	6	0
5	DBW 287	N-206	67.1	6	0	49.4	20	0	56.7	9	0
6	UP 3029	N-207	64.5	14	0	46.8	30	0	54.1	19	0
7	Raj 4540	N-208	55.0	32	0	47.4	29	0	50.5	33	0
8	NW 7064	N-210	62.0	21	0	44.7	35	0	51.9	30	0
9	UP 3031	N-211	65.8	9	0	45.5	32	0	53.8	23	0
10	PBW 807	N-212	67.7	4	1	49.5	18	0	57.0	7	0
11	BRW 3829	N-213	39.8	36	0	41.7	36	0	40.9	36	0
12	NWS 2106	N-214	65.3	12	0	51.9	2	1	57.4	4	0
13	WH 1259	N-215	69.4	2	1	50.7	10	0	58.4	2	1
14	HUW 835	N-216	67.4	5	0	49.1	22	0	56.7	11	0
15	Raj 4541	N-217	57.2	31	0	48.4	25	0	52.0	29	0
16	PBW 808	N-218	64.2	15	0	50.6	11	0	56.2	13	0
17	DBW 305	N-219	60.6	24	0	49.3	21	0	53.9	21	0
18	HD 3327	N-220	63.6	17	0	45.4	33	0	52.9	27	0
19	BRW 3838	N-221	50.2	35	0	49.0	23	0	49.5	35	0
20	HD 3328	N-222	59.4	25	0	50.1	12	0	53.9	22	0
21	NW 7057	N-223	64.2	16	0	51.7	3	1	56.8	8	0
22	DBW 288	N-224	65.9	8	0	51.3	6	1	57.3	5	0
23	NW 7075	N-226	62.1	20	0	52.9	1	1	56.7	10	0
24	K 1804	N-228	57.2	30	0	45.4	34	0	50.2	34	0
25	WH 1260	N-229	57.3	29	0	51.3	8	1	53.7	24	0
26	HD 3325	N-230	61.9	22	0	47.7	28	0	53.6	25	0
27	UP 3030	N-231	60.8	23	0	46.5	31	0	52.4	28	0
28	DBW 285	N-232	58.9	27	0	51.7	4	1	54.7	17	0
29	K 1805	N-233	59.4	26	0	49.5	19	0	53.6	26	0
30	HD 3324	N-234	64.7	13	0	48.0	27	0	54.9	16	0
31	KRL 429	N-235	62.5	19	0	48.7	24	0	54.3	18	0
32	KRL 423	N-236	66.2	7	0	49.7	16	0	56.5	12	0
33	HD 2967 (C)	N-201	53.7	34	0	49.5	17	0	51.2	32	0
34	DBW 88 (C)	N-209	58.5	28	0	50.8	9	1	54.0	20	0
35	HD 3086 (C)	N-225	70.9	1	1	51.3	5	1	59.4	1	1
36	K 1006 (C)	N-227	53.7	33	0	50.1	13	0	51.6	31	0
G.M.			61.7			49.0			54.2		
S.E.(M)			1.447			0.907			0.800		
C.D. (10%)			3.4			2.1			1.9		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: NIVT-1B-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics									Grain Characteristics		
			Yl	ACI	Br	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HD3326	N-202	10MS	3.2	tS	0.3	90-112	102	138-162	151	99-117	107	0	Ey	A	SH	38-46	41
2	HUW834	N-203	20S	6.0	15MS	3.1	91-113	104	143-165	153	100-120	111	5	Ey	A	SH	35-42	39
3	K1803	N-204	20S	5.9	5R	0.3	92-114	107	143-166	154	100-127	116	0	Ey	A	H	36-54	45
4	DBW286	N-205	5MR	0.5	MR	0.5	92-117	105	141-163	152	102-124	114	5	Ey	A	SH	34-46	42
5	DBW287	N-206	10S	2.5	tMS	0.3	91-114	101	141-161	152	101-125	112	5	Ey	A	SH	37-49	43
6	UP3029	N-207	5S	0.9	10S	2.7	81-112	97	140-160	150	96-115	105	0	Ey	A	SH	40-55	47
7	Raj4540	N-208	tMR	0.2	0	-	92-111	102	138-159	150	100-119	109	15	Ey	A	SH	31-52	41
8	NW7064	N-210	tMS	0.2	tMR	0.1	89-109	100	140-180	154	100-125	111	5	Ey	A	H	34-49	40
9	UP3031	N-211	5S	1.7	20S	5.0	88-112	100	142-160	151	108-125	115	7	Ey	A	SH	35-44	39
10	PBW807	N-212	20MS	3.7	5S	1.5	82-112	93	138-161	150	100-110	107	0	Ey	A	SH	38-48	42
11	BRW3829	N-213	60S	18.2	5S	1.4	80-111	97	143-161	151	110-162	137	40	Ey	A	H	37-49	44
12	NWS2106	N-214	20MS	5.1	10S	3.8	87-111	99	140-161	150	104-127	117	5	Ey	A	SH	39-52	46
13	WH1259	N-215	10S	2.6	10S	2.5	93-115	105	142-162	152	101-123	111	0	Ey	A	SH	38-50	45
14	HUW835	N-216	20S	9.0	5S	1.5	87-111	100	139-162	152	105-125	114	10	Ey	A	SH	35-48	40
15	Raj4541	N-217	20MS	3.0	0	-	86-110	98	138-160	150	98-115	106	25	Ey	A	H	38-44	41
16	PBW808	N-218	10S	2.9	tMR	0.1	82-107	96	138-159	149	103-125	113	15	Ey	A	SH	41-48	44
17	DBW305	N-219	40S	10.2	10S	2.5	86-108	98	138-160	149	97-109	103	0	Ey	A	H	37-49	41
18	HD3327	N-220	5S	0.9	5MS	1.0	92-115	103	142-159	151	107-124	111	0	Ey	A	SH	38-44	41
19	BRW3838	N-221	40S	8.1	10S	3.0	87-112	103	140-161	151	104-125	114	20	Ey	A	H	34-46	39
20	HD3328	N-222	20S	6.6	0	-	95-119	108	145-168	154	100-140	117	0	Ey	A	H	31-42	38
21	NW7057	N-223	5S	1.0	0	-	91-112	100	138-163	150	100-121	111	5	Ey	A	H	34-47	40
22	DBW288	N-224	5S	2.2	0	-	90-113	102	143-159	151	98-115	106	0	Ey	A	SH	40-55	50
23	NW7075	N-226	40S	13.3	20MS	6.5	87-112	102	142-160	151	101-124	112	0	Ey	A	H	39-49	42
24	K1804	N-228	60S	18.0	20S	11.3	80-103	89	135-159	147	86-132	101	10	Ey	A	SH	29-39	36
25	WH1260	N-229	5S	1.8	5S	1.5	91-115	103	140-161	151	95-128	109	15	Ey	A	H	32-44	38
26	HD3325	N-230	15S	6.4	10S	3.8	89-115	102	142-161	151	98-121	108	0	Ey	A	H	33-48	41
27	UP3030	N-231	20S	6.0	0	-	82-107	92	138-162	150	96-112	104	0	Ey	A	H	33-45	38
28	DBW285	N-232	20S	4.2	5S	1.8	92-115	107	142-166	154	103-127	115	15	Ey	A	H	33-45	40
29	K1805	N-233	5MS	1.1	0	-	97-118	108	145-168	154	106-129	118	5	Ey	A	SH	35-45	39
30	HD3324	N-234	10MS	1.9	5MR	0.6	92-117	106	140-163	153	100-127	114	0	Ey	A	SH	34-45	41
31	KRL429	N-235	40S	9.5	5MS	1.0	92-118	106	143-167	154	100-127	112	5	Ey	A	H	34-44	39
32	KRL423	N-236	5S	1.2	5R	0.5	87-115	103	150-161	143	101-123	112	0	Ey	A	SH	40-48	45
33	HD2967 (C)	N-201	60S	29.2	tS	0.5	95-117	109	145-165	155	98-123	109	5	Ey	A	SH	22-49	39
34	DBW88 (C)	N-209	40S	14.1	5MS	1.0	88-115	101	145-163	152	102-120	109	0	Ey	A	H	34-43	39
35	HD3086 (C)	N-225	10S	2.2	5S	1.3	87-112	97	140-160	150	104-119	110	0	Ey	A	H	36-46	42
36	K1006 (C)	N-227	40S	15.5	10S	2.7	87-112	102	142-160	151	100-123	108	10	Ey	A	H	28-47	37

1. Ancillary data from Delhi, Durgapura, Hisar, Karnal, Ludhiana, Gurdaspur and Pantnagar.
2. Yellow rust data from Delhi, Karnal, Hisar, Ludhiana, Gurdaspur and Pantnagar.
3. Brown rust data from Hisar, Karnal, Gurdaspur and Pantnagar. 4. Lodging data from Karnal, Hisar, Ludhiana and Gurdaspur.

NIVT-1B-IR-TS-TAS, 2018-19
North Western Plains Zone
Individual Station Rust Data

SN	Variety	Code	Delhi	Ludhiana	Hisar		Karnal		Gurdaspur		Pantnagar	
			Yl	Yl	Yl	Br	Yl	Br	Yl	Br	Yl	Br
1	HD3326	N-202	5S	10MS	tMS	0	tMR	tS	5S	0	0	0
2	HUW834	N-203	0	20MS	0	tMR	0	15MS	20S	0	0	0
3	K1803	N-204	5S	20S	0	0	tMR	5R	10S	0	0	0
4	DBW286	N-205	0	5MR	0	0	0	5MR	tMS	0	0	0
5	DBW287	N-206	10S	5S	0	tMS	0	tMR	tR	0	0	0
6	UP3029	N-207	0	5S	0	tMS	0	10S	tR	0	0	0
7	Raj4540	N-208	0	tMR	0	0	tMR	0	tR	0	0	0
8	NW7064	N-210	0	tMS	0	0	0	tMR	tR	0	0	0
9	UP3031	N-211	0	5MS	5S	0	tMR	20S	tMS	0	0	0
10	PBW807	N-212	3MR	5S	0	tMS	0	0	20MS	0	0	5S
11	BRW3829	N-213	8S	60S	tMS	tMR	tMR	5S	40S	0	0	0
12	NWS2106	N-214	5S	20MS	0	5S	tMS	10S	10MS	tR	tS	0
13	WH1259	N-215	10S	tMR	0	0	0	10S	5S	0	0	0
14	HUW835	N-216	3S	20S	0	tMS	10S	5S	20S	0	tS	0
15	Raj4541	N-217	0	tMR	tMS	0	tS	0	20MS	0	0	0
16	PBW808	N-218	3S	tMR	0	0	5MS	tMR	10S	0	0	0
17	DBW305	N-219	5S	40S	0	0	0	10S	20MS	0	0	0
18	HD3327	N-220	0	tMR	0	5MS	0	0	5S	0	0	0
19	BRW3838	N-221	0	40S	0	5MR	tMR	10S	10MS	0	0	0
20	HD3328	N-222	3S	20MS	MR	0	tMR	0	20S	0	0	0
21	NW7057	N-223	0	tMR	tMS	0	0	0	5S	0	0	0
22	DBW288	N-224	5S	5MS	0	0	tMR	0	5MS	0	0	0
23	NW7075	N-226	8S	40S	tMS	5S	10S	20MS	20S	0	tMS	5S
24	K1804	N-228	8S	60S	0	15S	0	10S	40S	0	0	20S
25	WH1260	N-229	0	5S	0	tMS	tS	5S	5S	0	0	0
26	HD3325	N-230	3S	10S	R	0	15S	10S	10S	0	0	5S
27	UP3030	N-231	5S	20S	tMR	0	tMS	0	10S	0	0	0
28	DBW285	N-232	0	20S	0	5S	tMR	5MR	5S	0	0	0
29	K1805	N-233	0	5MS	0	0	5MR	0	tMS	0	0	0
30	HD3324	N-234	3S	0	0	tMR	tMR	5MR	10MS	0	0	0
31	KRL429	N-235	8S	40S	tMS	5MS	tMR	0	10MS	0	0	0
32	KRL423	N-236	0	5MR	0	tMS	tMR	5R	5S	0	0	0
33	HD2967 (C)	N-201	20S	60S	10S	tMS	15S	ts	60S	0	10S	0
34	DBW88 (C)	N-209	20S	40S	5MS	0	tMR	5MS	20S	0	0	0
35	HD3086 (C)	N-225	3S	tMR	0	tS	0	0	10S	0	0	5S
36	K1006 (C)	N-227	8S	40S	5S	tMS	0	10S	40S	0	0	0

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: NIVT-1B-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions		Agronomic Characteristics								Grain Characteristics			
			Br	Leaf Blight HS(Av.)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod .M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HD3326	N-202	0	46(24)	72-91	81	112-133	125	90-106	97	0	Ey	A	SH	34-50	43
2	HUW834	N-203	0	24(13)	75-92	83	115-133	126	81-103	95	0	Ey	A	SH	32-47	41
3	K1803	N-204	0	25(23)	76-95	85	111-138	126	92-111	101	0	Ey	A	H	32-52	44
4	DBW286	N-205	0	46(34)	76-94	84	114-133	124	82-111	98	40	Ey	A	SH	32-52	43
5	DBW287	N-206	0	46(35)	74-91	82	114-138	124	79-112	96	25	Ey	A	SH	32-49	44
6	UP3029	N-207	tR	46(24)	68-86	78	111-131	123	84-111	97	35	Ey	A	SH	33-67	47
7	Raj4540	N-208	0	68(35)	76-90	83	114-129	123	88-108	95	35	Ey	A	SH	26-51	41
8	NW7064	N-210	0	68(34)	69-90	82	111-132	123	92-107	99	0	Ey	A	H	30-51	40
9	UP3031	N-211	10S	68(24)	71-89	80	114-131	124	91-111	102	25	Ey	A	SH	30-46	40
10	PBW807	N-212	0	35(23)	65-84	75	112-127	122	87-105	94	5	M	A	SH	35-49	42
11	BRW3829	N-213	0	57(35)	67-89	77	114-130	124	92-151	124	55	Ey	A	H	34-52	45
12	NWS2106	N-214	0	46(35)	71-91	80	112-132	123	90-112	100	0	Ey	A	SH	34-55	45
13	WH1259	N-215	0	56(34)	76-94	84	112-132	125	87-102	96	0	Ey	A	SH	34-51	44
14	HUW835	N-216	0	36(24)	76-90	82	115-130	124	85-102	97	8	Ey	A	SH	34-51	43
15	Raj4541	N-217	0	68(35)	70-88	80	113-132	122	83-105	95	30	Ey	A	H	34-47	40
16	PBW808	N-218	0	68(34)	71-85	77	108-138	122	90-105	99	30	Ey	A	SH	32-48	44
17	DBW305	N-219	0	57(23)	75-90	82	116-134	125	89-96	92	0	Ey	A	H	34-51	42
18	HD3327	N-220	0	46(34)	72-93	82	113-137	125	91-108	101	5	Ey	A	SH	34-54	42
19	BRW3838	N-221	0	57(24)	75-91	82	115-134	125	84-113	102	5	Ey	A	H	35-48	42
20	HD3328	N-222	0	35(24)	76-95	86	116-139	127	88-107	97	0	Ey	A	H	34-43	39
21	NW7057	N-223	0	34(24)	75-90	82	110-132	121	91-108	98	10	Ey	A	H	32-48	39
22	DBW288	N-224	0	34(24)	74-91	81	112-132	124	87-101	94	10	Ey	A	SH	36-58	49
23	NW7075	N-226	0	46(24)	76-91	83	114-132	124	92-111	100	0	Ey	A	H	32-57	44
24	K1804	N-228	0	68(35)	62-92	74	97-128	118	80-105	88	25	Ey	A	SH	32-41	37
25	WH1260	N-229	0	45(24)	75-94	83	110-132	123	86-115	96	0	Ey	A	H	32-51	42
26	HD3325	N-230	0	46(24)	76-95	85	116-137	126	87-102	95	0	Ey	A	H	34-51	44
27	UP3030	N-231	0	57(34)	65-83	76	109-129	122	80-113	92	15	Ey	A	H	32-51	41
28	DBW285	N-232	0	36(23)	77-94	87	114-138	128	91-112	100	0	Ey	A	H	33-45	39
29	K1805	N-233	tR	45(24)	81-96	88	114-138	129	87-110	100	5	Ey	A	SH	34-45	39
30	HD3324	N-234	0	68(24)	75-93	85	116-135	126	87-117	100	15	Ey	A	SH	34-48	41
31	KRL429	N-235	0	46(24)	75-93	86	116-137	130	92-112	100	0	Ey	A	H	34-51	43
32	KRL423	N-236	0	57(34)	75-91	83	114-131	124	92-109	99	5	Ey	A	SH	35-53	44
33	HD2967 (C)	N-201	tR	35(23)	75-99	89	115-139	130	83-107	98	0	Ey	A	SH	30-49	39
34	DBW88 (C)	N-209	0	68(24)	74-91	82	112-134	125	88-101	94	10	Ey	A	H	32-49	40
35	HD3086 (C)	N-225	10S	56(34)	70-89	79	114-133	122	90-103	96	15	Ey	A	H	34-48	42
36	K1006 (C)	N-227	5S	46(25	70-91	81	114-133	124	90-116	99	0	Ey	A	H	34-47	40

1. Ancillary data from Burdwan, Coochbehar, Faizabad, IARI-Pusa, RPCAU, Pusa, Kalyani, Kanpur, Ranchi, Sabour, Shillongani and Varanasi.
2. Brown rust data from Sabour centre.
3. Leaf blight data from Burdwan, Coochbehar, Faizabad, Kalyani, Sabour and Shillongani.

NIVT-1B-IR-TS-TAS, 2018-19
North Eastern Plains Zone
Individual Station Leaf Blight Data

SN	Variety	Code	Burdwan	Coochbehar	Faizabad	Kalyani	Sabour	Shillongani
1	HD3326	N-202	34	12	24	23	46	24
2	HUW834	N-203	23	12	12	12	24	12
3	K1803	N-204	24	23	12	12	25	12
4	DBW286	N-205	25	34	23	23	46	24
5	DBW287	N-206	45	34	24	12	46	26
6	UP3029	N-207	35	23	46	23	25	00
7	Raj4540	N-208	35	23	46	24	68	24
8	NW7064	N-210	45	23	23	12	68	00
9	UP3031	N-211	23	23	12	23	68	00
10	PBW807	N-212	24	23	12	24	35	12
11	BRW3829	N-213	34	34	12	23	57	37
12	NWS2106	N-214	34	34	25	01	46	24
13	WH1259	N-215	56	12	24	23	46	14
14	HUW835	N-216	24	12	36	24	25	13
15	Raj4541	N-217	23	35	36	23	68	35
16	PBW808	N-218	45	23	12	12	68	24
17	DBW305	N-219	34	23	12	12	57	12
18	HD3327	N-220	34	34	23	12	46	23
19	BRW3838	N-221	35	12	24	12	57	25
20	HD3328	N-222	35	12	25	12	35	00
21	NW7057	N-223	25	34	24	24	25	01
22	DBW288	N-224	34	23	24	13	03	01
23	NW7075	N-226	45	23	12	24	46	12
24	K1804	N-228	25	34	46	24	68	35
25	WH1260	N-229	24	12	45	01	23	24
26	HD3325	N-230	35	23	12	23	46	13
27	UP3030	N-231	25	34	12	12	57	46
28	DBW285	N-232	36	12	24	12	23	13
29	K1805	N-233	45	12	24	12	24	24
30	HD3324	N-234	24	12	12	24	68	01
31	KRL429	N-235	24	12	12	12	46	26
32	KRL423	N-236	25	23	12	23	57	45
33	HD2967 (C)	N-201	35	12	25	01	25	00
34	DBW88 (C)	N-209	24	23	24	12	68	12
35	HD3086 (C)	N-225	56	34	12	23	35	12
36	K1006 (C)	N-227	35	12	35	00	46	00

1803-NIVT-2-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	CZ															
			MP										Chhattisgarh			Gujarat		
			Indore			Powarkheda			Gwalior			Jabalpur			Bilaspur			Junagarh		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MP 3522	N-301	61.5	11	0	60.9	18	0	54.9	30	0	54.3	24	0	48.9	13	1	38.3	36	0
2	NIAW 3592	N-302	56.1	19	0	58.9	23	0	69.0	11	1	57.6	19	0	41.5	26	0	42.6	27	0
3	DBW 289	N-303	64.3	7	0	76.5	1	1	72.4	7	1	51.2	32	0	37.3	29	0	46.1	14	1
4	NIAW 3584	N-304	49.8	25	0	58.3	24	0	63.6	23	0	61.1	14	1	37.3	28	0	40.9	30	0
5	WH 1262	N-305	51.8	22	0	56.8	28	0	71.0	9	1	44.4	36	0	44.1	22	0	44.6	22	0
6	HI 1636	N-306	67.8	6	1	72.3	3	1	51.6	31	0	51.3	31	0	48.3	14	1	46.9	10	1
7	HI 1637	N-307	71.2	3	1	63.5	12	0	75.3	3	1	62.4	13	1	42.4	25	0	47.8	7	1
8	HI 1638	N-308	60.1	14	0	69.8	4	1	50.7	32	0	68.7	1	1	50.9	10	1	43.1	26	0
9	TAW 155	N-309	57.2	16	0	63.5	12	0	64.0	21	0	62.9	9	1	54.4	5	1	45.4	16	1
10	HI 1640	N-310	38.5	36	0	53.1	32	0	70.5	10	1	56.1	21	0	32.9	33	0	45.2	17	0
11	HI 1639	N-311	71.7	2	1	65.1	11	0	64.1	20	0	55.7	22	0	40.7	27	0	39.8	33	0
12	HW 1904	N-312	49.3	26	0	58.3	24	0	65.1	17	0	53.0	27	0	36.5	31	0	47.8	6	1
13	MP 3521	N-313	70.2	5	1	63.5	12	0	65.1	18	0	52.2	29	0	24.1	36	0	47.2	9	1
14	RVW 4265	N-314	40.0	34	0	56.3	29	0	60.6	27	0	64.5	7	1	46.6	18	0	41.9	29	0
15	MP 1359	N-315	60.8	12	0	66.8	7	0	57.9	29	0	60.7	15	1	55.3	2	1	45.1	19	0
16	MP 1361	N-316	57.3	15	0	75.8	2	1	64.5	19	0	63.3	8	1	57.5	1	1	45.1	18	0
17	UAS 3006	N-318	54.9	20	0	61.5	17	0	59.1	28	0	60.4	16	1	42.5	24	0	46.6	12	1
18	MP 1360	N-319	46.2	30	0	53.6	31	0	72.7	6	1	59.6	17	0	51.1	9	1	47.4	8	1
19	MACS 6742	N-320	62.3	10	0	60.9	20	0	75.1	4	1	53.6	25	0	46.8	17	0	43.4	24	0
20	MACS 6745	N-321	60.7	13	0	60.9	18	0	72.9	5	1	66.1	5	1	52.0	8	1	48.4	4	1
21	NW S2118	N-322	56.8	18	0	57.8	27	0	66.0	16	1	54.3	23	0	30.6	34	0	44.4	23	0
22	CG 1031	N-323	53.7	21	0	62.5	15	0	67.8	13	1	66.4	3	1	50.4	11	1	45.0	20	0
23	RVW 4266	N-324	56.9	17	0	67.8	6	0	78.2	1	1	59.5	18	0	45.1	20	0	42.4	28	0
24	TAW 153	N-325	62.5	9	0	55.2	30	0	62.2	25	0	66.1	4	1	46.2	19	0	48.9	3	1
25	PBW 810	N-326	45.3	31	0	66.7	8	0	50.4	33	0	51.8	30	0	54.9	3	1	44.8	21	0
26	UP 3032	N-327	39.5	35	0	51.6	33	0	43.8	34	0	44.8	35	0	35.8	32	0	39.5	35	0
27	Raj 4542	N-328	42.1	33	0	48.4	35	0	40.0	35	0	62.9	10	1	29.6	35	0	43.3	25	0
28	UAS 3005	N-329	43.7	32	0	49.5	34	0	38.2	36	0	52.3	28	0	36.7	30	0	39.6	34	0
29	NW S2108	N-330	50.0	24	0	66.1	10	0	67.8	14	1	57.4	20	0	44.0	23	0	45.7	15	1
30	GW 513	N-331	72.7	1	1	58.0	26	0	63.4	24	0	49.3	33	0	54.7	4	1	50.6	1	1
31	GW 514	N-332	48.5	28	0	44.8	36	0	63.8	22	0	65.9	6	1	44.6	21	0	40.4	32	0
32	MAC S6747	N-333	63.9	8	0	60.9	20	0	67.9	12	1	68.0	2	1	53.3	7	1	46.8	11	1
33	GW 322 (C)	N-317	48.9	27	0	62.5	15	0	61.5	26	0	62.6	11	1	50.0	12	1	49.5	2	1
34	MACS 6222 (C)	N-334	47.8	29	0	59.6	22	0	77.7	2	1	53.3	26	0	54.1	6	1	48.2	5	1
35	MACS 6478 (C)	N-335	51.3	23	0	66.7	8	0	66.1	15	1	62.5	12	1	47.0	16	0	46.5	13	1
36	HI 1544 (C)	N-336	70.4	4	1	69.6	5	1	71.7	8	1	44.9	34	0	47.8	15	0	40.4	31	0
G.M.			55.7			61.2			63.5			57.8			44.9			44.7		
S.E.(M)			2.921			3.135			5.256			3.745			3.937			2.263		
C.D. (10%)			7.1			7.5			12.6			8.9			9.5			5.4		
C.V.			7.4			7.2			11.7			9.2			12.4			7.2		
D.O.S.(dd.mm.yy)			12.11.18			15.11.18			12.11.18			16.11.18			14.11.18			15.11.18		

No. of Trials : Proposed and Conducted =17
Trials not reported (02) = Parbhani (HCV), Sagar (RMT)

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LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	CZ						PZ					
			Gujarat			Rajasthan				Maharashtra				
			Vijapur			Kota		Udaipur		Niphad		Pune		Akola	
			Yield	RK	G	Yield	RK G	Yield	RK G	Yield	RK G	Yield	RK G	Yield	RK G
1	MP 3522	N-301	63.6	15	0	56.1	21 0	60.3	4 1	57.2	16 0	61.9	14 0	42.8	12 1
2	NIAW 3592	N-302	58.4	27	0	54.1	26 0	46.7	15 0	59.1	13 0	61.9	15 0	48.6	1 1
3	DBW 289	N-303	65.3	7	1	64.4	6 1	40.7	26 0	63.0	6 1	62.4	11 0	45.8	6 1
4	NIAW 3584	N-304	64.9	9	1	62.1	11 0	56.3	8 1	53.0	27 0	66.6	2 1	39.9	24 0
5	WH 1262	N-305	66.7	3	1	50.1	33 0	61.5	2 1	51.5	29 0	60.1	23 0	38.8	28 0
6	HI 1636	N-306	64.4	13	0	67.6	5 1	63.5	1 1	59.7	11 0	58.4	26 0	44.3	8 1
7	HI 1637	N-307	58.6	26	0	70.2	3 1	40.9	25 0	70.3	1 1	61.6	17 0	41.0	19 0
8	HI 1638	N-308	58.9	25	0	74.6	1 1	46.4	16 0	56.5	19 0	56.8	31 0	39.4	26 0
9	TAW 155	N-309	64.5	12	0	69.5	4 1	51.2	12 0	59.0	14 0	58.4	27 0	42.7	13 1
10	HI 1640	N-310	65.6	5	1	54.8	25 0	36.4	32 0	69.1	2 1	52.7	36 0	35.8	33 0
11	HI 1639	N-311	63.5	16	0	62.9	10 0	50.1	13 0	61.1	8 1	61.2	19 0	46.7	3 1
12	HW 1904	N-312	64.6	11	0	61.3	12 0	45.3	17 0	59.9	10 1	61.1	20 0	46.5	4 1
13	MP 3521	N-313	63.3	17	0	73.7	2 1	45.2	19 0	61.7	7 1	60.5	22 0	39.4	25 0
14	RVW 4265	N-314	53.2	33	0	59.6	16 0	37.4	31 0	42.2	36 0	53.0	34 0	32.3	36 0
15	MP 1359	N-315	56.9	29	0	55.0	23 0	40.9	24 0	48.9	32 0	65.9	3 1	40.0	23 0
16	MP 1361	N-316	65.5	6	1	63.4	9 0	37.9	30 0	54.0	25 0	68.4	1 1	45.7	7 1
17	UAS 3006	N-318	53.6	32	0	44.3	35 0	36.1	33 0	54.1	23 0	64.3	7 1	47.8	2 1
18	MP 1360	N-319	64.9	9	1	56.3	20 0	45.3	18 0	57.9	15 0	61.8	16 0	43.4	11 1
19	MACS 6742	N-320	63.2	18	0	54.0	27 0	34.6	36 0	59.3	12 0	60.6	21 0	34.9	35 0
20	MACS 6745	N-321	59.4	23	0	53.5	28 0	35.2	35 0	60.6	9 1	65.3	5 1	44.2	9 1
21	NW S2118	N-322	58.9	24	0	51.5	30 0	51.7	10 0	50.9	31 0	57.8	29 0	40.5	20 0
22	CG 1031	N-323	51.8	35	0	64.2	7 0	40.6	27 0	54.4	22 0	64.7	6 1	42.4	14 1
23	RVW 4266	N-324	61.3	21	0	55.7	22 0	48.3	14 0	65.3	4 1	58.6	24 0	38.6	29 0
24	TAW 153	N-325	67.1	2	1	59.7	15 0	58.9	5 1	52.8	28 0	65.9	4 1	43.5	10 1
25	PBW 810	N-326	62.2	20	0	58.1	17 0	43.6	21 0	54.1	24 0	57.7	30 0	35.9	32 0
26	UP 3032	N-327	56.4	30	0	42.3	36 0	41.0	23 0	43.0	35 0	52.8	35 0	37.6	31 0
27	Raj 4542	N-328	57.3	28	0	51.2	31 0	38.8	29 0	48.7	33 0	58.6	25 0	42.3	15 1
28	UAS 3005	N-329	49.2	36	0	51.6	29 0	40.3	28 0	44.2	34 0	55.7	33 0	41.8	17 0
29	NW S2108	N-330	54.7	31	0	64.1	8 0	44.0	20 0	56.7	18 0	62.9	10 1	37.9	30 0
30	GW 513	N-331	69.9	1	1	60.9	14 0	61.0	3 1	66.8	3 1	56.6	32 0	40.5	20 0
31	GW 514	N-332	65.1	8	1	47.1	34 0	57.9	6 1	56.0	21 0	58.3	28 0	35.0	34 0
32	MAC S6747	N-333	64.4	14	0	50.7	32 0	57.5	7 1	57.1	17 0	62.0	13 0	41.4	18 0
33	GW 322 (C)	N-317	62.3	19	0	54.9	24 0	51.7	10 0	56.3	20 0	62.2	12 0	46.3	5 1
34	MACS 6222 (C)	N-334	65.9	4	1	61.0	13 0	54.9	9 1	53.6	26 0	63.2	9 1	40.3	22 0
35	MACS 6478 (C)	N-335	52.7	34	0	57.4	19 0	43.6	21 0	51.4	30 0	63.8	8 1	39.0	27 0
36	HI 1544 (C)	N-336	61.3	22	0	58.0	18 0	35.8	34 0	63.2	5 1	61.4	18 0	42.2	16 1
G.M.			61.1			58.2		46.7		56.5		60.7		41.3	
S.E.(M)			2.210			4.303		3.581		4.413		2.344		2.729	
C.D. (10%)			5.3			10.4		8.6		10.5		5.6		6.5	
C.V.			5.1			10.5		10.8		11.1		5.5		9.4	
D.O.S.(dd.mm.yy)			19.11.18			18.11.18		17.11.18		14.11.18		15.11.18		12.11.18	

1803-NIVT-2-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	PZ								
			Karnataka								
			Dharwad			UgarKhurd			Nippani		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MP 3522	N-301	40.3	23	0	39.2	24	0	57.7	9	0
2	NIAW 3592	N-302	42.8	14	1	44.4	9	0	45.6	21	0
3	DBW 289	N-303	40.5	22	0	43.4	14	0	58.5	7	0
4	NIAW 3584	N-304	38.0	29	0	44.0	13	0	54.2	15	0
5	WH 1262	N-305	40.8	20	0	39.5	23	0	55.8	11	0
6	HI 1636	N-306	38.7	27	0	35.1	33	0	29.3	35	0
7	HI 1637	N-307	41.1	18	0	38.8	25	0	62.3	4	1
8	HI 1638	N-308	34.6	31	0	35.7	32	0	69.2	2	1
9	TAW 155	N-309	37.6	30	0	42.2	19	0	40.8	30	0
10	HI 1640	N-310	32.7	32	0	40.2	21	0	72.7	1	1
11	HI 1639	N-311	31.3	33	0	37.6	28	0	64.0	3	1
12	HW 1904	N-312	40.8	19	0	37.3	30	0	49.4	18	0
13	MP 3521	N-313	29.3	35	0	45.2	6	0	42.1	29	0
14	RVW 4265	N-314	43.5	11	1	45.0	7	0	45.4	23	0
15	MP 1359	N-315	45.3	7	1	31.7	35	0	55.4	13	0
16	MP 1361	N-316	40.1	24	0	52.4	2	1	55.6	12	0
17	UAS 3006	N-318	47.9	4	1	45.7	4	0	33.1	33	0
18	MP 1360	N-319	31.0	34	0	44.1	12	0	45.7	20	0
19	MACS 6742	N-320	47.9	3	1	41.2	20	0	35.7	31	0
20	MACS 6745	N-321	50.6	1	1	45.3	5	0	44.8	25	0
21	NW S2118	N-322	42.2	16	1	33.9	34	0	42.7	28	0
22	CG 1031	N-323	48.9	2	1	44.2	10	0	55.2	14	0
23	RVW 4266	N-324	38.1	28	0	38.2	26	0	43.8	27	0
24	TAW 153	N-325	45.6	6	1	43.1	17	0	49.4	18	0
25	PBW 810	N-326	28.0	36	0	43.3	15	0	51.5	16	0
26	UP 3032	N-327	40.7	21	0	35.9	31	0	50.4	17	0
27	Raj 4542	N-328	42.4	15	1	44.2	10	0	45.6	21	0
28	UAS 3005	N-329	44.7	8	1	31.7	35	0	56.3	10	0
29	NW S2108	N-330	43.6	10	1	56.9	1	1	33.3	32	0
30	GW 513	N-331	39.5	26	0	40.1	22	0	61.9	5	1
31	GW 514	N-332	39.8	25	0	42.5	18	0	44.1	26	0
32	MAC S6747	N-333	43.1	12	1	38.2	26	0	45.2	24	0
33	GW 322 (C)	N-317	44.5	9	1	48.8	3	0	28.8	36	0
34	MACS 6222 (C)	N-334	42.9	13	1	44.5	8	0	58.3	8	0
35	MACS 6478 (C)	N-335	41.9	17	0	37.5	29	0	31.3	34	0
36	HI 1544 (C)	N-336	47.6	5	1	43.2	16	0	60.2	6	0
G.M.			40.8			41.5			49.3		
S.E.(M)			3.576			3.268			4.744		
C.D. (10%)			8.6			7.8			11.3		
C.V.			12.4			11.1			13.6		
D.O.S.(dd.mm.yy)			06.11.18			15.11.18			14.11.18		

1803-NIVT-2-IR-TS-TAS-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

S.N	Variety	Code	CZ			PZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MP 3522	N-301	55.4	19	0	49.8	13	1	53.2	16	0
2	NIAW 3592	N-302	53.9	26	0	50.4	10	1	52.5	19	0
3	DBW 289	N-303	57.6	10	1	52.3	4	1	55.4	4	1
4	NIAW 3584	N-304	54.9	21	0	49.3	14	0	52.7	18	0
5	WH 1262	N-305	54.5	25	0	47.7	22	0	51.8	24	0
6	HI 1636	N-306	59.3	2	1	44.3	33	0	53.3	14	0
7	HI 1637	N-307	59.1	5	1	52.5	3	1	56.5	1	1
8	HI 1638	N-308	58.1	8	1	48.7	17	0	54.4	11	1
9	TAW 155	N-309	59.2	4	1	46.8	26	0	54.2	12	0
10	HI 1640	N-310	50.3	33	0	50.5	8	1	50.4	28	0
11	HI 1639	N-311	57.1	12	0	50.3	11	1	54.4	10	1
12	HW 1904	N-312	53.5	27	0	49.2	15	0	51.8	25	0
13	MP 3521	N-313	56.0	14	0	46.4	28	0	52.2	22	0
14	RVW 4265	N-314	51.1	31	0	43.6	35	0	48.1	33	0
15	MP 1359	N-315	55.5	18	0	47.9	19	0	52.4	20	0
16	MP 1361	N-316	58.9	6	1	52.7	2	1	56.4	2	1
17	UAS 3006	N-318	51.0	32	0	48.8	16	0	50.1	30	0
18	MP 1360	N-319	55.2	20	0	47.3	23	0	52.1	23	0
19	MACS 6742	N-320	54.9	22	0	46.6	27	0	51.6	26	0
20	MACS 6745	N-321	56.6	13	0	51.8	5	1	54.7	8	1
21	NW S2118	N-322	52.4	30	0	44.7	32	0	49.3	32	0
22	CG 1031	N-323	55.8	16	0	51.6	6	1	54.1	13	0
23	RVW 4266	N-324	57.3	11	0	47.1	24	0	53.2	15	0
24	TAW 153	N-325	58.5	7	1	50.0	12	1	55.1	5	1
25	PBW 810	N-326	53.1	29	0	45.1	31	0	49.9	31	0
26	UP 3032	N-327	43.8	36	0	43.4	36	0	43.7	36	0
27	Raj 4542	N-328	45.9	34	0	47.0	25	0	46.4	34	0
28	UAS 3005	N-329	44.6	35	0	45.7	30	0	45.0	35	0
29	NW S2108	N-330	54.9	23	0	48.5	18	0	52.3	21	0
30	GW 513	N-331	60.1	1	1	50.9	7	1	56.4	3	1
31	GW 514	N-332	53.1	28	0	46.0	29	0	50.2	29	0
32	MAC S6747	N-333	59.3	3	1	47.8	20	0	54.7	7	1
33	GW 322 (C)	N-317	56.0	15	0	47.8	21	0	52.7	17	0
34	MACS 6222 (C)	N-334	58.1	9	1	50.5	9	1	55.0	6	1
35	MACS 6478 (C)	N-335	54.8	24	0	44.1	34	0	50.6	27	0
36	HI 1544 (C)	N-336	55.5	17	0	53.0	1	1	54.5	9	1
G.M.			54.9			48.3			52.3		
S.E.(M)			1.201			1.476			0.932		
C.D. (10%)			2.8			3.4			2.2		

Summary of Disease Data and Agronomic Characteristics

Central Zone **Trial: NIVT 2-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction		Agronomic Characteristics								Grain Characteristics			
			Br	Bl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	MP3522	N-301	5R	10MR	54-87	72	99-142	124	81-117	99	20	M	A	SH	38-53	45
2	NIAW3592	N-302	0	tR	52-84	72	96-139	122	78-107	92	10	M	A	SH	41-53	46
3	DBW289	N-303	0	tR	50-84	69	97-139	122	84-115	101	15	M	A	SH	42-55	46
4	NIAW3584	N-304	tR	tMR	57-89	74	104-143	124	82-103	95	25	M	A	SH	37-49	42
5	WH1262	N-305	0	0	57-90	78	100-142	126	88-114	103	20	M	A	SH	39-57	45
6	HI1636	N-306	0	tR	50-83	69	97-139	123	85-114	100	30	M	A	SH	41-56	50
7	HI1637	N-307	0	0	48-81	66	98-136	122	75-96	89	0	M	A	SH	42-52	47
8	HI1638	N-308	0	0	54-86	71	97-140	122	87-112	102	50	M	A	SH	37-50	45
9	TAW155	N-309	tR	tMR	53-85	71	99-141	123	79-109	98	10	M	A	SH	29-50	41
10	HI1640	N-310	tR	tR	44-80	64	98-136	120	66-95	82	5	M	A	SH	38-44	41
11	HI1639	N-311	tR	tMR	45-81	66	93-138	120	73-100	91	20	M	A	SH	39-49	45
12	HW 1904	N-312	0	0	54-85	70	106-142	126	71-105	83	30	M	A	SH	30-43	36
13	MP3521	N-313	0	0	45-80	65	94-136	121	72-100	89	0	M	A	SH	36-44	40
14	RVW4265	N-314	5S	tMR	72-93	81	112-138	128	76-101	87	10	M	A	SH	39-47	43
15	MP1359	N-315	tR	tMR	56-89	75	100-143	124	82-113	100	20	M	A	SH	32-41	37
16	MP1361	N-316	tR	tMR	53-87	73	95-138	123	80-114	98	0	M	A	SH	38-61	47
17	UAS3006	N-318	tR	tMR	62-90	78	108-140	126	90-114	102	15	M	A	SH	36-47	40
18	MP1360	N-319	0	0	58-88	76	100-143	125	85-122	103	15	M	A	SH	39-52	45
19	MACS6742	N-320	0	tR	53-85	69	101-139	123	81-109	95	0	M	A	SH	39-47	43
20	MACS6745	N-321	0	tR	55-84	71	101-140	124	83-110	98	35	M	A	SH	37-47	43
21	NWS2118	N-322	0	tR	55-88	75	100-139	124	80-111	97	5	M	A	SH	36-56	43
22	CG1031	N-323	10MS	40MS	58-92	77	105-142	125	79-113	100	0	M	A	SH	36-54	44
23	RVW4266	N-324	0	tR	51-85	68	95-139	122	71-88	83	0	M	A	SH	39-46	42
24	TAW153	N-325	0	tR	57-89	75	104-139	126	85-110	100	60	M	A	SH	37-48	43
25	PBW810	N-326	tR	tMS	62-91	79	107-142	127	89-114	101	5	M	A	SH	41-52	45
26	UP3032	N-327	tR	tMR	64-95	83	110-144	130	85-107	99	10	M	A	SH	38-48	42
27	Raj4542	N-328	tR	tMR	65-94	81	109-142	129	88-112	101	20	M	A	SH	40-48	45
28	UAS3005	N-329	tR	20MR	63-95	82	110-143	129	90-121	105	25	M	A	SH	29-43	37
29	NWS2108	N-330	tR	20MR	63-89	78	108-141	127	84-109	96	0	M	A	SH	36-47	41
30	GW513	N-331	0	0	52-86	69	99-139	124	84-110	99	15	M	A	SH	42-54	46
31	GW514	N-332	0	tR	52-83	69	102-141	124	79-112	97	5	M	A	SH	43-53	48
32	MACS6747	N-333	0	tR	50-83	68	102-141	123	87-117	101	15	M	A	SH	41-54	48
33	GW322 (C)	N-317	tR	tS	55-84	72	104-139	124	79-101	93	15	M	A	SH	37-53	41
34	MACS6222 (C)	N-334	5R	10MR	60-94	77	105-143	127	79-113	95	0	M	A	SH	40-47	45
35	MACS6478 (C)	N-335	tR	10S	59-90	78	105-141	127	77-101	91	5	M	A	SH	37-52	43
36	HI1544 (C)	N-336	0	tR	49-80	66	97-136	122	75-109	94	10	M	A	SH	41-48	43

1. Ancillary data from Udaipur, Junagarh, Gwalior, Jabalpur, Vijapur, Bilaspur, Powarkheda, Indore and Kota.
2. Brown and Black rust data from Vijapur centre only. 3.Data on Lodging is from Udaipur, Gwalior and Powarkheda.

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: NIVT 2-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction		Agronomic Characteristics								Grain Characteristics			
			Br	Bl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	MP3522	N-301	0	0	54-66	60	98-119	106	69-101	85	0	M	A	SH	36-51	45
2	NIAW3592	N-302	0	0	54-65	59	98-118	106	71-92	85	0	M	A	SH	42-52	47
3	DBW289	N-303	0	0	51-66	58	95-119	107	81-107	93	0	M	A	SH	39-45	44
4	NIAW3584	N-304	0	0	54-75	63	104-128	110	71-99	91	0	Ey	A	SH	37-47	40
5	WH1262	N-305	tMS	0	60-75	65	106-127	110	85-106	95	0	M	A	SH	39-46	44
6	HI1636	N-306	0	0	51-66	58	100-119	107	71-102	86	0	Ey	A	SH	44-55	50
7	HI1637	N-307	0	0	50-68	57	96-118	106	70-94	81	0	M	A	SH	34-49	44
8	HI1638	N-308	0	0	53-67	59	99-121	107	75-107	90	0	M	A	SH	40-51	44
9	TAW155	N-309	0	0	54-70	61	101-121	110	75-97	88	0	M	A	SH	39-49	42
10	HI1640	N-310	0	0	44-64	53	92-116	103	57-88	74	0	Ey	A	SH	40-47	42
11	HI1639	N-311	0	0	49-63	54	94-119	102	67-95	80	0	M	A	SH	39-51	46
12	HW 1904	N-312	0	0	53-66	58	97-120	106	66-92	78	5	Ey	A	SH	30-58	37
13	MP3521	N-313	0	0	44-61	53	92-116	102	70-90	81	0	M	A	SH	39-44	42
14	RVW4265	N-314	0	0	53-78	66	105-117	112	67-93	85	0	M	A	SH	32-53	41
15	MP1359	N-315	5S	0	54-68	59	100-122	108	73-105	88	0	M	A	SH	33-51	40
16	MP1361	N-316	0	0	54-73	62	98-126	108	77-102	90	0	M	A	SH	44-54	48
17	UAS3006	N-318	0	0	56-80	67	105-131	113	84-107	99	0	M	A	SH	31-53	42
18	MP1360	N-319	0	0	60-75	66	104-128	111	77-101	87	0	Ey	A	SH	40-50	45
19	MACS6742	N-320	0	0	54-65	58	101-118	107	78-99	90	0	Ey	A	SH	36-55	44
20	MACS6745	N-321	0	0	55-77	64	104-122	111	72-99	89	0	M	A	SH	35-52	42
21	NWS2118	N-322	10S	0	58-75	65	105-129	112	74-96	89	0	M	A	SH	33-52	40
22	CG1031	N-323	5S	5MS	61-81	67	105-132	111	80-103	91	0	M	A	SH	32-50	44
23	RVW4266	N-324	0	0	52-64	58	98-118	107	63-93	81	0	M	A	SH	39-53	44
24	TAW153	N-325	0	0	56-71	65	105-122	111	76-99	89	0	M	A	SH	34-49	42
25	PBW810	N-326	0	tMS	60-78	71	106-129	115	81-106	95	0	Ey	A	SH	35-53	42
26	UP3032	N-327	0	0	55-84	71	109-133	115	73-101	92	10	M	A	SH	34-56	44
27	Raj4542	N-328	0	0	63-83	70	109-132	115	71-106	92	0	Ey	A	SH	38-52	45
28	UAS3005	N-329	5S	0	57-82	68	108-130	114	77-106	91	0	Ey	A	SH	29-57	38
29	NWS2108	N-330	0	0	53-75	62	98-127	109	70-100	91	0	M	A	SH	35-56	44
30	GW513	N-331	0	0	51-73	58	97-118	107	77-101	89	0	Ey	A	SH	39-48	44
31	GW514	N-332	0	0	48-72	58	94-119	107	69-99	89	0	M	A	SH	43-50	46
32	MACS6747	N-333	0	0	54-66	61	103-119	108	76-105	90	0	M	A	SH	39-51	47
33	GW322 (C)	N-317	0	0	56-71	63	106-122	111	75-102	90	0	Ey	A	SH	35-51	42
34	MACS6222 (C)	N-334	0	0	62-73	66	105-126	110	71-102	87	0	M	A	SH	34-51	44
35	MACS6478 (C)	N-335	30S	0	51-76	61	97-128	109	75-100	89	0	M	A	SH	34-48	41
36	HI1544 (C)	N-336	0	0	50-64	56	94-129	106	70-99	85	0	M	A	SH	40-46	43

1. Ancillary data from Prabhani, Pune, Dharwad, Ugar-Khurd, Akola, Niphad and Nippani.
2. Brown rust data from Ugar-Khurd; Black rust data fom Dharwad; 3. Data on Lodging and Black point from Pune centre only.

1804-NIVT-3A-IR-LS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	NWPZ											
			Delhi			Punjab					J&K		Haryana			
			Delhi			Gurdaspur			Ludhiana		Jammu		Karnal		Hisar	
			Yield	RK	G	Yield	RK	G	Yield	RK G	Yield	RK G	Yield	RK G	Yield	RK G
1	UP 3033	N-401	44.4	29	0	56.7	8	0	51.1	20 0	49.3	10 0	58.0	11 0	53.3	7 1
2	WH 1264	N-402	47.5	23	0	53.0	16	0	58.3	7 1	40.1	25 0	72.2	1 1	47.8	23 0
3	PBW 811	N-403	55.7	2	1	55.0	11	0	60.2	1 1	43.4	18 0	66.6	3 1	57.1	2 1
4	UP 3035	N-404	33.9	35	0	52.4	19	0	37.1	34 0	42.6	23 0	37.5	34 0	38.4	34 0
5	WH 1263	N-405	48.6	16	0	49.0	25	0	43.3	31 0	39.2	28 0	48.3	28 0	54.4	4 1
6	PBW 814	N-406	52.3	9	1	55.6	10	0	50.6	22 0	46.3	14 0	51.6	22 0	49.9	16 0
7	JKW 267	N-407	48.2	20	0	47.0	29	0	51.5	19 0	55.7	2 1	44.6	31 0	51.0	12 0
8	HD 3329	N-409	49.8	14	1	49.2	24	0	58.7	3 1	34.0	36 0	52.3	21 0	52.9	8 1
9	HD 3330	N-410	54.1	6	1	45.7	31	0	54.8	12 1	42.7	22 0	62.3	5 0	51.8	9 0
10	JAUW 673	N-411	45.7	28	0	45.8	30	0	49.3	24 0	36.5	32 0	55.9	17 0	51.0	13 0
11	HD 3334	N-413	54.3	5	1	64.2	3	0	56.0	10 1	54.0	4 1	56.0	16 0	49.8	18 0
12	Raj 4544	N-414	47.1	26	0	54.1	13	0	50.8	21 0	45.5	15 0	46.6	30 0	56.8	3 1
13	DBW 292	N-415	41.8	32	0	73.4	1	1	54.9	11 1	40.9	24 0	47.5	29 0	47.2	26 0
14	K 1808	N-416	51.7	10	1	58.3	7	0	48.7	25 0	35.5	33 0	54.8	19 0	49.8	17 0
15	UP 3034	N-417	39.5	33	0	52.4	18	0	38.6	33 0	43.3	19 0	48.6	26 0	50.5	15 0
16	JKW 261	N-418	54.5	4	1	54.4	12	0	54.2	14 1	44.3	16 0	57.2	13 0	51.4	11 0
17	WH 1266	N-419	47.8	22	0	48.7	26	0	45.8	28 0	43.2	20 0	57.0	14 0	57.7	1 1
18	DBW 291	N-420	48.2	19	0	56.1	9	0	54.3	13 1	50.8	7 1	49.6	25 0	53.7	6 1
19	JKW 268	N-422	46.5	27	0	54.1	14	0	52.8	16 0	43.5	17 0	59.6	9 0	41.4	31 0
20	DBW 294	N-423	47.4	24	0	50.4	23	0	58.6	6 1	38.7	29 0	60.4	6 0	37.1	35 0
21	HD 3332	N-424	55.8	1	1	48.4	27	0	58.7	4 1	47.1	12 0	59.4	10 0	48.1	21 0
22	NW 7062	N-425	51.5	11	1	43.6	32	0	56.9	8 1	49.8	8 0	56.5	15 0	40.4	32 0
23	HD 3333	N-426	48.6	17	0	40.8	35	0	52.2	18 0	35.4	34 0	48.3	27 0	39.1	33 0
24	DBW 290	N-427	52.6	8	1	65.5	2	0	46.8	26 0	54.6	3 1	60.2	8 0	47.9	22 0
25	WH 1265	N-428	47.2	25	0	59.6	5	0	45.0	30 0	39.2	27 0	44.5	32 0	50.8	14 0
26	PBW 812	N-429	53.2	7	1	50.4	22	0	46.2	27 0	52.9	5 1	68.1	2 1	48.5	20 0
27	PBW 813	N-430	49.5	15	1	59.0	6	0	58.6	5 1	49.8	9 0	57.6	12 0	46.4	27 0
28	DBW 293	N-431	51.4	12	1	50.5	21	0	52.7	17 0	37.4	31 0	55.7	18 0	45.3	28 0
29	HD 3331	N-432	55.3	3	1	47.3	28	0	45.3	29 0	58.0	1 1	63.9	4 0	51.5	10 0
30	NW 7053	N-433	48.4	18	0	52.3	20	0	50.1	23 0	52.6	6 1	51.4	23 0	43.8	29 0
31	Raj 4543	N-435	36.7	34	0	52.5	17	0	39.4	32 0	47.4	11 0	40.8	33 0	48.6	19 0
32	K 1807	N-436	32.2	36	0	42.0	33	0	35.8	35 0	42.9	21 0	36.3	35 0	33.9	36 0
33	DBW 173 (C)	N-408	51.2	13	1	62.4	4	0	59.2	2 1	35.4	35 0	60.4	7 0	47.4	25 0
34	HD 3059 (C)	N-412	42.0	31	0	41.9	34	0	53.9	15 1	39.4	26 0	51.0	24 0	47.4	24 0
35	DBW 107 (C)	N-421	48.0	21	0	54.1	15	0	56.3	9 1	46.4	13 0	54.1	20 0	53.7	5 1
36	HI 1563 (C)	N-434	42.3	30	0	38.2	36	0	34.7	36 0	37.9	30 0	22.3	36 0	42.8	30 0
G.M.			47.9			52.3			50.6		44.3		53.2		48.3	
S.E.(M)			2.870			2.925			2.723		3.309		3.210		2.367	
C.D. (10%)			6.9			7.1			6.6		8.0		7.8		5.7	
C.V.			8.5			7.9			7.6		10.6		8.5		6.9	
D.O.S.(dd.mm.yy)			18.12.18			19.12.18			15.12.18		20.12.18		16.12.18		11.12.18	

No. of Trials: Proposed and Conducted = 17
Trials not reported (01) = RPCAU-Pusa (LSM)

1804-NIVT-3A-IR-LS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NWPZ						NEPZ								
			Uttarakhand			Rajasthan			Uttar Pradesh						Bihar		
			Pantnagar			Durgapura			Kanpur			Faizabad			Varanasi			Sabour		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	UP 3033	N-401	46.1	22	0	53.8	7	0	44.3	7	0	41.8	33	0	46.1	19	0	31.5	30	0
2	WH 1264	N-402	52.7	6	0	52.1	11	0	29.2	36	0	48.8	14	0	48.1	14	0	37.6	13	0
3	PBW 811	N-403	56.8	1	1	66.0	2	1	49.2	2	1	54.7	4	1	46.5	16	0	36.9	18	0
4	UP 3035	N-404	31.3	35	0	41.1	32	0	39.4	18	0	43.0	28	0	39.0	36	0	28.9	34	0
5	WH 1263	N-405	43.3	28	0	42.8	25	0	41.4	12	0	45.4	19	0	42.8	31	0	32.3	26	0
6	PBW 814	N-406	48.1	19	0	49.8	15	0	37.0	25	0	44.7	21	0	52.1	6	0	34.3	20	0
7	JKW 267	N-407	40.9	32	0	49.2	16	0	31.5	34	0	42.6	29	0	43.4	29	0	33.8	22	0
8	HD 3329	N-409	49.7	13	0	48.0	20	0	36.5	29	0	49.5	13	0	55.7	1	1	41.7	10	0
9	HD 3330	N-410	41.3	30	0	42.8	25	0	38.2	23	0	42.4	32	0	47.1	15	0	39.2	12	0
10	JAUW 673	N-411	52.5	7	0	42.2	28	0	44.3	7	0	40.8	35	0	44.2	27	0	29.3	33	0
11	HD 3334	N-413	53.3	5	1	56.7	4	0	44.6	6	0	43.7	26	0	50.4	7	0	36.9	17	0
12	Raj 4544	N-414	49.8	12	0	40.5	34	0	40.8	13	0	43.9	25	0	49.8	10	0	42.5	9	0
13	DBW 292	N-415	40.9	31	0	52.1	11	0	44.6	4	0	46.9	18	0	44.5	23	0	47.2	3	1
14	K 1808	N-416	48.0	20	0	42.8	25	0	39.4	18	0	54.2	5	1	40.8	35	0	30.0	32	0
15	UP 3034	N-417	49.5	14	0	50.9	13	0	44.0	10	0	42.4	31	0	46.1	18	0	28.6	35	0
16	JKW 261	N-418	52.2	9	0	58.4	3	0	31.8	33	0	43.5	27	0	44.4	24	0	33.2	23	0
17	WH 1266	N-419	48.6	17	0	49.2	16	0	38.8	22	0	38.6	36	0	44.8	22	0	32.0	27	0
18	DBW 291	N-420	54.2	3	1	48.6	18	0	40.2	15	0	57.3	1	1	45.9	20	0	27.5	36	0
19	JKW 268	N-422	48.4	18	0	50.9	13	0	29.8	35	0	52.9	7	1	41.8	33	0	43.4	8	0
20	DBW 294	N-423	56.4	2	1	53.2	9	0	37.0	25	0	44.9	20	0	48.5	13	0	37.1	16	0
21	HD 3332	N-424	48.8	16	0	48.6	18	0	44.6	4	0	40.9	34	0	50.3	8	0	46.3	4	1
22	NW 7062	N-425	44.7	26	0	52.7	10	0	37.6	24	0	52.4	9	1	42.8	32	0	31.5	29	0
23	HD 3333	N-426	31.4	34	0	41.1	32	0	39.1	21	0	48.6	15	0	50.1	9	0	41.3	11	0
24	DBW 290	N-427	50.4	11	0	53.8	7	0	40.2	15	0	55.5	2	1	53.6	3	1	48.9	2	1
25	WH 1265	N-428	45.3	25	0	46.9	22	0	44.3	7	0	44.2	24	0	44.9	21	0	37.2	14	0
26	PBW 812	N-429	53.3	4	1	56.7	4	0	43.1	11	0	49.6	12	0	49.3	11	0	44.8	5	0
27	PBW 813	N-430	46.1	21	0	68.3	1	1	49.5	1	1	51.4	10	1	54.9	2	1	44.5	6	0
28	DBW 293	N-431	41.9	29	0	41.7	29	0	36.7	28	0	55.5	3	1	53.2	4	1	32.3	25	0
29	HD 3331	N-432	44.0	27	0	43.4	24	0	32.4	32	0	48.2	16	0	43.4	28	0	44.0	7	0
30	NW 7053	N-433	52.2	8	0	41.7	29	0	39.6	17	0	42.4	30	0	41.5	34	0	32.4	24	0
31	Raj 4543	N-435	30.6	36	0	47.5	21	0	33.9	31	0	44.6	22	0	44.3	25	0	32.0	28	0
32	K 1807	N-436	45.3	24	0	28.9	36	0	37.0	25	0	54.2	6	1	44.2	26	0	34.3	21	0
33	DBW 173 (C)	N-408	39.3	33	0	38.8	35	0	40.8	13	0	52.7	8	1	49.0	12	0	31.5	31	0
34	HD 3059 (C)	N-412	49.4	15	0	55.0	6	0	45.7	3	1	50.4	11	0	52.7	5	0	34.9	19	0
35	DBW 107 (C)	N-421	50.5	10	0	45.7	23	0	36.2	30	0	47.4	17	0	43.0	30	0	50.3	1	1
36	HI 1563 (C)	N-434	45.9	23	0	41.7	29	0	39.4	18	0	44.4	23	0	46.1	17	0	37.1	15	0
G.M.			46.7			48.4			39.5			47.3			46.8			36.9		
S.E.(M)			1.644			2.499			1.879			2.717			1.078			1.695		
C.D. (10%)			4.0			6.0			4.5			6.6			2.6			4.1		
C.V.			5.0			7.3			6.7			8.1			3.3			6.5		
D.O.S.(dd.mm.yy)			20.12.18			12.12.18			24.12.18			20.12.18			20.12.18			20.12.18		

1804-NIVT-3A-IR-LS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	NEPZ											
			Bihar			Jharkhand			West Bengal					
			IARI-Pusa			Ranchi			Kalyani			Coochbehar		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	UP 3033	N-401	51.2	5	1	39.1	14	0	39.5	19	0	46.9	5	1
2	WH 1264	N-402	50.4	6	1	39.0	15	0	32.3	33	0	32.0	32	0
3	PBW 811	N-403	52.1	4	1	40.7	11	0	40.3	14	0	46.3	8	1
4	UP 3035	N-404	32.6	36	0	30.4	36	0	30.7	35	0	30.9	34	0
5	WH 1263	N-405	35.4	31	0	34.1	31	0	36.3	25	0	35.9	25	0
6	PBW 814	N-406	45.5	16	0	31.5	35	0	35.9	28	0	33.9	31	0
7	JKW 267	N-407	36.9	30	0	36.4	25	0	37.7	22	0	39.5	20	0
8	HD 3329	N-409	57.2	1	1	40.9	10	1	48.0	5	0	47.4	3	1
9	HD 3330	N-410	42.1	24	0	35.9	26	0	32.3	33	0	39.7	19	0
10	JAUW 673	N-411	38.8	28	0	37.3	19	0	35.9	27	0	28.9	36	0
11	HD 3334	N-413	46.0	15	0	41.9	7	1	37.5	23	0	43.4	12	1
12	Raj 4544	N-414	43.5	21	0	37.7	17	0	49.1	3	0	49.3	1	1
13	DBW 292	N-415	53.8	2	1	47.2	1	1	47.6	6	0	45.6	9	1
14	K 1808	N-416	48.1	11	1	36.6	23	0	35.2	29	0	43.1	13	1
15	UP 3034	N-417	35.3	32	0	40.4	12	0	39.7	17	0	40.6	16	1
16	JKW 261	N-418	48.0	12	0	35.3	29	0	42.7	11	0	36.9	23	0
17	WH 1266	N-419	44.6	19	0	41.1	9	1	30.3	36	0	41.9	15	1
18	DBW 291	N-420	40.1	27	0	39.4	13	0	46.6	8	0	34.9	27	0
19	JKW 268	N-422	49.9	7	1	36.4	24	0	39.7	17	0	46.6	7	1
20	DBW 294	N-423	34.1	34	0	47.0	2	1	44.7	10	0	46.8	6	1
21	HD 3332	N-424	48.7	10	1	41.9	6	1	36.5	24	0	44.8	11	1
22	NW 7062	N-425	42.6	22	0	36.8	21	0	38.1	21	0	36.7	24	0
23	HD 3333	N-426	49.3	8	1	37.1	20	0	48.3	4	0	40.2	18	0
24	DBW 290	N-427	41.7	25	0	44.0	4	1	52.2	2	1	43.0	14	1
25	WH 1265	N-428	43.7	20	0	32.3	34	0	36.2	26	0	30.1	35	0
26	PBW 812	N-429	47.7	13	0	38.3	16	0	38.7	20	0	35.0	26	0
27	PBW 813	N-430	52.2	3	1	41.4	8	1	41.2	12	0	48.6	2	1
28	DBW 293	N-431	40.5	26	0	36.8	22	0	40.4	13	0	40.4	17	1
29	HD 3331	N-432	34.2	33	0	34.7	30	0	39.9	16	0	34.3	29	0
30	NW 7053	N-433	37.7	29	0	33.2	32	0	34.0	32	0	33.9	30	0
31	Raj 4543	N-435	49.0	9	1	32.4	33	0	40.2	15	0	34.3	28	0
32	K 1807	N-436	33.2	35	0	35.6	28	0	34.6	31	0	31.6	33	0
33	DBW 173 (C)	N-408	44.9	18	0	35.8	27	0	35.2	29	0	37.9	22	0
34	HD 3059 (C)	N-412	42.2	23	0	41.9	5	1	45.1	9	0	37.9	21	0
35	DBW 107 (C)	N-421	47.1	14	0	45.3	3	1	52.5	1	1	47.2	4	1
36	HI 1563 (C)	N-434	45.5	17	0	37.4	18	0	46.8	7	0	45.1	10	1
G.M.			44.1			38.1			40.0			39.8		
S.E.(M)			3.783			2.658			1.138			3.739		
C.D. (10%)			9.1			6.4			2.7			8.9		
C.V.			12.1			9.9			4.0			13.3		
D.O.S.(dd.mm.yy)			19.12.18			18.12.18			21.12.18			15.12.18		

1804-NIVT-3A-IR-LS-TAS-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

SN	Variety	Code	NWPZ			NEPZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	UP 3033	N-401	51.6	10	0	42.5	15	0	47.1	10	0
2	WH 1264	N-402	53.0	7	0	39.7	22	0	46.3	15	0
3	PBW 811	N-403	57.6	1	1	45.8	6	0	51.7	1	1
4	UP 3035	N-404	39.3	34	0	34.4	36	0	36.8	36	0
5	WH 1263	N-405	46.1	31	0	37.9	32	0	42.0	32	0
6	PBW 814	N-406	50.5	13	0	39.4	26	0	44.9	20	0
7	JKW 267	N-407	48.5	25	0	37.7	33	0	43.1	29	0
8	HD 3329	N-409	49.3	20	0	47.1	4	1	48.2	8	0
9	HD 3330	N-410	49.4	19	0	39.6	24	0	44.5	24	0
10	JAUW 673	N-411	47.4	27	0	37.5	34	0	42.4	31	0
11	HD 3334	N-413	55.5	2	1	43.1	12	0	49.3	4	0
12	Raj 4544	N-414	48.9	23	0	44.6	7	0	46.7	11	0
13	DBW 292	N-415	49.8	15	0	47.2	3	1	48.5	6	0
14	K 1808	N-416	48.7	24	0	40.9	20	0	44.8	21	0
15	UP 3034	N-417	46.7	30	0	39.6	23	0	43.1	28	0
16	JKW 261	N-418	53.4	6	0	39.5	25	0	46.4	13	0
17	WH 1266	N-419	49.8	16	0	39.0	28	0	44.4	25	0
18	DBW 291	N-420	52.0	8	0	41.5	18	0	46.7	12	0
19	JKW 268	N-422	49.7	17	0	42.6	14	0	46.1	16	0
20	DBW 294	N-423	50.3	14	0	42.5	16	0	46.4	14	0
21	HD 3332	N-424	51.9	9	0	44.2	9	0	48.1	9	0
22	NW 7062	N-425	49.5	18	0	39.8	21	0	44.7	22	0
23	HD 3333	N-426	42.1	33	0	44.3	8	0	43.2	27	0
24	DBW 290	N-427	54.0	4	0	47.4	2	1	50.7	3	1
25	WH 1265	N-428	47.3	28	0	39.1	27	0	43.2	26	0
26	PBW 812	N-429	53.7	5	0	43.3	11	0	48.5	7	0
27	PBW 813	N-430	54.4	3	0	48.0	1	1	51.2	2	1
28	DBW 293	N-431	47.1	29	0	42.0	17	0	44.5	23	0
29	HD 3331	N-432	51.1	12	0	38.9	29	0	45.0	19	0
30	NW 7053	N-433	49.1	22	0	36.9	35	0	43.0	30	0
31	Raj 4543	N-435	42.9	32	0	38.8	30	0	40.9	33	0
32	K 1807	N-436	37.2	36	0	38.1	31	0	37.6	35	0
33	DBW 173 (C)	N-408	49.2	21	0	41.0	19	0	45.1	18	0
34	HD 3059 (C)	N-412	47.5	26	0	43.9	10	0	45.7	17	0
35	DBW 107 (C)	N-421	51.1	11	0	46.1	5	1	48.6	5	0
36	HI 1563 (C)	N-434	38.2	35	0	42.7	13	0	40.5	34	0
G.M.			49.0			41.6			45.3		
S.E.(M)			0.968			0.898			0.660		
C.D. (10%)			2.3			2.1			1.5		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: NIVT-3A-IR-LS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions					Agronomic Characteristics								Grain Characteristics			
			YI	ACI	Br	PM	BP	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	UP3033	N-401	20S	7.0	0	-	1.3	81-98	89	113-138	124	80-105	94	0	Ey	A	H	29-46	37
2.	WH1264	N-402	40S	7.7	0	3	0.7	78-100	88	111-138	124	85-111	99	0	Ey	A	H	36-49	41
3.	PBW811	N-403	10S	2.5	tS	-	0.5	73-98	83	109-138	122	86-103	95	10	Ey	A	H	30-43	38
4.	UP3035	N-404	20S	4.8	0	3	0.7	84-98	92	113-138	125	75-108	90	5	Ey	A	H	22-39	31
5.	WH1263	N-405	20S	6.4	0	4	0.5	78-98	88	113-138	124	85-105	93	0	Ey	A	SH	29-44	38
6.	PBW814	N-406	20S	3.5	0	3	1.2	82-100	90	117-140	126	85-111	101	0	Ey	A	SH	33-45	38
7.	JKW267	N-407	10S	2.8	0	4	0.4	80-98	89	111-136	124	75-106	93	0	Ey	A	SH	26-43	37
8.	HD3329	N-409	80S	15.4	0	4	4.1	76-98	85	109-138	123	85-103	94	10	Ey	A	H	31-44	38
9.	HD3330	N-410	10S	4.3	5S	-	3.2	81-98	89	111-138	125	75-110	98	5	Ey	A	H	30-50	38
10.	JAUW 673	N-411	40S	7.1	0	3	0.3	78-100	88	111-140	124	96-112	100	0	Ey	A	H	35-46	40
11.	HD3334	N-413	10MS	3.3	10S	3	2.3	78-95	88	109-136	124	95-110	101	10	Ey	A	H	32-45	39
12.	Raj4544	N-414	40S	7.7	0	4	2.0	86-100	93	115-136	126	85-109	98	10	Ey	A	SH	32-44	38
13.	DBW292	N-415	40S	12.4	0	3	1.9	74-98	85	108-138	123	84-107	92	5	Ey	A	SH	31-42	36
14.	K1808	N-416	40S	10.6	0	4	0.7	83-100	89	111-138	124	98-113	102	10	Ey	A	SH	28-50	38
15.	UP3034	N-417	20S	7.0	5S	-	0.4	79-98	88	111-138	124	80-107	90	10	Ey	A	SH	29-40	37
16.	JKW261	N-418	10S	5.7	0	2	0.8	80-98	89	113-136	124	70-107	95	0	Ey	A	SH	27-40	35
17.	WH1266	N-419	40S	6.9	0	5	1.1	82-98	91	113-136	125	80-108	96	10	Ey	A	H	30-43	37
18.	DBW291	N-420	5S	1.4	10S	3	0.8	73-100	86	111-138	124	98-127	108	10	Ey	A	SH	30-41	37
19.	JKW268	N-422	40S	7.4	0	3	2.7	82-98	89	113-138	125	88-106	96	0	Ey	A	SH	31-46	37
20.	DBW294	N-423	60S	10.3	0	2	0.4	79-98	89	111-138	124	75-108	92	0	Ey	A	SH	31-42	36
21.	HD3332	N-424	10S	3.9	0	3	1.9	76-92	84	111-135	124	90-110	98	10	Ey	A	SH	34-47	40
22.	NW7062	N-425	10MS	3.7	0	2	0.4	80-98	87	111-138	123	80-110	97	0	Ey	A	H	30-41	37
23.	HD3333	N-426	80S	16.4	0	4	1.4	77-98	88	109-138	123	92-108	98	15	Ey	A	SH	31-45	38
24.	DBW290	N-427	20S	5.1	0	-	0.4	79-98	90	113-138	126	88-117	101	0	Ey	A	SH	35-52	42
25.	WH1265	N-428	40S	7.7	5S	3	0.6	79-98	88	109-138	123	75-108	91	0	Ey	A	SH	26-44	36
26.	PBW812	N-429	20S	7.4	0	-	1.6	76-95	84	111--136	122	86-112	96	0	Ey	A	SH	32-48	39
27.	PBW813	N-430	0.0	0.0	0	2	1.4	77-92	85	108-135	122	81-104	90	10	Ey	A	SH	31-40	36
28.	DBW293	N-431	60S	11.7	10S	3	0.2	81-100	89	115-138	125	82-117	101	5	Ey	A	SH	27-43	33
29.	HD3331	N-432	10MS	2.1	0	-	0.5	82-100	91	115-138	126	82-122	103	5	Ey	A	SH	27-41	35
30.	NW7053	N-433	50MS	8.3	0	-	0.8	76-95	85	108-136	122	82-105	97	20	Ey	A	SH	23-43	35
31.	Raj4543	N-435	40S	11.9	0	-	1.4	78-98	88	115-138	124	85-104	91	5	Ey	A	H	29-44	36
32.	K1807	N-436	60S	24.1	ts	-	0.8	79-98	88	111-138	125	98-151	119	30	Ey	A	H	32-47	40
33.	DBW173 (C)	N-408	10S	5.3	0	-	0.3	80-98	89	113-136	125	80-109	98	5	Ey	A	SH	32-41	37
34.	HD3059 (C)	N-412	40S	24.4	0	3	0.3	79-98	89	111-138	125	82-108	94	0	Ey	A	H	30-42	36
35.	DBW107 (C)	N-421	10S	3.0	0	4	1.4	73-92	83	109-135	122	84-114	96	20	Ey	A	SH	32-46	39
36.	HI1563 (C)	N-434	60S	46.4	0	-	1.5	72-98	85	109-138	124	83-110	95	15	Ey	A	H	21-40	35

1. Ancillary data from Delhi, Ludhiana, Gurdaspur, Hisar, Karnal, Durgapura, Jammu and Pantnagar. 2. Lodging data from Ludhiana, Guradspur, Karnal;
3. Brown rust data from Pantnagar; Yellow rust data from Ludhiana, Delhi, Hisar, Gurdaspur, Karnal, Jammu, Pantnagar; Powdery Mildew data from Karnal;
4. Black Point data from Karnal and Guradspur.

NIVT-3A-IR-LS-TAS, 2018-19
North Western Plain Zone
Individual Station Rust Data

SN	Variety	Code	Pantnagar		Ludhiana	Hisar	Delhi	Gurdaspur	Jammu	Karnal
			Br	Yl	Yl	Yl	Yl	Yl	Yl	Yl
1	UP3033	N-401	0	0	10MS	0	0	tMS	20S	20S
2	WH1264	N-402	0	0	5MS	0	0	5S	40S	5S
3	PBW811	N-403	tS	0	5MR	0	0	5S	10S	tMR
4	UP3035	N-404	0	0	5MS	tMR	0	5MS	5S	20S
5	WH1263	N-405	0	0	20S	0	0	tMS	20S	5MS
6	PBW814	N-406	0	0	0S	0	0	tMS	20S	5MS
7	JKW267	N-407	0	0	10S	0	0	tMS	5S	5MS
8	HD3329	N-409	0	0	5S	5S	0	10MS	80S	10S
9	HD3330	N-410	5S	0	5S	5 S	0	10S	5S	5S
10	JAUW 673	N-411	0	0	5MS	0	0	tMS	40S	5S
11	HD3334	N-413	10S	tS	10MS	tMR	0	tMS	5S	10MS
12	Raj4544	N-414	0	0	10S	tMR	0	5MS	40S	0
13	DBW292	N-415	0	0	20MS	0	0	tMS	40S	30S
14	K1808	N-416	0	5S	20S	tMR	0	tMS	40S	10MS
15	UP3034	N-417	5S	0	20S	5MS	0	tMS	20S	5MS
16	JKW261	N-418	0	tS	10S	10S	TS	5S	5S	10MS
17	WH1266	N-419	0	0	5MS	0	0	5MS	40S	0
18	DBW291	N-420	10S	0	5MR	0	0	tMS	5S	5MR
19	JKW268	N-422	0	0	10MR	tMS	0	5S	40S	5MR
20	DBW294	N-423	0	0	5MS	tMS	0	5S	60S	5MR
21	HD3332	N-424	0	0	10MS	tMS	TMS	5MS	10S	5MS
22	NW7062	N-425	0	0	10MS	5MS	5S	5MS	0	5S
23	HD3333	N-426	0	0	20MS	5S	0	10S	80S	10MR
24	DBW290	N-427	0	0	10MS	5S	0	tMS	20S	5MR
25	WH1265	N-428	5S	0	5S	0	0	5S	40S	5MS
26	PBW812	N-429	0	0	20S	0	0	5MS	20S	10MS
27	PBW813	N-430	0	0	0S	0	0	0	0	0
28	DBW293	N-431	10S	0	10MS	tMS	0	5MS	60S	5S
29	HD3331	N-432	0	0	10MS	0	0	0	5S	5MR
30	NW7053	N-433	0	0	50MS	tMS	0	5S	0	10MS
31	Raj4543	N-435	0	0	20S	5S	0	10MS	10S	40S
32	K1807	N-436	tS	5S	20S	5MS	0	40S	60S	40S
33	DBW173 (C)	N-408	0	tS	10S	10S	0	5MS	5S	10MS
34	HD3059 (C)	N-412	0	10S	40S	40S	TS	20S	20S	40S
35	DBW107 (C)	N-421	0	0	5S	0	0	tMS	5S	10S
36	HI1563 (C)	N-434	0	40S	60S	40S	5S	60S	60S	60S

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: NIVT-3A-IR-LS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction		Agronomic Characteristics							Grain Characteristics			
			Br	LB (HS, Av)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	UP3033	N-401	0	45(23)	58-76	71	102-120	110	80-100	90	Ey	A	H	29-36	33
2.	WH1264	N-402	tMR	46(23)	62-77	70	95-121	109	88-109	100	Ey	A	SH	32-41	36
3.	PBW811	N-403	0	46(34)	59-74	66	96-118	106	78-103	91	Ey	A	SH	27-39	33
4.	UP3035	N-404	0	67(35)	66-82	74	101-122	110	75-93	84	Ey	A	SH	22-40	30
5.	WH1263	N-405	40S	45(24)	61-75	70	99-123	108	81-102	91	Ey	A	SH	29-39	34
6.	PBW814	N-406	10S	67(24)	67-78	73	100-119	108	85-109	96	Ey	A	SH	22-40	34
7.	JKW267	N-407	tr	56(35)	65-78	72	99-121	109	77-100	89	Ey	A	SH	28-39	33
8.	HD3329	N-409	0	45(23)	61-74	66	98-118	106	77-100	90	Ey	A	SH	30-42	34
9.	HD3330	N-410	40S	67(24)	60-76	71	101-120	108	82-110	98	Ey	A	SH	30-41	34
10.	JAUW 673	N-411	0	45(23)	60-75	70	99-121	107	82-108	92	Ey	A	SH	28-44	36
11.	HD3334	N-413	0	56(34)	62-77	71	101-119	109	82-105	94	Ey	A	SH	33-42	37
12.	Raj4544	N-414	0	34(23)	70-82	77	108-123	113	83-107	94	Ey	A	SH	30-40	35
13.	DBW292	N-415	0	47(24)	57-75	66	96-118	106	70-99	86	Ey	A	SH	32-39	35
14.	K1808	N-416	20S	45(24)	61-77	71	95-122	110	83-108	99	Ey	A	SH	27-41	34
15.	UP3034	N-417	0	46(34)	59-74	67	97-120	106	77-97	87	Ey	A	SH	29-36	32
16.	JKW261	N-418	0	36(24)	62-77	73	107-121	112	80-100	89	Ey	A	SH	25-37	32
17.	WH1266	N-419	0	36(24)	69-81	75	96-123	109	82-101	90	Ey	A	SH	29-40	34
18.	DBW291	N-420	0	47(35)	60-78	67	95-122	107	92-122	102	Ey	A	SH	29-40	33
19.	JKW268	N-422	60S	46(24)	63-79	73	101-122	111	82-106	93	Ey	A	SH	32-40	36
20.	DBW294	N-423	0	35(24)	61-77	72	101-119	108	80-98	87	Ey	A	SH	27-36	33
21.	HD3332	N-424	tMR	45(23)	57-79	67	96-121	108	82-93	88	Ey	A	SH	34-43	38
22.	NW7062	N-425	0	45(23)	63-77	70	95-123	107	86-107	97	Ey	A	SH	27-39	32
23.	HD3333	N-426	0	57(34)	59-76	69	100-120	108	83-114	96	Ey	A	SH	32-41	37
24.	DBW290	N-427	10S	46(24)	61-76	71	102-122	112	90-111	96	Ey	A	SH	32-43	38
25.	WH1265	N-428	0	45(34)	61-77	71	95-121	108	79-103	90	Ey	A	SH	28-41	33
26.	PBW812	N-429	0	56(24)	60-74	67	96-119	107	81-100	90	Ey	A	SH	34-45	39
27.	PBW813	N-430	0	45(23)	61-77	70	98-120	107	80-98	90	Ey	A	SH	31-39	34
28.	DBW293	N-431	40S	35(23)	61-77	71	93-122	109	92-109	98	Ey	A	SH	29-47	35
29.	HD3331	N-432	60S	35(24)	65-77	72	103-123	111	92-116	102	Ey	A	SH	26-39	32
30.	NW7053	N-433	0	57(34)	58-72	68	97-121	106	82-110	94	Ey	A	SH	25-44	33
31.	Raj4543	N-435	0	45(12)	60-77	68	98-123	109	69-99	86	Ey	A	SH	29-38	33
32.	K1807	N-436	0	56(23)	57-77	69	99-122	110	89-138	114	Ey	A	SH	30-45	38
33.	DBW173 (C)	N-408	0	45(23)	61-77	72	102-122	111	89-101	94	Ey	A	SH	28-40	35
34.	HD3059 (C)	N-412	0	34(23)	63-77	71	102-120	109	80-103	90	Ey	A	SH	29-39	35
35.	DBW107 (C)	N-421	0	57(23)	55-77	65	94-118	105	81-122	93	Ey	A	SH	28-38	35
36.	HI1563 (C)	N-434	0	56(24)	57-77	66	96-118	107	77-103	92	Ey	A	H	30-42	36

1. Ancillary data from Kanpur, Faizabad, Varanasi, Pusa, RPCAU Pusa, Ranchi, Sabour, Kalyani and Coochbehar.
2. Leaf blight data from Coochbehar, Faizabad, Sabour, Kalyani; and Brown rust data from Kanpur.

NIVT-3A-IR-LS-TAS, 2018-19
North Eastern Plains Zone
Individual Station Leaf Blight Data

SN	Variety	Code	Coochbehar	Faizabad	Sabour	Kalyani
1	UP3033	N-401	45	12	35	00
2	WH1264	N-402	45	12	46	00
3	PBW811	N-403	45	24	46	00
4	UP3035	N-404	67	25	57	00
5	WH1263	N-405	45	23	36	01
6	PBW814	N-406	67	12	36	01
7	JKW267	N-407	56	36	46	01
8	HD3329	N-409	45	12	35	00
9	HD3330	N-410	67	24	25	00
10	JAUW 673	N-411	45	24	35	01
11	HD3334	N-413	56	36	25	01
12	Raj4544	N-414	34	12	24	00
13	DBW292	N-415	45	15	47	00
14	K1808	N-416	45	12	25	12
15	UP3034	N-417	36	24	46	01
16	JKW261	N-418	35	24	36	00
17	WH1266	N-419	34	36	24	01
18	DBW291	N-420	46	36	47	01
19	JKW268	N-422	46	12	35	02
20	DBW294	N-423	35	35	35	00
21	HD3332	N-424	45	12	24	01
22	NW7062	N-425	45	12	23	01
23	HD3333	N-426	46	24	57	00
24	DBW290	N-427	46	25	46	00
25	WH1265	N-428	45	35	35	12
26	PBW812	N-429	56	12	36	01
27	PBW813	N-430	45	12	36	00
28	DBW293	N-431	35	12	13	00
29	HD3331	N-432	35	25	35	01
30	NW7053	N-433	56	24	57	00
31	Raj4543	N-435	45	12	13	00
32	K1807	N-436	56	12	23	00
33	DBW173 (C)	N-408	45	12	24	01
34	HD3059 (C)	N-412	34	12	23	02
35	DBW107 (C)	N-421	45	12	57	00
36	HI1563 (C)	N-434	56	12	46	01

1805-NIVT-3B-IR-LS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	CZ											
			MP								Chhattisgarh			
			Indore			Powarkheda			Gwalior		Jabalpur		Bilaspur		Raipur	
			Yield	RK	G	Yield	RK	G	Yield	RK G	Yield	RK G	Yield	RK G	Yield	RK G
1	CG 1032	N-501	31.6	22	0	45.1	12	0	65.5	16 0	66.7	17 0	37.0	1 1	47.2	2 1
2	GW 518	N-502	42.1	3	1	56.7	1	1	75.9	3 1	65.9	19 0	35.3	9 1	43.2	8 1
3	MACS 6749	N-503	32.9	19	0	55.0	2	1	66.9	13 0	71.8	11 0	36.8	4 1	45.1	3 1
4	NIAW 3578	N-504	29.3	23	0	24.9	25	0	39.6	25 0	82.6	2 1	29.1	21 0	36.2	21 0
5	UAS 3008	N-505	41.1	7	1	49.8	5	1	66.2	15 0	77.1	3 1	31.1	17 1	48.5	1 1
6	DBW 295	N-506	35.2	14	0	39.4	22	0	67.0	12 0	71.5	12 0	35.1	10 1	37.4	18 0
7	MP 3514	N-507	34.1	17	0	41.1	21	0	68.1	8 0	68.8	16 0	36.3	5 1	38.4	16 0
8	HI 1641	N-508	42.8	1	1	46.3	10	0	67.6	9 0	48.8	24 0	35.1	10 1	40.4	13 0
9	MAC S6752	N-509	33.1	18	0	43.4	17	0	70.8	6 0	76.1	6 1	31.7	15 1	35.4	23 0
10	MP 3516	N-510	36.9	10	0	46.3	10	0	67.5	10 0	72.8	9 0	25.6	23 0	44.5	6 1
11	Lok 75	N-511	34.4	15	0	25.5	24	0	57.5	23 0	76.6	4 1	35.6	6 1	35.2	24 0
12	AKAW 4927	N-512	28.5	25	0	47.5	8	0	71.1	5 0	31.0	25 0	30.0	18 0	37.6	17 0
13	MP 1362	N-513	38.5	8	1	41.7	19	0	66.9	14 0	62.7	22 0	31.3	16 1	44.8	4 1
14	RVW 4281	N-514	36.8	11	0	47.5	9	0	67.1	11 0	76.2	5 1	25.2	24 0	40.0	14 0
15	WH 1267	N-515	28.6	24	0	41.7	19	0	60.4	20 0	72.7	10 0	22.5	25 0	33.1	25 0
16	GW 519	N-516	34.3	16	0	48.6	7	0	65.3	17 0	57.1	23 0	36.9	2 1	40.4	12 0
17	HD 3344	N-517	36.2	12	0	49.8	5	1	59.0	22 0	70.1	13 0	36.9	2 1	36.8	19 0
18	RVW 4276	N-518	42.0	4	1	45.1	12	0	61.6	19 0	62.9	21 0	29.6	19 0	35.7	22 0
19	HI 1642	N-519	42.8	2	1	45.1	12	0	64.2	18 0	84.8	1 1	26.0	22 0	39.6	15 0
20	NIAW 3583	N-520	38.5	9	1	34.1	23	0	53.3	24 0	72.9	8 0	35.1	10 1	36.8	20 0
21	PBW 815	N-523	32.8	20	0	43.4	17	0	72.6	4 1	69.7	14 0	33.2	13 1	44.5	5 1
22	HI 1646	N-524	41.6	5	1	45.1	12	0	84.4	1 1	69.1	15 0	35.4	7 1	42.5	10 0
23	TAW 154	N-525	32.3	21	0	44.0	16	0	70.5	7 0	66.7	18 0	29.6	19 0	40.4	11 0
24	HD 2932 (C)	N-521	41.2	6	1	53.2	3	1	81.8	2 1	64.4	20 0	35.4	7 1	44.2	7 1
25	HD 2864 (C)	N-522	36.1	13	0	51.5	4	1	59.6	21 0	74.7	7 0	33.1	14 1	42.8	9 0
G.M.			36.1			44.5			66.0		68.5		32.4		40.4	
S.E.(M)			2.161			2.292			5.087		3.892		2.549		2.258	
C.D. (10%)			5.3			5.5			12.6		9.6		6.2		5.6	
C.V.			8.5			7.3			10.9		8.0		11.1		7.9	
D.O.S.(dd.mm.yy)			07.12.18			06.12.18			06.12.18		12.12.18		13.12.18		07.12.18	

No. of Trials Proposed and Conducted = 15

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LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	CZ												PZ					
			Gujarat						Rajasthan						Maharashtra					
			Junagadh			Vijapur			Kota			Udaipur			Niphad			Pune		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	CG 1032	N-501	30.2	18	0	49.5	4	1	48.5	17	0	53.2	10	0	50.6	4	0	57.4	8	1
2	GW 518	N-502	27.1	25	0	46.3	5	1	52.7	8	0	46.4	19	0	39.7	21	0	52.9	14	0
3	MACS 6749	N-503	29.8	21	0	41.2	18	0	59.3	2	1	44.7	20	0	45.7	10	0	62.0	3	1
4	NIAW 3578	N-504	31.4	14	0	37.1	24	0	51.3	12	0	34.4	24	0	41.7	18	0	43.9	25	0
5	UAS 3008	N-505	36.4	3	1	46.2	6	1	51.2	13	0	54.9	7	0	59.1	1	1	56.6	10	0
6	DBW 295	N-506	32.0	12	0	41.5	17	0	43.5	21	0	64.2	1	1	43.6	14	0	50.5	21	0
7	MP 3514	N-507	33.8	6	0	43.4	13	0	41.6	22	0	47.3	17	0	39.1	22	0	56.8	9	0
8	HI 1641	N-508	34.8	5	1	39.9	21	0	51.9	10	0	53.9	8	0	48.6	5	0	59.2	6	1
9	MAC S6752	N-509	30.6	17	0	45.0	9	0	55.0	5	0	42.2	22	0	47.1	8	0	61.3	4	1
10	MP 3516	N-510	29.9	20	0	40.3	20	0	47.1	19	0	56.0	6	0	51.1	3	1	49.0	24	0
11	Lok 75	N-511	29.1	22	0	45.6	8	0	47.5	18	0	44.7	20	0	40.1	19	0	55.5	12	0
12	AKAW 4927	N-512	27.4	24	0	49.8	2	1	37.3	24	0	57.8	4	1	38.6	23	0	50.5	20	0
13	MP 1362	N-513	32.4	10	0	42.0	14	0	51.4	11	0	51.5	11	0	43.5	15	0	50.7	19	0
14	RVW 4281	N-514	27.9	23	0	43.6	12	0	43.6	20	0	50.3	12	0	39.7	20	0	52.0	15	0
15	WH 1267	N-515	32.7	9	0	36.1	25	0	48.5	16	0	60.6	3	1	45.0	11	0	51.6	17	0
16	GW 519	N-516	38.0	1	1	41.7	15	0	40.2	23	0	46.5	18	0	44.6	13	0	50.4	22	0
17	HD 3344	N-517	37.3	2	1	40.7	19	0	49.7	14	0	53.4	9	0	48.4	6	0	53.0	13	0
18	RVW 4276	N-518	32.4	11	0	44.4	11	0	64.7	1	1	49.0	14	0	48.1	7	0	55.7	11	0
19	HI 1642	N-519	33.1	8	0	49.6	3	1	54.9	6	0	57.6	5	1	44.8	12	0	62.4	2	1
20	NIAW 3583	N-520	31.4	15	0	41.7	15	0	29.9	25	0	47.6	16	0	36.2	24	0	49.0	23	0
21	PBW 815	N-523	35.7	4	1	39.8	22	0	49.5	15	0	48.4	15	0	43.0	16	0	51.6	16	0
22	HI 1646	N-524	30.2	19	0	50.8	1	1	57.5	3	1	62.3	2	1	52.7	2	1	59.0	7	1
23	TAW 154	N-525	30.8	16	0	37.3	23	0	52.7	7	0	32.1	25	0	33.8	25	0	51.3	18	0
24	HD 2932 (C)	N-521	31.5	13	0	46.0	7	1	55.3	4	0	49.0	13	0	42.9	17	0	62.4	1	1
25	HD 2864 (C)	N-522	33.3	7	0	45.0	9	0	52.4	9	0	40.4	23	0	46.7	9	0	60.6	5	1
G.M.			32.0			43.4			49.5			49.9			44.6			54.6		
S.E.(M)			1.716			2.625			3.281			2.993			3.390			2.271		
C.D. (10%)			4.2			6.4			8.1			7.2			8.4			5.5		
C.V.			7.6			8.6			9.4			8.5			10.8			5.9		
D.O.S.(dd.mm.yy)			11.12.18			06.12.18			08.12.18			05.12.18			04.12.18			06.12.18		

1805-NIVT-3B-IR-LS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	PZ								
			Maharashtra						Karnataka		
			Akola			Parbhani			Dharwad		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	CG 1032	N-501	36.1	18	0	40.8	21	0	44.9	8	1
2	GW 518	N-502	42.9	7	1	43.5	16	0	41.3	12	1
3	MACS 6749	N-503	39.8	13	0	45.2	9	0	43.8	9	1
4	NIAW 3578	N-504	36.1	20	0	38.6	23	0	37.5	17	0
5	UAS 3008	N-505	46.0	3	1	50.5	3	1	50.4	2	1
6	DBW 295	N-506	36.1	19	0	37.9	25	0	35.9	19	0
7	MP 3514	N-507	40.5	11	1	41.5	19	0	39.8	14	0
8	HI 1641	N-508	43.3	6	1	43.3	17	0	50.5	1	1
9	MAC S6752	N-509	40.3	12	1	45.0	11	0	50.0	3	1
10	MP 3516	N-510	31.9	25	0	49.5	6	1	46.7	6	1
11	Lok 75	N-511	38.9	14	0	41.9	18	0	39.5	15	0
12	AKAW 4927	N-512	35.8	21	0	45.8	7	0	27.5	23	0
13	MP 1362	N-513	37.3	16	0	45.1	10	0	40.5	13	0
14	RVW 4281	N-514	41.0	10	1	43.6	15	0	43.1	11	1
15	WH 1267	N-515	41.2	9	1	44.0	14	0	37.3	18	0
16	GW 519	N-516	38.1	15	0	55.2	2	1	48.3	4	1
17	HD 3344	N-517	36.3	17	0	44.3	13	0	20.6	24	0
18	RVW 4276	N-518	49.0	1	1	40.2	22	0	39.1	16	0
19	HI 1642	N-519	46.6	2	1	38.6	23	0	47.3	5	1
20	NIAW 3583	N-520	44.8	4	1	49.5	5	1	46.4	7	1
21	PBW 815	N-523	34.3	23	0	59.2	1	1	33.0	21	0
22	HI 1646	N-524	43.6	5	1	50.1	4	1	32.9	22	0
23	TAW 154	N-525	34.4	22	0	44.8	12	0	11.0	25	0
24	HD 2932 (C)	N-521	34.0	24	0	45.3	8	0	34.9	20	0
25	HD 2864 (C)	N-522	41.4	8	1	41.1	20	0	43.7	10	1
G.M.			39.6			45.0			39.4		
S.E.(M)			2.674			3.596			3.658		
C.D. (10%)			6.5			8.7			8.9		
C.V .			9.6			11.3			13.1		
D.O.S.(dd.mm.yy)			05.12.18			04.12.18			01.12.18		

1805-NIVT-3B-IR-LS-TAS-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

SN	Variety	Code	CZ			PZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	CG 1032	N-501	47.5	7	0	46.0	10	0	47.0	9	0
2	GW 518	N-502	49.2	5	0	44.1	14	0	47.5	6	0
3	MACS 6749	N-503	48.3	6	0	47.3	7	0	48.0	5	0
4	NIAW 3578	N-504	39.6	25	0	39.6	24	0	39.6	25	0
5	UAS 3008	N-505	50.2	2	1	52.5	1	1	51.0	1	1
6	DBW 295	N-506	46.7	13	0	40.8	21	0	44.7	18	0
7	MP 3514	N-507	45.3	18	0	43.6	18	0	44.7	19	0
8	HI 1641	N-508	46.2	16	0	49.0	2	0	47.1	8	0
9	MAC S6752	N-509	46.3	14	0	48.7	3	0	47.1	7	0
10	MP 3516	N-510	46.7	12	0	45.6	11	0	46.3	12	0
11	Lok 75	N-511	43.2	22	0	43.2	20	0	43.2	21	0
12	AKAW 4927	N-512	41.8	24	0	39.6	23	0	41.1	23	0
13	MP 1362	N-513	46.3	15	0	43.4	19	0	45.3	15	0
14	RVW 4281	N-514	45.8	17	0	43.9	16	0	45.2	16	0
15	WH 1267	N-515	43.7	20	0	43.8	17	0	43.7	20	0
16	GW 519	N-516	44.9	19	0	47.3	6	0	45.7	14	0
17	HD 3344	N-517	47.0	8	0	40.5	22	0	44.8	17	0
18	RVW 4276	N-518	46.8	11	0	46.4	9	0	46.6	11	0
19	HI 1642	N-519	49.8	4	1	47.9	4	0	49.2	3	1
20	NIAW 3583	N-520	42.1	23	0	45.2	12	0	43.2	22	0
21	PBW 815	N-523	47.0	9	0	44.2	13	0	46.1	13	0
22	HI 1646	N-524	51.9	1	1	47.7	5	0	50.5	2	1
23	TAW 154	N-525	43.6	21	0	35.1	25	0	40.8	24	0
24	HD 2932 (C)	N-521	50.2	3	1	43.9	15	0	48.1	4	0
25	HD 2864 (C)	N-522	46.9	10	0	46.7	8	0	46.8	10	0
G.M.			46.3			44.6			45.7		
S.E.(M)			0.960			1.416			0.795		
C.D. (10%)			2.2			3.3			1.8		

Summary of Disease Data and Agronomic Characteristics

Central Zone **Trial: NIVT-3B-IR-LS-TAS, 2018-19**

SN	Variety	Code	Rust Reaction		Agronomic Characteristics								Grain Characteristics			
			Bl	Br	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	CG1032	N-501	0	0	53-81	69	88-125	111	67-99	84	10	M	A	SH	31-45	38
2.	GW518	N-502	tR	0	48-75	65	87-125	110	71-102	89	0	Ey	A	SH	36-50	43
3.	MACS6749	N-503	tMR	tR	51-78	69	89-125	113	70-104	88	0	Ey	A	SH	31-46	37
4.	NIAW3578	N-504	10MR	tMS	49-79	68	88-126	113	72-107	90	50	Ey	A	SH	31-57	39
5.	UAS 3008	N-505	10MS	0	51-79	67	90-126	112	74-106	92	20	Ey	A	SH	34-53	40
6.	DBW295	N-506	tR	tR	55-82	72	89-131	114	74-114	97	10	Ey	A	SH	32-48	38
7.	MP3514	N-507	tR	0	54-79	70	91-125	112	68-99	84	0	Ey	A	SH	29-46	36
8.	HI1641	N-508	tR	0	51-81	69	89-130	113	73-117	97	30	Ey	A	SH	34-47	39
9.	MACS6752	N-509	tR	0	52-82	70	90-127	114	72-110	91	20	Ey	A	SH	28-45	37
10.	MP3516	N-510	20MS	tMS	52-83	70	89-125	114	71-103	92	5	M	A	SH	30-43	38
11.	Lok75	N-511	10R	tR	51-88	71	92-125	115	65-102	86	50	M	A	SH	35-48	43
12.	AKAW 4927	N-512	10MS	10S	53-83	69	91-125	115	68-107	88	5	Ey	A	SH	33-58	46
13.	MP1362	N-513	10MR	tMS	52-78	67	88-124	111	81-107	95	5	Ey	A	SH	34-51	43
14.	RVW4281	N-514	40S	tMS	46-77	66	81-123	108	67-105	92	0	Ey	A	SH	37-48	42
15.	WH1267	N-515	tS	tR	55-83	71	92-124	114	72-103	90	15	Ey	A	SH	29-46	36
16.	GW519	N-516	tR	tMS	52-85	71	91-130	115	71-106	88	10	Ey	A	SH	33-48	42
17.	HD3344	N-517	tS	tMS	56-82	71	93-132	115	70-101	88	0	M	A	SH	31-46	38
18.	RVW4276	N-518	tR	0	46-73	64	88-124	110	69-102	89	5	M	A	SH	33-50	39
19.	HI1642	N-519	tR	TR	50-77	66	88-124	110	71-103	92	30	Ey	A	SH	34-55	44
20.	NIAW3583	N-520	tR	0	48-79	67	84-124	110	76-135	104	45	Ey	A	SH	39-52	44
21.	PBW815	N-523	tS	0	55-81	72	92-123	114	79-107	95	20	Ey	A	SH	33-48	40
22.	HI1646	N-524	10R	tR	52-80	69	90-126	114	71-108	90	0	Ey	A	SH	34-52	39
23.	TAW154	N-525	10MS	tR	59-81	72	96-125	116	70-99	85	5	Ey	A	SH	33-46	39
24.	HD2932 (C)	N-521	10MR	tMS	52-82	69	91-125	113	72-108	90	0	Ey	A	SH	33-50	39
25.	HD2864 (C)	N-522	tR	0	50-77	66	92-123	112	70-99	87	5	Ey	A	SH	30-47	37

1. Ancillary data from Raipur, Bilaspur, Indore, Jabalpur, Junagadh, Powarkheda, Gwalior, Udaipur and Vijapur.
2. Black rust Rust data from Vijapur; brown rust data from Junagadh and Vijapur; Lodging data from Gwalior, Jabalpur and Powarkheda.

NIVT-3B-IR-LS-TAS, 2018-19
Central Zone
Individual Station Rust Data

SN	Variety	Code	Brown Rust	
			Junagadh	Vijapur
1	CG1032	N-501	0	0
2	GW518	N-502	0	0
3	MACS6749	N-503	tR	0
4	NIAW3578	N-504	tMS	0
5	UAS 3008	N-505	0	0
6	DBW295	N-506	tR	0
7	MP3514	N-507	0	0
8	HI1641	N-508	0	0
9	MACS6752	N-509	0	0
10	MP3516	N-510	tMS	0
11	Lok75	N-511	tR	0
12	AKAW 4927	N-512	10S	0
13	MP1362	N-513	tMS	0
14	RVW4281	N-514	tMS	0
15	WH1267	N-515	tR	0
16	GW519	N-516	tMS	0
17	HD3344	N-517	tMS	0
18	RVW4276	N-518	0	0
19	HI1642	N-519	tR	0
20	NIAW3583	N-520	0	0
21	PBW815	N-523	0	0
22	HI1646	N-524	tR	tR
23	TAW154	N-525	tR	0
24	HD2932 (C)	N-521	tMS	0
25	HD2864 (C)	N-522	0	0

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: NIVT-3B-IR-LS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions			Agronomic Characteristics								Grain Characteristics			
			Br	Bl	BP	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	CG1032	N-501	0	0	4	54-70	62	102-108	106	71-94	84	0	Ey	A	SH	36-43	40
2.	GW518	N-502	0	tMR	2	51-65	58	100-108	104	70-97	88	5	Ey	A	SH	40-49	44
3.	MACS6749	N-503	0	0	20	56-69	62	103-109	107	73-103	92	0	Ey	A	SH	37-46	41
4.	NIAW3578	N-504	40S	5S	0	53-69	61	103-111	106	76-99	89	40	Ey	A	SH	33-45	40
5.	UAS 3008	N-505	0	0	1	55-71	61	104-110	107	77-101	92	25	Ey	A	SH	34-54	43
6.	DBW295	N-506	0	10MS	1	59-77	66	106-115	108	73-110	95	5	Ey	A	SH	35-45	40
7.	MP3514	N-507	5MS	0	0	57-70	62	105-111	108	67-91	83	0	Ey	A	SH	35-49	39
8.	HI1641	N-508	0	5MR	2	53-69	59	100-110	105	87-106	99	5	Ey	A	SH	37-45	40
9.	MACS6752	N-509	0	0	5	54-73	60	102-112	106	74-98	90	0	Ey	A	SH	36-44	40
10.	MP3516	N-510	0	0	3	62-71	66	106-113	109	73-102	89	0	Ey	A	SH	34-41	38
11.	Lok75	N-511	0	0	5	58-72	63	105-113	108	73-93	85	30	Ey	A	SH	40-47	44
12.	AKAW 4927	N-512	0	5MS	5	56-72	63	105-112	108	65-97	87	0	Ey	A	SH	41-56	47
13.	MP1362	N-513	0	10MS	1	54-69	61	104-108	107	87-109	98	40	Ey	A	SH	39-47	42
14.	RVW4281	N-514	5MS	10MS	1	51-65	58	101-106	104	80-102	92	0	Ey	A	SH	42-46	43
15.	WH1267	N-515	10S	10S	0	58-74	65	107-113	109	73-99	88	5	Ey	A	SH	36-48	41
16.	GW519	N-516	5MS	tMS	3	59-74	63	106-113	110	78-99	92	0	Ey	A	SH	41-48	43
17.	HD3344	N-517	5MS	5MS	0	58-72	65	108-112	110	70-100	86	0	Ey	A	SH	36-48	40
18.	RVW4276	N-518	5MS	0	2	51-65	56	102-109	104	63-101	88	5	Ey	A	SH	37-49	40
19.	HI1642	N-519	0	0	2	55-75	65	103-110	106	79-104	93	50	Ey	A	H	41-51	45
20.	NIAW3583	N-520	0	0	0	51-66	59	100-112	105	79-118	99	50	Ey	A	SH	42-49	46
21.	PBW815	N-523	5MS	30S	0	60-77	67	107-116	111	76-108	93	0	Ey	A	SH	40-45	42
22.	HI1646	N-524	10S	tMS	1	56-70	63	104-112	108	70-103	92	0	Ey	A	SH	38-42	40
23.	TAW154	N-525	0	0	0	61-75	67	107-114	111	77-102	90	0	Ey	A	SH	39-45	42
24.	HD2932 (C)	N-521	0	0	4	56-72	62	103-112	107	73-105	92	0	Ey	A	SH	38-52	42
25.	HD2864 (C)	N-522	0	0	3	51-66	57	101-111	105	83-95	90	0	Ey	A	SH	35-42	39

1. Ancillary data from Akola, Dharwad, Parbhani, Niphad and Pune.
2. Lodging data from Prabhani and Pune; 3. Rust data from Dharwad and Black Point data from Pune.

1806-NIVT-4-IR-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	CZ											
			MP				Gujarat						Rajasthan	
			Indore		Powarkheda		SK Nagar		Junagarh		Vijapur		Kota	
			Yield	RKG	Yield	RKG	Yield	RKG	Yield	RKG	Yield	RKG	Yield	RKG
1	UAS 470	N-601	54.8	21 0	64.1	15 0	68.4	9 1	49.4	11 1	76.0	1 1	69.8	4 1
2	GW 1351	N-602	61.1	8 0	63.5	16 0	70.7	7 1	49.6	9 1	69.7	3 0	66.7	9 0
3	MPO 1364	N-604	61.0	9 0	64.6	13 0	62.9	18 0	47.0	13 0	66.5	7 0	64.6	12 0
4	DDW 51	N-605	57.4	16 0	69.8	6 1	54.1	24 0	51.8	4 1	64.2	8 0	66.7	9 0
5	GW 1352	N-606	58.2	14 0	58.9	21 0	64.2	17 0	46.3	17 0	61.6	15 0	78.1	1 1
6	HI 8822	N-607	67.0	3 1	57.3	23 0	65.3	15 0	49.5	10 1	54.4	22 0	62.5	16 0
7	UAS 471	N-608	64.1	4 1	69.8	6 1	67.7	11 1	46.5	15 0	63.2	9 0	62.5	18 0
8	PDW 356	N-609	50.9	24 0	69.3	8 1	73.2	4 1	50.1	7 1	50.4	24 0	68.8	6 1
9	DDW 50	N-610	56.4	18 0	71.9	3 1	65.7	14 0	53.2	2 1	68.2	5 0	66.7	9 0
10	MPO 1366	N-611	60.4	10 0	59.9	20 0	62.5	19 0	46.4	16 0	53.1	23 0	55.2	23 0
11	HI 8820	N-612	54.9	20 0	64.6	13 0	70.0	8 1	45.0	19 0	60.9	18 0	61.5	20 0
12	NIDW 1316	N-613	56.2	19 0	58.9	21 0	55.4	23 0	54.2	1 1	62.7	11 0	57.3	22 0
13	WHD 964	N-614	58.1	15 0	66.5	11 1	71.5	6 1	50.1	6 1	49.8	25 0	58.3	21 0
14	MACS 4091	N-615	62.1	7 0	60.4	19 0	67.2	13 1	44.2	22 0	60.3	19 0	62.5	18 0
15	HI 8819	N-617	63.6	5 1	71.4	4 1	76.8	2 1	42.4	24 0	61.7	14 0	63.5	13 0
16	NIDW 1302	N-619	45.0	25 0	50.5	24 0	61.5	21 0	42.1	25 0	62.3	13 0	51.0	25 0
17	HI 8821	N-620	68.6	1 1	67.7	9 1	78.4	1 1	51.2	5 1	62.8	10 0	69.8	4 1
18	RKD 339	N-621	51.8	23 0	50.5	24 0	67.4	12 1	46.9	14 0	61.0	17 0	63.5	13 0
19	NIDW 1293	N-622	58.5	13 0	62.4	17 0	50.3	25 0	43.8	23 0	67.7	6 0	55.2	23 0
20	MACS 4090	N-623	54.6	22 0	71.4	4 1	64.6	16 0	49.6	8 1	69.0	4 0	71.9	3 1
21	MPO 1365	N-624	59.8	11 0	74.3	2 1	56.6	22 0	48.0	12 0	57.9	21 0	63.5	13 0
22	HI 8818	N-625	59.0	12 0	60.9	18 0	76.8	2 1	45.1	18 0	60.0	20 0	68.8	6 1
23	HI 8737 (C)	N-603	62.5	6 1	66.1	12 1	68.2	10 1	44.2	21 0	72.8	2 1	62.5	16 0
24	MACS 3949 (C)	N-616	56.9	17 0	66.7	10 1	62.5	19 0	53.1	3 1	61.5	16 0	68.8	6 1
25	HI 8713 (C)	N-618	67.5	2 1	75.0	1 1	71.6	5 1	44.6	20 0	62.7	12 0	78.1	1 1
G.M.			58.8		64.6		66.1		47.8		62.4		64.7	
S.E.(M)			2.625		3.824		5.146		2.471		2.801		3.339	
C.D. (10%)			6.5		9.3		12.5		6.0		6.8		8.1	
C.V.			6.3		8.4		11.0		7.3		6.3		7.3	
D.O.S.(dd.mm.yy)			12.11.18		15.11.18		20.11.18		15.11.18		19.11.18		18.11.18	

No. of Trials : Proposed = 12 Conducted = 12

1806-NIVT-4-IR-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	PZ																			
			Karnataka																			
			Dharwad			Pune			Akola			Niphad			Nippani			Ugar-Khurd		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	UAS 470	N-601	43.8	9	0	59.8	12	0	43.8	5	0	38.9	25	0	54.9	10	0	41.6	13	0
2	GW 1351	N-602	43.7	10	0	60.1	11	0	41.3	9	0	59.6	3	1	60.7	3	1	42.3	10	0
3	MPO 1364	N-604	45.3	6	1	54.4	19	0	40.8	12	0	52.6	7	0	35.4	22	0	40.2	16	0
4	DDW 51	N-605	43.0	12	0	60.9	8	0	39.6	16	0	45.9	17	0	46.9	20	0	52.9	2	1
5	GW 1352	N-606	44.0	8	0	60.4	9	0	33.5	24	0	56.6	4	0	46.9	20	0	42.3	10	0
6	HI 8822	N-607	46.0	5	1	55.7	15	0	41.7	8	0	50.1	14	0	64.7	2	1	45.8	6	1
7	UAS 471	N-608	36.5	21	0	64.0	6	1	42.1	7	0	44.2	19	0	55.6	7	0	53.3	1	1
8	PDW 356	N-609	32.3	24	0	60.4	10	0	49.9	2	1	49.2	15	0	53.1	12	0	43.5	7	0
9	DDW 50	N-610	37.6	20	0	66.9	2	1	38.1	19	0	60.2	2	1	60.2	4	1	42.3	10	0
10	MPO 1366	N-611	33.9	22	0	45.7	23	0	41.0	10	0	53.4	6	0	53.8	11	0	37.7	19	0
11	HI 8820	N-612	33.2	23	0	51.2	20	0	42.6	6	0	43.7	21	0	31.0	25	0	37.3	22	0
12	NIDW 1316	N-613	43.5	11	0	57.5	13	0	39.5	17	0	42.9	22	0	55.0	8	0	40.9	14	0
13	WHD 964	N-614	42.3	14	0	65.1	4	1	44.3	4	0	51.7	10	0	70.6	1	1	43.5	7	0
14	MACS 4091	N-615	42.4	13	0	54.5	18	0	39.9	14	0	52.2	9	0	47.4	18	0	46.6	5	1
15	HI 8819	N-617	38.0	19	0	50.4	21	0	50.3	1	1	48.0	16	0	47.8	16	0	33.3	24	0
16	NIDW 1302	N-619	39.3	18	0	47.3	22	0	39.6	15	0	42.0	24	0	51.9	13	0	40.8	15	0
17	HI 8821	N-620	40.2	16	0	61.4	7	1	37.3	22	0	52.5	8	0	48.8	15	0	49.1	4	1
18	RKD 339	N-621	40.5	15	0	55.1	16	0	37.8	20	0	54.3	5	0	47.8	17	0	39.3	18	0
19	NIDW 1293	N-622	46.2	4	1	43.7	24	0	37.2	23	0	50.6	12	0	47.2	19	0	43.4	9	0
20	MACS 4090	N-623	48.0	3	1	54.8	17	0	37.8	20	0	67.4	1	1	33.2	24	0	33.4	23	0
21	MPO 1365	N-624	29.8	25	0	22.8	25	0	40.9	11	0	50.7	11	0	54.9	9	0	30.8	25	0
22	HI 8818	N-625	51.1	2	1	56.7	14	0	47.7	3	1	43.7	20	0	58.7	6	0	51.9	3	1
23	HI 8737 (C)	N-603	39.4	17	0	65.3	3	1	39.4	18	0	45.8	18	0	50.1	14	0	37.6	21	0
24	MACS 3949 (C)	N-616	44.7	7	1	64.2	5	1	32.4	25	0	50.4	13	0	59.5	5	1	37.7	19	0
25	HI 8713 (C)	N-618	51.9	1	1	70.4	1	1	40.3	13	0	42.4	23	0	34.9	23	0	39.9	17	0
G.M.			41.5			56.3			40.8			50.0			50.8			41.9		
S.E.(M)			3.186			3.160			2.327			4.173			4.645			3.812		
C.D. (10%)			7.9			7.6			5.6			10.3			11.5			9.2		
C.V.			10.9			7.9			8.1			11.8			12.9			12.9		
D.O.S.(dd.mm.yy)			06.11.18			08.11.18			12.11.18			14.11.18			14.11.18			15.11.18		

1806-NIVT-4-IR-TS-TDM-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

S.N.	Variety	Code	CZ			PZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	UAS 470	N-601	63.8	3	1	47.1	13	0	55.4	8	1
2	GW 1351	N-602	63.6	5	1	51.3	3	1	57.4	1	1
3	MPO 1364	N-604	61.1	13	0	44.8	19	0	52.9	18	0
4	DDW 51	N-605	60.7	14	0	48.2	7	0	54.4	13	0
5	GW 1352	N-606	61.2	12	0	47.3	11	0	54.3	15	0
6	HI 8822	N-607	59.3	19	0	50.7	5	1	55.0	9	0
7	UAS 471	N-608	62.3	9	0	49.3	6	0	55.8	7	1
8	PDW 356	N-609	60.5	15	0	48.1	10	0	54.3	14	0
9	DDW 50	N-610	63.7	4	1	50.9	4	1	57.3	3	1
10	MPO 1366	N-611	56.3	24	0	44.2	22	0	50.3	22	0
11	HI 8820	N-612	59.5	17	0	39.8	24	0	49.6	23	0
12	NIDW 1316	N-613	57.5	21	0	46.6	15	0	52.0	19	0
13	WHD 964	N-614	59.0	20	0	52.9	1	1	56.0	6	1
14	MACS 4091	N-615	59.5	18	0	47.2	12	0	53.3	17	0
15	HI 8819	N-617	63.2	7	0	44.6	21	0	53.9	16	0
16	NIDW 1302	N-619	52.1	25	0	43.5	23	0	47.8	25	0
17	HI 8821	N-620	66.4	2	1	48.2	8	0	57.3	2	1
18	RKD 339	N-621	56.9	22	0	45.8	17	0	51.3	20	0
19	NIDW 1293	N-622	56.3	23	0	44.7	20	0	50.5	21	0
20	MACS 4090	N-623	63.5	6	1	45.8	18	0	54.6	11	0
21	MPO 1365	N-624	60.0	16	0	38.3	25	0	49.2	24	0
22	HI 8818	N-625	61.8	10	0	51.6	2	1	56.7	4	1
23	HI 8737 (C)	N-603	62.7	8	0	46.3	16	0	54.5	12	0
24	MACS 3949 (C)	N-616	61.6	11	0	48.2	9	0	54.9	10	0
25	HI 8713 (C)	N-618	66.6	1	1	46.6	14	0	56.6	5	1
	G.M.		60.8			46.9			53.8		
	S.E.(M)		1.425			1.482			1.028		
	C.D. (10%)		3.3			3.4			2.4		

Summary of Disease Data and Agronomic Characteristics

Central Zone **Trial: NIVT-4-IR-TS-TDM, 2018-19**

SN	Variety	Code	Rust Reactions		Leaf blight	Agronomic Characteristics							Grain Characteristics			
			Br	Bl	HS	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Col.	Tex.	TGW.R	TGW.M
1.	UAS470	N-601	tMS	5MS	0	57-79	71	107-139	121	81-101	89	0	A	SH	46-54	49
2.	GW1351	N-602	tR	tMS	0	54-73	68	99-138	119	79-98	88	20	A	SH	48-58	54
3.	MPO1364	N-604	tMS	5MS	0	61-72	68	108-136	120	75-91	86	0	A	SH	53-58	56
4.	DDW51	N-605	tMR	tMS	0	69-82	76	110-139	122	80-94	86	0	A	SH	40-52	45
5.	GW1352	N-606	5MS	10MS	0	53-73	68	97-135	118	68-91	80	0	A	SH	36-53	48
6.	HI8822	N-607	0	tMR	0	61-80	72	108-133	121	75-93	86	0	A	SH	48-54	50
7.	UAS471	N-608	tMR	5MS	0	67-84	75	109-135	122	83-104	91	0	A	SH	39-54	44
8.	PDW356	N-609	tR	tMR	0	64-82	75	107-138	123	76-105	89	0	A	SH	39-52	49
9.	DDW50	N-610	tMR	10MS	0	61-78	70	104-138	119	80-106	90	15	A	SH	50-56	53
10.	MPO1366	N-611	tMR	tMS	0	57-75	69	104-135	118	79-104	92	0	A	SH	54-59	56
11.	HI8820	N-612	tMS	10MS	0	68-80	75	111-134	121	80-96	87	0	A	SH	48-56	50
12.	NIDW1316	N-613	tMS	5MS	0	76-89	81	116-136	125	84-101	94	0	A	SH	44-57	51
13.	WHD964	N-614	tMR	5MS	0	63-84	75	107-137	122	80-111	91	0	A	SH	40-49	44
14.	MACS4091	N-615	tMR	tR	0	51-76	67	96-130	116	74-101	88	5	A	SH	48-54	51
15.	HI8819	N-617	5R	tMR	0	65-79	72	108-134	121	78-97	89	0	A	SH	49-54	51
16.	NIDW1302	N-619	tMR	tMS	25	64-81	72	111-135	121	70-86	78	10	A	SH	43-56	48
17.	HI8821	N-620	tMR	5MS	0	62-78	72	105-131	119	80-100	91	5	A	SH	42-54	52
18.	RKD339	N-621	10MS	20MS	0	64-81	73	109-132	120	78-106	88	0	A	SH	51-59	54
19.	NIDW1293	N-622	tMR	5MS	0	67-82	76	110-137	122	89-103	93	0	A	SH	50-60	54
20.	MACS4090	N-623	5R	tR	0	62-86	75	107-136	122	82-109	93	0	A	SH	45-53	50
21.	MPO1365	N-624	tR	tMR	35	57-80	70	106-132	120	78-101	89	10	A	SH	51-58	54
22.	HI8818	N-625	5R	5MS	01	65-82	74	108-132	121	81-98	91	0	A	SH	46-57	51
23.	HI8737 (C)	N-603	tR	tMR	0	63-81	72	107-132	120	78-98	87	0	A	SH	51-56	54
24.	MACS3949 (C)	N-616	tMS	5MS	0	67-82	74	109-138	122	83-99	90	5	A	SH	51-59	54
25.	HI8713 (C)	N-618	tMR	tMR	0	68-79	76	113-137	124	84-102	94	5	A	SH	43-56	48

1. Ancillary data reported from Junagadh, Powarkheda, SK Nagar, Indore, Kota and Vijapur.
2. Brown and black rust data from Junagarh and Vijapur; 3. Leaf Blight data from Dharwad and Pune; 4. Lodging data from Powarkheda and Vijapur

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NIVT4-IR-TS-TDM, 2018-19
Central Zone
Individual Station Rust Data

SN	Variety	Code	Junagarh		Vijapur	
			Black Rust	Brown Rust	Black Rust	Brown Rust
1	UAS470	N-601	0	0	5MS	tMS
2	GW1351	N-602	0	0	tMS	tR
3	MPO1364	N-604	tR	0	5MS	tMS
4	DDW51	N-605	0	0	tMS	tMR
5	GW1352	N-606	0	tMR	10MS	5MS
6	HI8822	N-607	0	0	tMR	0
7	UAS471	N-608	0	tMR	5MS	tMR
8	PDW356	N-609	0	tR	tMR	0
9	DDW50	N-610	0	0	10MS	tMR
10	MPO1366	N-611	tr	tMR	tMS	tr
11	HI8820	N-612	0	tR	10MS	tMS
12	NIDW1316	N-613	0	tMR	5MS	tMS
13	WHD964	N-614	0	tR	5MS	tMR
14	MACS4091	N-615	0	tR	tr	tMR
15	HI8819	N-617	0	5R	tMR	tMR
16	NIDW1302	N-619	0	0	tMS	tMR
17	HI8821	N-620	tR	tR	5MS	tMR
18	RKD339	N-621	0	0	20MS	10MS
19	NIDW1293	N-622	0	0	5MS	tMR
20	MACS4090	N-623	tR	5R	tr	0
21	MPO1365	N-624	0	tR	tMR	tR
22	HI8818	N-625	0	5R	5MS	tMR
23	HI8737 (C)	N-603	0	tR	tMR	0
24	MACS3949 (C)	N-616	0	0	5MS	tMS
25	HI8713 (C)	N-618	0	tMR	tMR	tr

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: NIVT-4-IR-TS-TDM, 2018-19**

SN	Variety	Rust Reactions	Code	Agronomic Characteristics								Grain Characteristics			
		BI		Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	UAS470	10S	N-601	64-76	68	112-130	116	77-93	88	10	M	A	SH	38-60	47
2.	GW1351	0	N-602	53-65	59	105-123	111	80-93	87	40	M	A	SH	46-61	52
3.	MPO1364	0	N-604	55-72	63	106-128	113	78-90	85	15	M	A	SH	48-57	53
4.	DDW51	20S	N-605	63-77	69	111-132	118	85-93	88	0	M	A	SH	40-60	46
5.	GW1352	0	N-606	56-70	62	102-124	109	72-85	78	0	M	A	SH	43-54	48
6.	HI8822	0	N-607	59-70	65	109-127	115	82-88	84	30	M	A	SH	39-59	47
7.	UAS471	5MS	N-608	62-76	66	112-131	117	74-100	91	20	M	A	SH	31-62	42
8.	PDW356	60S	N-609	63-72	65	113-128	117	70-90	82	10	M	A	SH	39-60	48
9.	DDW50	20S	N-610	58-73	64	106-127	112	83-96	88	15	M	A	SH	45-64	52
10.	MPO1366	0	N-611	58-76	64	108-131	113	86-99	92	15	M	A	SH	48-54	50
11.	HI8820	0	N-612	65-75	71	115-131	119	80-96	88	35	M	A	SH	32-66	47
12.	NIDW1316	0	N-613	72-83	76	117-132	121	84-101	95	0	M	A	SH	42-60	50
13.	WHD964	5MS	N-614	62-76	67	110-131	117	83-91	88	20	M	A	SH	31-55	42
14.	MACS4091	tMS	N-615	54-72	61	100-126	110	74-89	82	10	M	A	SH	39-60	50
15.	HI8819	ts	N-617	62-79	68	111-131	116	79-92	86	10	M	A	SH	37-64	50
16.	NIDW1302	0	N-619	61-78	67	110-130	116	79-87	83	15	M	A	SH	42-60	50
17.	HI8821	0	N-620	58-69	62	106-126	113	85-97	90	20	M	A	SH	48-58	52
18.	RKD339	0	N-621	62-73	66	110-128	116	72-91	86	0	M	A	SH	46-53	49
19.	NIDW1293	0	N-622	68-78	72	117-131	121	81-97	92	20	M	A	SH	38-58	50
20.	MACS4090	0	N-623	64-80	70	113-131	118	80-96	88	25	M	A	SH	42-64	52
21.	MPO1365	0	N-624	54-73	62	105-127	112	83-95	90	25	M	A	SH	33-52	45
22.	HI8818	5MS	N-625	62-76	68	111-130	117	84-95	90	25	M	A	SH	31-57	45
23.	HI8737 (C)	0	N-603	57-73	64	105-126	113	74-90	81	0	M	A	SH	47-57	53
24.	MACS3949 (C)	5MS	N-616	61-78	67	111-132	116	79-94	87	0	M	A	SH	43-54	50
25.	HI8713 (C)	5MS	N-618	65-77	70	113-132	119	78-95	89	0	M	A	SH	40-63	49

1. Ancillary data from Niphad, Nippani, Akola, Dharwad, Ugar Khurd and Pune.
2. Black rust data from Dharwad and Pune; 3. Lodging data from Pune and Vijapur.

NIVT4-IR-TS-TDM, 2018-19
Peninsular Zone
Individual Station Rust Data

SN	Variety	Code	Black Rust	Black Rust
			Dharwad	Pune
1	UAS470	N-601	10S	0
2	GW1351	N-602	0	0
3	MPO1364	N-604	0	0
4	DDW51	N-605	20S	0
5	GW1352	N-606	0	0
6	HI8822	N-607	0	0
7	UAS471	N-608	5MS	0
8	PDW356	N-609	60S	0
9	DDW50	N-610	20S	0
10	MPO1366	N-611	0	0
11	HI8820	N-612	0	0
12	NIDW1316	N-613	0	0
13	WHD964	N-614	5MS	0
14	MACS4091	N-615	tMS	0
15	HI8819	N-617	0	5R
16	NIDW1302	N-619	0	0
17	HI8821	N-620	0	tR
18	RKD339	N-621	0	0
19	NIDW1293	N-622	0	0
20	MACS4090	N-623	0	5R
21	MPO1365	N-624	0	tr
22	HI8818	N-625	5MS	5R
23	HI8737 (C)	N-603	0	0
24	MACS3949 (C)	N-616	5MS	0
25	HI8713 (C)	N-618	5MS	tMR

1807-NIVT-5A-RI-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NWPZ											
			Delhi			J&K			Punjab						Haryana		
			Delhi			Jammu			Ludhiana			Balachaur			Gurdaspur			Hisar		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	BRW 3847	N-701	60.7	12	0	68.6	21	1	44.5	19	0	56.9	5	0	32.8	24	0	52.0	16	0
2	UP 3037	N-702	53.0	19	0	69.2	20	1	44.7	18	0	51.2	13	0	44.1	20	0	54.6	5	1
3	DBW 298	N-703	65.7	2	1	67.2	23	1	53.9	4	1	56.4	7	0	53.4	5	1	50.9	18	0
4	DBW 297	N-704	47.8	22	0	72.5	16	1	43.4	20	0	69.4	1	1	53.3	6	1	53.0	12	1
5	DBW 296	N-706	67.6	1	1	83.3	5	1	52.2	8	1	54.5	8	0	56.5	1	1	54.2	6	1
6	JAUW 672	N-707	57.6	15	0	83.1	6	1	54.5	3	1	54.4	9	0	52.7	7	1	53.8	9	1
7	WH 1268	N-708	58.6	14	0	74.3	14	1	55.6	2	1	48.1	17	0	52.1	8	1	52.5	13	0
8	DBW 299	N-709	62.5	5	1	83.8	4	1	52.2	9	1	49.4	16	0	54.2	3	1	62.8	1	1
9	WH 1269	N-710	54.5	16	0	85.4	2	1	50.2	13	1	61.7	3	0	49.5	13	0	51.0	17	0
10	PBW 817	N-711	62.3	6	1	88.7	1	1	53.7	5	1	50.5	14	0	45.7	19	0	46.5	23	0
11	NW 7069	N-712	63.1	4	1	79.8	10	1	45.9	16	0	45.5	20	0	43.5	21	0	54.1	8	1
12	HD 3339	N-714	61.9	7	1	78.1	11	1	52.9	6	1	59.8	4	0	54.3	2	1	53.7	10	1
13	HUW 838	N-715	61.6	8	1	72.4	17	1	49.5	14	1	49.6	15	0	51.5	10	1	57.1	3	1
14	K 1810	N-716	40.1	25	0	63.6	24	0	41.1	22	0	37.8	25	0	35.7	23	0	39.7	24	0
15	HD 3337	N-717	52.9	20	0	76.7	12	1	47.2	15	0	44.2	23	0	51.6	9	1	57.8	2	1
16	K 1809	N-718	41.1	24	0	57.5	25	0	33.4	24	0	52.3	12	0	50.7	11	0	48.5	22	0
17	HD 3336	N-719	63.4	3	1	67.9	22	1	56.0	1	1	45.8	19	0	47.4	16	0	52.3	14	0
18	UP 3036	N-720	53.9	17	0	76.2	13	1	50.6	12	1	54.0	11	0	53.8	4	1	52.2	15	0
19	HD 3338	N-723	53.6	18	0	82.0	8	1	51.6	10	1	45.2	21	0	48.2	15	0	57.0	4	1
20	HD 3335	N-724	61.2	11	1	83.1	7	1	50.7	11	1	54.4	10	0	41.5	22	0	48.7	21	0
21	PBW 816	N-725	59.8	13	0	71.8	18	1	52.7	7	1	44.9	22	0	48.8	14	0	54.2	7	1
22	K 1317 (C)	N-705	48.0	21	0	73.5	15	1	33.7	23	0	56.9	6	0	46.4	17	0	50.8	19	0
23	HD 2888 (C)	N-713	41.9	23	0	84.9	3	1	33.0	25	0	38.3	24	0	29.7	25	0	31.5	25	0
24	WH 1142 (C)	N-721	61.5	9	1	71.0	19	1	41.7	21	0	62.4	2	1	46.3	18	0	53.5	11	1
25	PBW 644 (C)	N-722	61.4	10	1	81.4	9	1	45.7	17	0	47.8	18	0	50.6	12	0	49.6	20	0
G.M.			56.6			75.8			47.6			51.6			47.8			51.7		
S.E.(M)			2.772			8.980			3.270			3.587			2.551			3.631		
C.D. (10%)			6.7			22.2			7.9			8.7			6.2			8.8		
C.V.			6.9			16.7			9.7			9.8			7.6			9.9		
D.O.S.(dd.mm.yy)			03.11.18			25.10.18			01.11.18			05.11.18			31.10.18			06.11.18		

No. of Trials: Proposed = 18 Conducted = 18
Trials not reported (01) = Diggi (RMT)

1807-NIVT-5A-RI-TS-TAS-NAT-ZONE, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NWPZ						NEPZ											
			Haryana			Uttarakhand			U.P.									Bihar		
			IIWBR-Karnal			Pantnagar			Kanpur			Faizabad			Varanasi			IARI-Pusa		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	BRW 3847	N-701	71.5	3	1	59.1	4	0	48.7	4	1	57.0	3	1	42.8	19	0	31.6	8	0
2	UP 3037	N-702	64.3	18	0	58.6	5	0	40.2	20	0	44.4	23	0	45.9	10	0	25.0	21	0
3	DBW 298	N-703	67.9	10	1	48.9	19	0	41.3	17	0	46.9	19	0	49.1	3	1	31.2	9	0
4	DBW 297	N-704	62.0	22	0	54.3	10	0	42.8	14	0	45.9	20	0	45.7	13	0	40.6	2	1
5	DBW 296	N-706	69.7	6	1	57.5	7	0	40.8	19	0	55.6	6	1	49.3	2	1	27.1	18	0
6	JAUW 672	N-707	66.5	14	1	63.4	2	1	42.1	16	0	48.5	15	0	51.0	1	1	30.4	11	0
7	WH 1268	N-708	68.5	8	1	63.6	1	1	39.0	22	0	55.3	8	1	40.9	22	0	42.0	1	1
8	DBW 299	N-709	73.4	2	1	43.9	21	0	45.6	11	0	45.8	21	0	44.1	15	0	20.4	25	0
9	WH 1269	N-710	65.9	17	0	49.1	18	0	45.1	12	0	51.3	12	0	37.0	23	0	30.3	12	0
10	PBW 817	N-711	70.1	4	1	50.2	17	0	45.7	10	0	58.2	2	1	42.5	20	0	30.6	10	0
11	NW 7069	N-712	62.2	21	0	50.6	16	0	49.3	3	1	55.6	5	1	43.5	17	0	24.2	22	0
12	HD 3339	N-714	69.4	7	1	42.2	23	0	44.1	13	0	48.4	16	0	43.1	18	0	27.9	14	0
13	HUW 838	N-715	63.9	19	0	58.2	6	0	42.2	15	0	54.2	9	1	45.8	12	0	25.7	19	0
14	K 1810	N-716	53.6	24	0	38.3	25	0	34.5	24	0	41.6	25	0	34.1	24	0	36.7	6	1
15	HD 3337	N-717	60.4	23	0	53.0	12	0	48.6	5	1	53.1	11	1	47.9	6	0	23.7	24	0
16	K 1809	N-718	62.2	20	0	59.8	3	1	50.9	1	1	45.0	22	0	42.4	21	0	27.1	16	0
17	HD 3336	N-719	67.9	12	1	52.4	14	0	39.7	21	0	51.2	13	0	44.0	16	0	27.8	15	0
18	UP 3036	N-720	66.2	16	0	51.0	15	0	35.0	23	0	60.9	1	1	47.9	7	0	32.3	7	0
19	HD 3338	N-723	68.3	9	1	56.8	8	0	40.9	18	0	53.5	10	1	44.3	14	0	25.1	20	0
20	HD 3335	N-724	69.8	5	1	43.0	22	0	46.9	8	1	55.5	7	1	45.8	11	0	27.1	17	0
21	PBW 816	N-725	67.5	13	1	44.5	20	0	46.9	7	1	47.2	18	0	46.3	9	0	40.3	3	1
22	K 1317 (C)	N-705	74.4	1	1	52.8	13	0	45.7	9	0	56.5	4	1	49.0	4	1	39.1	4	1
23	HD 2888 (C)	N-713	37.8	25	0	41.7	24	0	32.1	25	0	49.5	14	0	27.0	25	0	24.0	23	0
24	WH 1142 (C)	N-721	67.9	11	1	54.2	11	0	49.4	2	1	48.4	17	0	46.6	8	0	37.8	5	1
25	PBW 644 (C)	N-722	66.3	15	1	55.3	9	0	48.1	6	1	43.5	24	0	48.4	5	0	28.7	13	0
G.M.			65.5			52.1			43.4			50.9			44.2			30.3		
S.E.(M)			3.270			1.804			2.065			3.242			0.978			3.111		
C.D. (10%)			8.1			4.5			5.1			8.0			2.4			7.7		
C.V.			7.1			4.9			6.7			9.0			3.1			14.5		
D.O.S.(dd.mm.yy)			25.10.18			27.10.18			09.11.18			09.11.18			08.11.18			08.11.18		

1807-NIVT-5A-RI-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NEPZ													
			Bihar						Jharkhand			W.B.				
			RPCAU-Pusa			Sabour			Ranchi			Kalyani			Coochbehar	
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK G
1	BRW 3847	N-701	44.8	9	1	37.5	11	0	55.8	14	0	29.2	20	0	32.2	9 0
2	UP 3037	N-702	42.2	20	1	30.1	23	0	56.8	13	0	31.3	16	0	32.0	11 0
3	DBW 298	N-703	43.2	18	1	33.3	18	0	69.8	2	1	38.5	4	0	22.1	25 0
4	DBW 297	N-704	44.8	9	1	39.4	7	0	55.6	15	0	40.6	2	1	40.3	3 1
5	DBW 296	N-706	45.3	5	1	38.3	9	0	69.6	4	1	37.0	6	0	23.6	24 0
6	JAUW 672	N-707	40.6	24	0	30.4	22	0	68.8	5	1	37.0	6	0	32.1	10 0
7	WH 1268	N-708	42.7	19	1	45.2	1	1	68.3	7	1	31.3	16	0	35.8	6 1
8	DBW 299	N-709	41.7	22	1	33.6	16	0	68.5	6	1	26.6	23	0	27.5	16 0
9	WH 1269	N-710	45.8	1	1	33.8	15	0	34.5	25	0	31.8	15	0	26.9	17 0
10	PBW 817	N-711	44.8	9	1	39.6	5	0	69.6	3	1	28.1	21	0	28.6	14 0
11	NW 7069	N-712	35.4	25	0	32.5	20	0	53.8	16	0	32.8	14	0	30.7	13 0
12	HD 3339	N-714	45.8	1	1	42.6	2	1	57.6	12	0	33.3	12	0	36.7	5 1
13	HUW 838	N-715	41.7	22	1	29.6	24	0	52.5	18	0	26.0	25	0	25.4	20 0
14	K 1810	N-716	45.8	1	1	33.5	17	0	50.6	19	0	28.1	21	0	44.5	1 1
15	HD 3337	N-717	44.3	14	1	38.8	8	0	49.4	20	0	26.6	23	0	24.6	23 0
16	K 1809	N-718	45.3	5	1	32.4	21	0	59.0	11	0	43.8	1	1	34.3	7 1
17	HD 3336	N-719	42.2	20	1	41.7	3	1	47.5	22	0	33.0	13	0	26.8	18 0
18	UP 3036	N-720	44.8	9	1	27.5	25	0	66.9	9	1	31.3	16	0	25.8	19 0
19	HD 3338	N-723	43.8	16	1	34.8	13	0	53.1	17	0	36.5	8	0	24.6	22 0
20	HD 3335	N-724	45.3	5	1	37.3	12	0	45.5	23	0	39.6	3	1	34.0	8 1
21	PBW 816	N-725	44.3	14	1	37.6	10	0	66.4	10	1	36.5	8	0	38.1	4 1
22	K 1317 (C)	N-705	45.8	1	1	41.1	4	1	70.0	1	1	34.9	11	0	42.0	2 1
23	HD 2888 (C)	N-713	44.8	9	1	32.8	19	0	36.3	24	0	36.5	8	0	25.2	21 0
24	WH 1142 (C)	N-721	45.3	5	1	33.9	14	0	67.4	8	1	38.0	5	0	27.7	15 0
25	PBW 644 (C)	N-722	43.8	16	1	39.4	6	0	48.5	21	0	29.7	19	0	31.0	12 0
G.M.			43.8			35.9			57.7			33.5			30.9	
S.E.(M)			2.779			2.054			3.578			1.903			4.332	
C.D. (10%)			6.7			5.0			8.7			4.6			10.7	
C.V.			9.0			8.1			8.8			8.0			19.8	
D.O.S.(dd.mm.yy)			10.11.18			06.11.18			30.10.18			09.11.18			03.11.18	

1807-NIVT-5A-RI-TS-TAS-NAT-ZONE, 2018-19
ZONAL AND NATIONAL MEANS (q/ha)

S.N.	Variety	Code	NWPZ			NEPZ			NATIONAL		
			Yield	RK	G	Yield	RK	G	Yield	RK	G
1	BRW 3847	N-701	55.8	17	0	42.2	10	0	48.6	14	0
2	UP 3037	N-702	55.0	21	0	38.6	22	0	46.3	22	0
3	DBW 298	N-703	58.0	8	0	41.7	13	0	49.4	10	0
4	DBW 297	N-704	57.0	14	0	44.0	4	0	50.1	8	1
5	DBW 296	N-706	61.9	1	1	42.9	7	0	51.9	1	1
6	JAUW 672	N-707	60.7	2	1	42.3	8	0	51.0	3	1
7	WH 1268	N-708	59.2	4	1	44.5	3	0	51.4	2	1
8	DBW 299	N-709	60.3	3	1	39.3	20	0	49.2	11	0
9	WH 1269	N-710	58.4	7	0	37.4	24	0	47.3	19	0
10	PBW 817	N-711	58.5	6	1	43.1	6	0	50.3	5	1
11	NW 7069	N-712	55.6	18	0	39.8	16	0	47.2	20	0
12	HD 3339	N-714	59.0	5	1	42.2	11	0	50.1	7	1
13	HUW 838	N-715	58.0	9	0	38.1	23	0	47.5	18	0
14	K 1810	N-716	43.7	24	0	38.8	21	0	41.1	24	0
15	HD 3337	N-717	55.5	20	0	39.7	17	0	47.1	21	0
16	K 1809	N-718	50.7	23	0	42.2	9	0	46.2	23	0
17	HD 3336	N-719	56.6	15	0	39.3	19	0	47.5	17	0
18	UP 3036	N-720	57.2	13	0	41.4	14	0	48.8	12	0
19	HD 3338	N-723	57.8	10	0	39.6	18	0	48.2	15	0
20	HD 3335	N-724	56.6	16	0	41.9	12	0	48.8	13	0
21	PBW 816	N-725	55.5	19	0	44.8	2	0	49.9	9	0
22	K 1317 (C)	N-705	54.6	22	0	47.1	1	1	50.6	4	1
23	HD 2888 (C)	N-713	42.3	25	0	34.2	25	0	38.1	25	0
24	WH 1142 (C)	N-721	57.3	11	0	43.8	5	0	50.2	6	1
25	PBW 644 (C)	N-722	57.3	12	0	40.1	15	0	48.2	16	0
G.M.			56.1			41.2			48.2		
S.E.(M)			1.508			0.946			0.869		
C.D. (10%)			3.5			2.2			2.0		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: NIVT 5A-RI-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction				Agronomic Characteristics								Grain Characteristics				
			Yl	ACl	Br	ACl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M	BKP
1	BRW3847	N-701	60S	16.2	0.0	0.0	97-117	105	142-171	154	96-116	106	15	Ey	A	H	37-48	43	0.2
2	UP3037	N-702	60S	18.2	0	0.0	100-119	108	144-173	155	100-114	107	0	Ey	A	H	36-45	42	0.1
3	DBW298	N-703	20MS	5.0	20S	5.0	87-107	101	145-171	153	92-116	104	0	Ey	A	H	30-49	43	0.1
4	DBW297	N-704	10S	4.0	0	0.0	99-118	109	145-172	156	102-119	110	15	Ey	A	H	38-52	45	0.1
5	DBW296	N-706	10S	4.0	TMS	0.1	98-119	107	144-172	154	101-117	107	0	M	A	H	40-52	45	0.1
6	JAUW672	N-707	5S	2.1	TMS	0.2	86-119	103	135-170	152	97-119	104	0	Ey	A	H	31-49	43	0.1
7	WH1268	N-708	5S	3.8	5S	1.0	90-111	102	138-172	152	103-134	110	10	Ey	A	SH	33-52	44	0.2
8	DBW299	N-709	5MS	1.1	0	0.0	91-118	106	144-173	155	94-116	107	0	M	A	SH	40-55	50	0.1
9	WH1269	N-710	5S	2.6	TR	0.0	90-111	103	138-172	153	100-116	106	0	Ey	A	H	33-54	45	0.1
10	PBW817	N-711	10MS	5.0	10S	1.7	102-124	108	144-172	156	106-124	117	0	Ey	A	H	41-56	50	0.1
11	NW7069	N-712	40S	13.1	0	0.0	90-111	99	137-170	152	99-115	105	0	Ey	A	SH	39-51	44	0.1
12	HD3339	N-714	5S	3.0	5S	1.1	96-111	103	135-171	152	98-114	103	0	M	A	H	39-50	45	0.1
13	HUW838	N-715	20S	8.2	0	0	88-111	99	130-170	151	95-112	102	5	Ey	A	H	37-50	43	0.1
14	K1810	N-716	40S	16.1	0	0	95-120	107	144-174	156	105-185	142	25	Ey	A	H	36-49	42	0.1
15	HD3337	N-717	5S	1.9	0	0	96-111	106	144-171	155	96-113	102	0	M	A	H	29-50	42	0.1
16	K1809	N-718	40S	10.9	10s	3.2	99-120	110	145-173	156	100-111	106	10	Ey	A	H	39-48	43	0.1
17	HD3336	N-719	5S	1.9	20S	6.7	98-113	104	138-172	154	96-115	104	0	Ey	A	H	37-49	42	0.1
18	UP3036	N-720	20S	4.9	0	0	97-118	106	145-172	154	105-124	115	10	Ey	A	H	34-51	43	0.1
19	HD3338	N-723	10S	3.0	TMS	0.1	96-124	108	143-174	155	98-119	109	0	Ey	A	H	38-48	42	0.3
20	HD3335	N-724	10S	4.0	0	0	86-118	103	136-174	153	101-119	111	5	M	A	SH	35-55	43	0.2
21	PBW816	N-725	5S	2.0	0	0	85-111	100	142-172	152	90-117	103	0	Ey	A	SH	35-52	43	0.3
22	K1317 (C)	N-705	40S	18.4	0	0	99-120	108	140-172	156	105-119	112	0	Ey	A	H	37-58	47	0.0
23	HD2888 (C)	N-713	60S	17.2	0	0	100-120	109	143-174	156	109-151	129	25	Ey	A	H	35-47	41	0.1
24	WH1142 (C)	N-721	10S	3.0	10S	3.4	91-124	107	144-173	155	98-120	109	0	M	A	SH	34-47	40	0.1
25	PBW644 (C)	N-722	60S	16.1	10S	1.9	97-119	106	142-171	153	102-120	110	0	Ey	A	H	39-49	43	0.2

1. Ancillary data from Delhi, Ludhiana, Balachaur, Gurudaspur, Hisar, Karnal, and Pantnagar centres.
2. Yellow and brown rust data from Ludhiana, Balachaur, Gurudaspur, Hisar, Karnal, Pantnagar (only Br) centres.
3. Lodging data from Ludhiana, Gurdaspur, Hisar and ICAR-IIWBR centres only; Black point data from Hisar centre only.

Individual Station Rust data
North Western Plains Zone
Trial: NIVT 5A-RI-TS-TAS, 2018-19

SN	Variety	Code	Ludhiana		Balachaur		Gurdaspur		Hisar		Karnal		Pantnagar
			Yl	Br	Yl	Br	Yl	Br	Yl	Br	Yl	Br	Br
1	BRW3847	N-701	10S	0	60S	0	10S	0	tMR	0	tMS	0	0
2	UP3037	N-702	20S	0	60S	0	10S	0	0	0	tMS	0	0
3	DBW298	N-703	5MS	10S	5S	0	20MS	0	0	0	0	0	20S
4	DBW297	N-704	10S	0	5S	0	5S	0	0	0	0	0	0
5	DBW296	N-706	5S	0	10S	0	0	0	0	tMS	5S	0	0
6	JAUW672	N-707	5S	0	5S	TMS	tR	tR	0	0	tMR	0	0
7	WH1268	N-708	5S	0	5S	0	5S	tMS	0	0	5MS	0	5S
8	DBW299	N-709	5MS	0	tMS	0	0	0	0	0	tMS	0	0
9	WH1269	N-710	5S	0	10MS	0	tR	tR	0	0	0	0	0
10	PBW817	N-711	tMS	0	10MS	0	tMS	tR	0	0	tMR	0	10S
11	NW7069	N-712	40S	0	0	0	20S	0	5S	0	tMR	0	0
12	HD3339	N-714	5S	0	tMR	0	tMS	tMS	5S	tMS	5MS	0	5S
13	HUW838	N-715	20S	0	tR	0	20S	0	tMR	0	tR	0	0
14	K1810	N-716	40S	0	20S	0	20S	0	0	0	tMR	0	0
15	HD3337	N-717	5S	0	tMS	0	0	0	0	0	5MS	0	0
16	K1809	N-718	40S	0	5MS	10s	10S	0	0	5MS	tMS	5S	0
17	HD3336	N-719	5S	10S	tMS	0	5MS	20S	0	0	0	0	10S
18	UP3036	N-720	5MS	0	20S	0	TR	0	0	0	tMR	0	0
19	HD3338	N-723	10S	0	5MS	0	tMS	tMS	0	0	tMR	0	0
20	HD3335	N-724	10S	0	0	0	5S	0	5S	0	0	0	0
21	PBW816	N-725	5MS	0	tMS	0	5S	0	0	0	0	0	0
22	K1317 (C)	N-705	40S	0	40S	0	10S	0	tMR	0	tMS	0	0
23	HD2888 (C)	N-713	60S	0	tMS	0	20S	0	5S	0	tMR	0	0
24	WH1142 (C)	N-721	5S	0	0	0	10S	10S	0	0	tR	tR	10S
25	PBW644 (C)	N-722	60S	0	5MS	0	20MS	0	0	tMS	tMR	tMR	10S

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: NIVT 5A-RI-TS-TAS, 2018-19**

SN	Variety	Code	Leaf blight Reaction	Agronomic Characteristics								Grain Characteristics			
			HS(Av.)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.	Thr.	Col.	Tex.	TGW.R	TGW.M
1	BRW3847	N-701	46(24)	76-90	85	120-137	131	92-109	102	0	Ey	A	SH	29-47	41
2	UP3037	N-702	35(23)	73-93	85	124-143	134	78-102	91	0	Ey	A	SH	34-47	39
3	DBW298	N-703	35(24)	68-87	80	116-138	128	84-99	91	0	Ey	A	SH	32-48	42
4	DBW297	N-704	35(23)	37-96	87	125-141	134	81-103	96	0	Ey	A	SH	22-51	42
5	DBW296	N-706	25(24)	76-92	85	114-139	130	91-103	96	0	Ey	A-W	SH	34-53	44
6	JAUW672	N-707	46(24)	74-89	83	122-135	129	84-99	93	0	Ey	A-W	SO	28-49	40
7	WH1268	N-708	46(23)	73-88	82	118-138	130	92-99	96	0	Ey	A	SH	30-51	42
8	DBW299	N-709	35(23)	74-91	84	115-136	129	88-104	96	0	M	A	SH	30-54	45
9	WH1269	N-710	46(34)	72-90	82	121-138	131	91-101	95	0	Ey	A	SH	32-54	45
10	PBW817	N-711	34(24)	76-96	88	124-139	133	94-110	102	0	M	A	SH	32-59	46
11	NW7069	N-712	35(23)	72-88	80	124-142	132	93-100	97	0	Ey	A	SH	34-51	43
12	HD3339	N-714	36(24)	74-88	82	119-137	129	82-101	94	0	Ey	A	SH	33-49	42
13	HUW838	N-715	46(23)	71-85	80	114-138	128	83-99	92	0	Ey	A	SH	35-45	39
14	K1810	N-716	24(23)	78-93	87	127-139	135	126-151	136	9	Ey	A	SH	35-51	43
15	HD3337	N-717	34(24)	75-94	84	120-139	131	83-100	93	0	Ey	A	SH	29-50	42
16	K1809	N-718	35(23)	79-97	90	129-145	138	91-104	97	0	M	A	SH	27-50	39
17	HD3336	N-719	35(23)	73-90	83	121-138	131	82-104	95	0	Ey	A	SH	31-47	40
18	UP3036	N-720	35(23)	78-94	87	124-139	133	101-123	108	0	Ey	A	SH	29-45	39
19	HD3338	N-723	35(23)	76-93	85	118-137	130	86-107	99	0	Ey	A	SH	27-51	43
20	HD3335	N-724	35(23)	70-89	80	114-139	131	86-102	96	0	Ey	A	SH	36-45	41
21	PBW816	N-725	35(23)	73-87	79	118-139	130	84-100	93	0	M	A	SH	29-45	39
22	K1317 (C)	N-705	24(23)	68-93	85	123-140	133	90-103	100	0	Ey	A	SH	34-53	44
23	HD2888 (C)	N-713	68(24)	75-92	84	114-144	132	106-142	119	60	Ey	A	SH	35-54	41
24	WH1142 (C)	N-721	24(13)	71-92	82	114-139	130	88-101	94	0	Ey	A	SH	28-47	39
25	PBW644 (C)	N-722	46(24)	76-93	85	121-141	131	90-110	100	0	Ey	A	SH	36-46	41

1. Ancillary data from Kanpur Faizabad, Varansi, Pusa, Sabour, Ranchi, Kalyani and Coochbehar.
2. Leaf Blight data from Faizabad, Sabour, Coochbehar and Kalyani.
3. Lodging data from Kanpur and Kalyani.

NIVT 5A-RI-TS-TAS, 2018-19
North Eastern Plains Zone
Individual station Leaf Blight Data

SN	Variety	Code	Faizabad	Sabour	Kalyani	Coochbehar
1	BRW3847	N-701	12	46	24	23
2	UP3037	N-702	12	35	23	12
3	DBW298	N-703	23	23	12	35
4	DBW297	N-704	12	35	12	34
5	DBW296	N-706	24	46	12	23
6	JAUW672	N-707	12	46	23	12
7	WH1268	N-708	12	35	12	35
8	DBW299	N-709	36	46	23	23
9	WH1269	N-710	12	25	24	34
10	PBW817	N-711	12	35	23	23
11	NW7069	N-712	36	35	23	23
12	HD3339	N-714	24	13	23	12
13	HUW838	N-715	24	24	23	34
14	K1810	N-716	12	35	12	12
15	HD3337	N-717	12	35	12	23
16	K1809	N-718	24	35	01	12
17	HD3336	N-719	23	35	12	23
18	UP3036	N-720	12	35	23	12
19	HD3338	N-723	23	68	23	23
20	HD3335	N-724	12	02	24	23
21	PBW816	N-725	12	46	24	23
22	K1317 (C)	N-705	24	25	13	23
23	HD2888 (C)	N-713	12	46	12	12
24	WH1142 (C)	N-721	12	35	12	23
25	PBW644 (C)	N-722	24	24	12	23

1808-NIVT-5B-RI-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	CZ																	
			MP										Chhatisgarh			Gujarat				
			Indore			Powarkheda			Sagar			Jabalpur			Bilaspur			Vijapur		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MACS 6736	N-801	45.8	20	0	40.2	16	0	33.3	7	0	69.8	3	1	35.8	16	0	39.2	1	1
2	MACS 4087(d)	N-802	46.9	19	0	44.3	7	1	25.5	19	0	58.3	10	0	40.0	5	0	23.7	20	0
3	MPO 1357(d)	N-803	54.3	7	1	43.2	11	1	33.3	7	0	72.2	1	1	39.9	6	0	24.4	19	0
4	GW 520	N-804	26.2	25	0	28.3	25	0	17.7	25	0	41.3	25	0	25.7	24	0	26.0	17	0
5	GW 1353(d)	N-805	47.4	18	0	37.7	17	0	27.1	16	0	56.9	11	0	35.3	18	0	23.3	21	0
6	UAS 472(d)	N-806	54.7	5	1	47.5	2	1	39.6	2	1	63.0	6	0	38.6	9	0	22.5	23	0
7	HI 1645	N-809	54.4	6	1	43.1	12	1	21.9	22	0	44.6	21	0	35.1	19	0	29.3	13	0
8	UAS 3009	N-811	48.5	15	0	46.6	5	1	33.3	7	0	61.5	8	0	39.2	7	0	27.0	14	0
9	UAS 3010	N-812	52.8	8	1	44.3	7	1	31.3	12	0	52.2	17	0	39.2	7	0	34.2	7	0
10	CG 1033	N-814	40.3	24	0	43.1	12	1	37.5	3	1	53.3	13	0	22.3	25	0	36.5	2	1
11	HI 1643	N-815	55.1	4	1	46.9	3	1	40.6	1	1	44.9	20	0	35.9	15	0	33.9	8	0
12	HI 1644	N-816	56.3	1	1	37.7	17	0	35.4	5	1	44.3	22	0	36.7	10	0	35.4	5	1
13	NIAW 3643	N-817	43.9	22	0	46.9	3	1	34.4	6	1	62.8	7	0	44.6	2	1	34.9	6	1
14	NIAW 3624	N-818	49.4	11	0	37.5	19	0	20.8	24	0	52.4	16	0	36.4	12	0	30.2	12	0
15	HI 8823(d)	N-819	55.7	3	1	37.3	22	0	27.1	16	0	51.2	18	0	35.7	17	0	25.8	18	0
16	HI 8824(d)	N-820	55.9	2	1	37.5	19	0	31.3	13	0	52.6	15	0	36.6	11	0	26.4	16	0
17	DBW 300	N-821	48.4	16	0	41.7	15	0	22.9	20	0	43.4	24	0	29.8	23	0	30.6	11	0
18	DDW 52(d)	N-822	43.0	23	0	31.3	24	0	21.9	22	0	44.2	23	0	32.6	21	0	20.7	24	0
19	MP 3512	N-823	49.0	13	0	45.2	6	1	32.3	10	0	67.2	4	1	40.4	4	1	32.4	10	0
20	MP 1356	N-824	49.3	12	0	48.1	1	1	28.1	15	0	66.5	5	0	44.7	1	1	26.4	15	0
21	MP 1358	N-825	52.5	9	1	43.8	9	1	37.5	3	1	55.4	12	0	44.0	3	1	36.1	3	1
22	HI 1605 (C)	N-807	51.1	10	0	35.9	23	0	32.3	10	0	53.0	14	0	34.4	20	0	35.6	4	1
23	HI 8627(d) (C)	N-808	47.4	17	0	37.5	19	0	26.0	18	0	61.4	9	0	36.0	14	0	20.4	25	0
24	UAS 446(d) (C)	N-810	45.1	21	0	43.8	9	1	31.3	13	0	47.3	19	0	32.5	22	0	22.7	22	0
25	DBW 110 (C)	N-813	48.5	14	0	42.5	14	1	22.9	20	0	70.2	2	1	36.3	13	0	33.6	9	0
G.M.			48.9			41.3			29.8			55.6			36.3			29.2		
S.E.(M)			1.833			2.697			2.863			2.310			2.009			1.971		
C.D. (10%)			4.4			6.5			6.9			5.7			4.9			4.8		
C.V.			5.3			9.2			13.6			5.9			7.8			9.5		
D.O.S.(dd.mm.yy)			26.10.18			03.11.18			10.11.18			08.11.18			05.11.18			05.11.18		

No. of Trials: Proposed = 18 Conducted = 18
Trials not reported (05) = Junagarh (LSM), Arnej (LSM), Kota (RMT), Udaipur (RMT), Nippani (RMT)

1808-NIVT-5B-RI-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	CZ						PZ								
			Gujarat						Maharastra								
			Dhandhuka			Tanchha			Pune			Akola			Niphad		
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MACS 6736	N-801	22.7	18	0	28.0	8	0	43.9	1	1	30.9	2	1	23.9	16	0
2	MACS 4087(d)	N-802	22.6	20	0	25.4	18	0	33.8	9	0	21.2	22	0	29.7	10	0
3	MPO 1357(d)	N-803	29.1	9	1	26.4	13	0	29.3	19	0	23.0	17	0	22.8	20	0
4	GW 520	N-804	16.8	25	0	20.4	25	0	31.0	18	0	19.3	24	0	17.1	25	0
5	GW 1353(d)	N-805	32.5	2	1	29.5	6	1	21.6	25	0	20.9	23	0	28.3	13	0
6	UAS 472(d)	N-806	23.4	15	0	30.7	4	1	31.3	16	0	26.1	12	1	32.9	4	1
7	HI 1645	N-809	28.4	10	0	24.2	19	0	34.9	7	0	23.9	15	0	23.9	17	0
8	UAS 3009	N-811	24.8	14	0	33.4	1	1	33.4	11	0	25.1	14	0	34.9	2	1
9	UAS 3010	N-812	30.2	8	1	22.6	21	0	31.3	17	0	28.0	6	1	29.1	11	0
10	CG 1033	N-814	22.7	19	0	26.7	12	0	36.0	6	0	27.8	10	1	29.0	12	0
11	HI 1643	N-815	27.4	12	0	26.4	14	0	37.3	4	0	27.9	9	1	29.7	9	0
12	HI 1644	N-816	30.6	6	1	28.5	7	0	31.7	14	0	27.9	8	1	32.2	5	1
13	NIAW 3643	N-817	30.7	5	1	31.1	3	1	38.8	3	1	28.8	5	1	28.3	14	0
14	NIAW 3624	N-818	21.7	22	0	22.1	22	0	42.1	2	1	21.6	21	0	34.5	3	1
15	HI 8823(d)	N-819	30.6	7	1	26.9	11	0	31.6	15	0	21.9	20	0	26.5	15	0
16	HI 8824(d)	N-820	23.4	16	0	23.1	20	0	27.5	21	0	23.0	18	0	20.7	24	0
17	DBW 300	N-821	21.9	21	0	27.3	9	0	33.4	10	0	25.7	13	0	21.6	22	0
18	DDW 52(d)	N-822	22.8	17	0	26.3	15	0	23.9	24	0	23.5	16	0	21.4	23	0
19	MP 3512	N-823	27.7	11	0	29.9	5	1	36.6	5	0	18.7	25	0	36.9	1	1
20	MP 1356	N-824	31.6	4	1	25.9	16	0	24.3	23	0	28.0	7	1	23.8	18	0
21	MP 1358	N-825	31.8	3	1	27.0	10	0	34.3	8	0	30.9	3	1	32.1	6	1
22	HI 1605 (C)	N-807	26.5	13	0	22.0	23	0	31.9	12	0	29.2	4	1	29.8	8	0
23	HI 8627(d) (C)	N-808	21.1	23	0	25.9	17	0	28.7	20	0	26.2	11	1	23.7	19	0
24	UAS 446(d) (C)	N-810	20.4	24	0	22.0	23	0	31.9	12	0	22.3	19	0	22.3	21	0
25	DBW 110 (C)	N-813	32.7	1	1	31.1	2	1	25.4	22	0	31.7	1	1	31.9	7	1
G.M.			26.2			26.5			32.2			25.3			27.5		
S.E.(M)			1.480			1.645			2.561			2.399			2.563		
C.D. (10%)			3.7			4.0			6.2			5.9			6.3		
C.V.			8.0			8.8			11.2			13.4			13.2		
D.O.S.(dd.mm.yy)			02.11.18			22.10.18			31.10.18			05.11.18			01.11.18		

1808-NIVT-5B-RI-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD, ZONAL AND NATIONAL MEANS (q/ha)

SN	Variety	Code	PZ						Pooled								
			Karnataka						CZ			PZ			NATIONAL		
			Bagalkot			Dharwad											
			Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G	Yield	RK	G
1	MACS 6736	N-801	42.0	2	1	38.6	2	1	39.4	8	0	35.9	2	1	38.0	3	1
2	MACS 4087(d)	N-802	30.5	17	0	35.7	5	0	35.9	16	0	30.2	12	0	33.7	16	0
3	MPO 1357(d)	N-803	26.3	20	0	29.2	16	0	40.4	4	1	26.1	20	0	34.9	13	0
4	GW 520	N-804	27.5	19	0	18.7	25	0	25.3	25	0	22.7	25	0	24.3	25	0
5	GW 1353(d)	N-805	39.2	5	1	26.3	22	0	36.2	15	0	27.3	18	0	32.8	18	0
6	UAS 472(d)	N-806	29.5	18	0	27.1	19	0	40.0	6	1	29.4	15	0	35.9	9	0
7	HI 1645	N-809	34.5	12	1	30.9	13	0	35.1	19	0	29.6	14	0	33.0	17	0
8	UAS 3009	N-811	37.5	10	1	31.1	12	0	39.3	9	0	32.4	10	0	36.6	5	0
9	UAS 3010	N-812	34.7	11	1	27.5	18	0	38.3	11	0	30.1	13	0	35.2	11	0
10	CG 1033	N-814	40.1	4	1	30.4	14	0	35.3	18	0	32.7	7	0	34.3	14	0
11	HI 1643	N-815	34.3	14	1	34.0	7	0	38.9	10	0	32.6	8	0	36.5	6	0
12	HI 1644	N-816	38.2	6	1	32.4	11	0	38.1	12	0	32.5	9	0	36.0	8	0
13	NIAW 3643	N-817	37.9	7	1	34.9	6	0	41.2	1	1	33.7	3	1	38.3	2	1
14	NIAW 3624	N-818	34.4	13	1	36.0	4	0	33.8	21	0	33.7	4	1	33.8	15	0
15	HI 8823(d)	N-819	25.3	22	0	26.6	21	0	36.3	14	0	26.4	19	0	32.5	19	0
16	HI 8824(d)	N-820	25.8	21	0	32.6	10	0	35.8	17	0	25.9	21	0	32.0	20	0
17	DBW 300	N-821	32.0	16	0	32.7	9	0	33.2	22	0	29.1	16	0	31.6	21	0
18	DDW 52(d)	N-822	25.0	23	0	26.2	23	0	30.3	24	0	24.0	24	0	27.9	24	0
19	MP 3512	N-823	41.5	3	1	32.9	8	0	40.5	3	1	33.3	6	0	37.8	4	1
20	MP 1356	N-824	33.0	15	0	27.5	17	0	40.1	5	1	27.3	17	0	35.2	12	0
21	MP 1358	N-825	42.2	1	1	43.6	1	1	41.0	2	1	36.6	1	1	39.3	1	1
22	HI 1605 (C)	N-807	37.8	8	1	38.4	3	1	36.3	13	0	33.4	5	0	35.2	10	0
23	HI 8627(d) (C)	N-808	21.0	25	0	29.5	15	0	34.5	20	0	25.8	22	0	31.1	22	0
24	UAS 446(d) (C)	N-810	22.3	24	0	26.8	20	0	33.1	23	0	25.1	23	0	30.1	23	0
25	DBW 110 (C)	N-813	37.7	9	1	25.6	24	0	39.7	7	1	30.5	11	0	36.2	7	0
G.M.			33.2			31.0			36.7			29.9			34.1		
S.E.(M)			3.728			3.082			0.760			1.300			0.685		
C.D. (10%)			9.0			7.5			1.8			3.0			1.6		
C.V.			15.9			14.1											
D.O.S.(dd.mm.yy)			10.11.18			10.11.18											

Summary of Agronomic Characteristics

Central Zone **Trial: NIVT-5B-RI-TS-TDM, 2018-19**

SN	Variety	Code	Agronomic Characteristics								Grain Characteristics			
			Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	MACS6736	N-801	52-87	62	92-129	113	59-101	83	0	M	A	SH	40-50	43
2	MACS4087(d)	N-802	57-85	65	98-135	118	72-127	102	10	M	A	SH	45-55	50
3	MPO1357(d)	N-803	65-85	71	100-135	120	70-118	86	5	M	A	SH	31-61	47
4	GW520	N-804	41-76	53	83-130	111	54-92	76	0	M	A	SH	44-52	47
5	GW1353(d)	N-805	47-80	63	97-132	118	76-118	95	5	M	A	SH	46-63	54
6	UAS472(d)	N-806	65-88	74	106-137	122	66-118	86	0	M	A	SH	29-54	45
7	HI1645	N-809	54-89	63	93-131	114	68-107	91	0	M	A	SH	35-53	44
8	UAS3009	N-811	55-90	67	100-137	119	71-117	93	0	M	A	SH	32-51	45
9	UAS3010	N-812	59-89	68	98-137	118	78-116	94	0	M	A	SH	27-88	46
10	CG1033	N-814	50-85	61	91-132	115	60-117	87	0	M	A	SH	39-53	46
11	HI1643	N-815	54-79	63	96-135	116	69-123	94	0	M	A	SH	35-49	42
12	HI1644	N-816	56-87	66	99-139	119	69-117	89	0	M	A	SH	33-52	45
13	NIAW3643	N-817	50-86	60	92-133	113	62-101	81	0	M	A	SH	44-58	50
14	NIAW3624	N-818	52-86	62	93-134	115	62-107	80	0	M	A	SH	40-61	50
15	HI8823(d)	N-819	65-94	73	105-133	121	66-118	83	0	M	A	SH	32-56	48
16	HI8824(d)	N-820	66-86	74	106-134	121	68-118	88	5	M	A	SH	30-53	44
17	DBW300	N-821	62-89	72	98-136	119	63-115	87	0	M	A	SH	28-45	39
18	DDW52(d)	N-822	64-88	75	107-135	122	63-117	81	5	M	A	SH	25-51	42
19	MP3512	N-823	52-85	64	93-135	115	61-102	82	0	M	A	SH	40-55	45
20	MP1356	N-824	60-87	69	100-133	118	68-113	86	0	M	A	SH	26-49	42
21	MP1358	N-825	58-93	69	98-137	118	69-114	94	0	M	A	SH	30-54	45
22	HI1605 (C)	N-807	56-90	66	96-135	115	77-109	92	0	M	A	SH	30-48	41
23	HI8627(d) (C)	N-808	66-80	73	106-136	122	65-118	87	5	M	A	SH	31-53	46
24	UAS446(d) (C)	N-810	54-85	70	100-133	119	67-120	84	0	M	A	SH	30-50	42
25	DBW110 (C)	N-813	62-82	73	101-138	121	71-115	88	0	M	A	SH	28-49	42

1. Ancillary data from Indore, Powarkheda, Jabalpur, Bilaspur, Junagarh, Vijapur, Dhandhuka, Arnej, Sagar and Tancha.
2. Lodging data from Jabalpur, Arnej and Sagar.
3. No rust incidence was reported from any centre.

Summary of Agronomic Characteristics

Peninsular Zone **Trial: NIVT-5B-RI-TS-TDM, 2018-19**

SN	Variety	Code	Agronomic Characteristics							Grain Characteristics			
			Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	MACS6736	N-801	40-58	49	85-109	97	69-91	78	M	A	SH	34-47	40
2	MACS4087(d)	N-802	42-70	54	87-112	100	65-114	92	M	A	H	40-44	42
3	MPO1357(d)	N-803	49-71	58	97-117	106	58-87	77	M	A	H	37-45	41
4	GW520	N-804	40-55	47	85-111	97	68-84	77	M	A	SH	41-56	46
5	GW1353(d)	N-805	41-68	51	87-115	102	55-95	84	M	A	SH	39-53	47
6	UAS472(d)	N-806	43-72	58	89-122	105	65-86	79	M	A	H	40-47	42
7	HI1645	N-809	45-72	55	92-112	103	60-92	81	M	A	SH	36-51	42
8	UAS3009	N-811	40-66	52	85-120	103	57-90	78	M	A	SH	35-46	41
9	UAS3010	N-812	41-69	55	90-116	103	76-108	93	M	A	SH	31-40	38
10	CG1033	N-814	43-66	52	88-108	99	70-83	77	M	A	H	40-45	42
11	HI1643	N-815	43-59	50	90-114	102	68-104	86	M	A	SH	34-46	38
12	HI1644	N-816	39-61	50	85-124	102	66-94	84	M	A	SH	35-41	37
13	NIAW3643	N-817	40-71	51	86-112	98	55-85	71	M	A	SH	41-46	42
14	NIAW3624	N-818	42-57	50	91-107	99	74-86	79	M	A	SH	40-47	45
15	HI8823(d)	N-819	46-74	58	94-122	106	72-81	75	M	A	SH	38-50	42
16	HI8824(d)	N-820	46-74	58	92-113	105	76-84	80	M	A	H	34-40	38
17	DBW300	N-821	47-69	57	95-115	104	58-81	73	M	A	SH	29-48	36
18	DDW52(d)	N-822	48-76	61	94-119	107	45-84	71	M	A	H	35-40	37
19	MP3512	N-823	42-62	51	90-111	101	72-88	78	M	A	SH	36-41	39
20	MP1356	N-824	42-68	54	89-114	103	60-82	73	M	A	SH	30-44	39
21	MP1358	N-825	39-70	55	85-121	102	75-95	88	M	A	H	37-52	43
22	HI1605 (C)	N-807	38-70	54	82-113	98	73-125	94	M	A	SH	30-40	36
23	HI8627(d) (C)	N-808	45-74	57	94-122	106	81-86	84	M	A	H	37-43	40
24	UAS446(d) (C)	N-810	42-67	56	87-117	103	70-87	80	M	A	SH	35-38	37
25	DBW110 (C)	N-813	42-75	57	90-122	105	78-85	82	M	A	SH	32-45	37

1. Ancillary data from Akola, Bagalkot, Dharwad, Niphad and Pune.
2. No rust incidence was reported from any centre.

Northern Hills Zone

1811-IVT-RF-TS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	H.P.											
			Dhaulakuan			Shimla			Malan			Bajaura		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 462	NHIVT 1801	38.6	13	0	20.7	13	0	33.1	4	1	28.5	12	0
2	HPW 466	NHIVT 1802	47.1	2	1	20.2	15	0	32.3	6	1	37.5	1	1
3	VL 2038	NHIVT 1803	44.6	5	0	45.4	1	1	28.6	13	0	30.3	9	0
4	VL 2037	NHIVT 1804	49.6	1	1	31.6	9	0	23.1	15	0	30.5	8	0
5	UP 3038	NHIVT 1806	44.0	6	0	36.3	5	0	30.4	10	0	31.9	6	0
6	VL 2035	NHIVT 1807	43.3	8	0	33.5	7	0	28.8	12	0	32.6	4	0
7	HS 667	NHIVT 1808	41.1	11	0	38.7	2	0	22.9	16	0	28.6	11	0
8	HS 668	NHIVT 1809	43.1	9	0	33.5	8	0	33.8	3	1	31.3	7	0
9	HS 669	NHIVT 1810	41.1	11	0	37.7	3	0	31.3	8	0	37.2	2	1
10	UP 3039	NHIVT 1811	43.8	7	0	30.3	10	0	32.0	7	1	28.2	13	0
11	VL 2036	NHIVT 1813	46.4	3	1	29.5	11	0	32.6	5	1	35.1	3	1
12	HPW 464	NHIVT 1814	36.2	15	0	20.6	14	0	26.9	14	0	32.1	5	0
13	HPW 463	NHIVT 1815	35.7	16	0	21.3	12	0	35.4	1	1	23.1	16	0
14	HD 3340	NHIVT 1816	37.9	14	0	16.2	16	0	34.5	2	1	27.3	14	0
15	HS 507 (C)	NHIVT 1805	46.0	4	1	34.0	6	0	30.6	9	0	25.5	15	0
16	HS 562 (C)	NHIVT 1812	42.6	10	0	37.6	4	0	30.3	11	0	28.8	10	0
G.M.			42.6			30.4			30.4			30.5		
S.E.(M)			1.743			1.175			1.636			1.123		
C.D. (10%)			4.1			2.8			3.9			2.7		
C.V.			8.2			7.7			10.8			7.4		
D.O.S.(dd.mm.yy)			30.10.18			16.10.18			30.10.18			25.10.18		

No. of Trials: Proposed = 08 **Conducted = 08**

1811-IVT-RF-TS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	J&K						UTK					
			Wadura			Khudwani			Almora			Ranichauri		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 462	NHIVT 1801	30.3	14	0	40.4	1	1	21.1	14	0	26.6	4	0
2	HPW 466	NHIVT 1802	34.4	12	0	33.6	13	0	28.1	5	0	18.3	14	0
3	VL 2038	NHIVT 1803	38.8	9	0	37.9	3	1	21.4	13	0	19.5	13	0
4	VL 2037	NHIVT 1804	40.5	5	0	35.8	6	0	25.1	11	0	29.9	2	0
5	UP 3038	NHIVT 1806	26.4	16	0	37.0	4	0	28.0	6	0	21.9	7	0
6	VL 2035	NHIVT 1807	34.8	11	0	35.0	9	0	30.8	3	0	24.3	6	0
7	HS 667	NHIVT 1808	38.9	8	0	34.9	10	0	17.2	15	0	24.5	5	0
8	HS 668	NHIVT 1809	40.1	6	0	34.2	12	0	27.2	8	0	33.5	1	1
9	HS 669	NHIVT 1810	46.1	2	1	31.0	16	0	26.6	9	0	21.0	10	0
10	UP 3039	NHIVT 1811	42.1	3	0	35.4	7	0	27.9	7	0	19.6	12	0
11	VL 2036	NHIVT 1813	47.3	1	1	36.0	5	0	28.4	4	0	16.9	15	0
12	HPW 464	NHIVT 1814	39.9	7	0	35.1	8	0	15.6	16	0	21.4	9	0
13	HPW 463	NHIVT 1815	38.8	10	0	38.1	2	1	26.1	10	0	28.9	3	0
14	HD 3340	NHIVT 1816	33.6	13	0	31.5	15	0	23.8	12	0	20.6	11	0
15	HS 507 (C)	NHIVT 1805	29.8	15	0	32.8	14	0	33.6	2	1	13.2	16	0
16	HS 562 (C)	NHIVT 1812	41.7	4	0	34.5	11	0	34.0	1	1	21.5	8	0
G.M.			37.7			35.2			25.9			22.6		
S.E.(M)			1.314			1.370			1.066			1.382		
C.D. (10%)			3.1			3.3			2.5			3.3		
C.V.			7.0			7.8			8.2			12.2		
D.O.S.(dd.mm.yy)			25.10.18			29.10.18			17.10.18			27.10.18		

1811-IVT-RF-TS-TAS-NHZ, 2018-19

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	H.P.			J&K			UTK			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 462	NHIVT 1801	30.2	13	0	35.4	11	0	23.9	7	0	29.9	14	0
2	HPW 466	NHIVT 1802	34.3	8	0	34.0	13	0	23.2	11	0	31.4	10	0
3	VL 2038	NHIVT 1803	37.2	1	1	38.3	5	0	20.4	15	0	33.3	5	0
4	VL 2037	NHIVT 1804	33.7	10	0	38.2	6	0	27.5	4	0	33.3	6	0
5	UP 3038	NHIVT 1806	35.6	4	1	31.7	15	0	24.9	6	0	32.0	9	0
6	VL 2035	NHIVT 1807	34.6	7	0	34.9	12	0	27.5	3	0	32.9	7	0
7	HS 667	NHIVT 1808	32.8	12	0	36.9	10	0	20.8	14	0	30.8	12	0
8	HS 668	NHIVT 1809	35.4	5	0	37.1	9	0	30.4	1	1	34.6	1	1
9	HS 669	NHIVT 1810	36.8	2	1	38.6	3	0	23.8	8	0	34.0	3	1
10	UP 3039	NHIVT 1811	33.6	11	0	38.8	2	0	23.7	9	0	32.4	8	0
11	VL 2036	NHIVT 1813	35.9	3	1	41.7	1	1	22.6	12	0	34.0	2	1
12	HPW 464	NHIVT 1814	28.9	15	0	37.5	8	0	18.5	16	0	28.5	15	0
13	HPW 463	NHIVT 1815	28.9	16	0	38.4	4	0	27.5	5	0	30.9	11	0
14	HD 3340	NHIVT 1816	29.0	14	0	32.6	14	0	22.2	13	0	28.2	16	0
15	HS 507 (C)	NHIVT 1805	34.0	9	0	31.3	16	0	23.4	10	0	30.7	13	0
16	HS 562 (C)	NHIVT 1812	34.9	6	0	38.1	7	0	27.7	2	0	33.9	4	1
G.M.			33.5			36.5			24.3			31.9		
S.E.(M)			0.723			0.949			0.873			0.484		
C.D. (10%)			1.7			2.2			2.1			1.1		

Summary of Disease Data and Agronomic Characteristics

Northern Hills Zone **Trial: IVT-RF-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics							Grain Characteristics			
			YI	ACI	PM	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HPW462	NHIVT 1801	60MS	9.6	4	95-182	134	162-231	195	91-109	100	30	Ey	A	SH	33-47	42
2	HPW466	NHIVT 1802	40MS	10.4	3	109-181	143	168-228	196	93-112	100	35	Ey	A	SH	38-44	41
3	VL2038	NHIVT 1803	20MR	1.6	2	119-182	147	167-228	198	94-109	104	65	Ey	A	SH	34-40	37
4	VL2037	NHIVT 1804	10MR	1.0	3	118-183	145	170-230	197	95-117	106	25	Ey	A	SH	37-40	38
5	UP3038	NHIVT 1806	20S	8.2	3	110-181	144	169-230	198	91-107	98	15	Ey	A	SH	36-45	40
6	VL2035	NHIVT 1807	20MR	1.6	2	105-182	140	166-229	196	89-104	98	20	Ey	A	SH	36-44	41
7	HS667	NHIVT 1808	10MR	0.4	1	119-183	148	172-231	200	99-130	114	70	Ey	A	SH	30-39	36
8	HS668	NHIVT 1809	60MS	10.6	2	108-181	143	169-230	197	93-116	100	10	Ey	A	SH	37-43	40
9	HS669	NHIVT 1810	5R	0.4	4	118-180	146	173-228	197	96-115	102	35	Ey	A	SH	35-45	40
10	UP3039	NHIVT 1811	40MS	6.4	2	110-183	144	168-230	196	94-106	101	30	Ey	A	SH	38-43	40
11	VL2036	NHIVT 1813	60S	12.2	3	109-182	142	167-231	196	92-109	99	45	Ey	A	SH	40-46	44
12	HPW464	NHIVT 1814	10MR	0.8	2	102-183	135	172-229	196	81-110	97	70	Ey	A	SH	32-40	37
13	HPW463	NHIVT 1815	40MS	6.4	3	93-182	137	166-228	196	93-111	102	15	Ey	A	SH	36-46	42
14	HD3340	NHIVT 1816	5S	2.8	3	92-183	130	160-230	194	86-101	92	0	Ey	A	SH	34-45	41
15	HS507 (C)	NHIVT 1805	20S	5.6	3	120-182	149	172-229	199	93-107	99	0	Ey	A	SH	38-43	40
16	HS562 (C)	NHIVT 1812	5S	1.0	3	118-183	149	172-230	199	91-107	98	10	Ey	A	SH	38-43	41

1. Ancillary data from Almora, Bajaura, Dhaulakuan, Khudwani, Malan and Shimla.
2. Yellow rust data from Almora, Bajaura, Dhaulakuan, Khudwani and Malan.
3. Powdery mildew data from Almora and Malan. Lodging data from Almora.

Northern Hills Zone
Individual Station Yellow Rust Data

SN	Variety	Code	Almora	Bajaura	Dhaulakuan	Khudwani	Malan
1	HPW462	NHIVT 1801	0	0	0	60MS	0
2	HPW466	NHIVT 1802	0	0	0	40MS	20S
3	VL2038	NHIVT 1803	0	0	0	20MR	0
4	VL2037	NHIVT 1804	0	0	tS	10MR	0
6	UP3038	NHIVT 1806	0	0	20S	5R	20S
7	VL2035	NHIVT 1807	tR	0	0	20MR	0
8	HS667	NHIVT 1808	0	0	0	10MR	0
9	HS668	NHIVT 1809	0	tR	0	60MS	5S
10	HS669	NHIVT 1810	0	0	tS	5R	0
11	UP3039	NHIVT 1811	0	0	0	40MS	0
13	VL2036	NHIVT 1813	0	0	0	60S	tS
14	HPW464	NHIVT 1814	tR	0	0	10MR	0
15	HPW463	NHIVT 1815	0	0	0	40MS	0
16	HD3340	NHIVT 1816	0	0	5S	10MR	5S
17	HS507 (C)	NHIVT 1805	0	0	20S	20MR	0
18	HS562 (C)	NHIVT 1812	0	0	0	0R	5S

1812-AVT-IR-TS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	H.P.									UTK		
			Bajaura			Shimla			Malan			Almora		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HS 652	NHTSZ 1804	54.2	2	1	44.5	4	0	46.2	5	0	35.3	4	1
2	HPW 349 (C)	NHTSZ 1801	47.2	5	0	45.8	2	0	51.0	2	1	32.0	5	0
3	VL 907 (C)	NHTSZ 1802	49.8	3	0	45.3	3	0	49.1	4	0	36.5	2	1
4	HS 507 (C)	NHTSZ 1803	47.6	4	0	43.8	5	0	50.6	3	1	36.4	3	1
5	HS 562 (C)	NHTSZ 1805	54.5	1	1	48.2	1	1	52.4	1	1	37.2	1	1
G.M.			50.7			45.5			49.9			35.5		
S.E.(M)			1.216			0.713			0.943			1.618		
C.D. (10%)			3.0			1.7			2.3			3.9		
C.V.			5.9			3.8			4.6			11.2		
D.O.S.(dd.mm.yy)			13.11.18			14.11.18			07.11.18			14.11.18		

No. of Trials: Proposed and conducted = 4
Trials not Conducted = 0

1812-AVT-IR-TS-TAS-NHZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	H.P.			UTK			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HS 652	NHTSZ 1804	48.3	2	0	35.3	4	1	45.0	3	0
2	HPW 349 (C)	NHTSZ 1801	48.0	4	0	32.0	5	0	44.0	5	0
3	VL 907 (C)	NHTSZ 1802	48.1	3	0	36.5	2	1	45.2	2	0
4	HS 507 (C)	NHTSZ 1803	47.3	5	0	36.4	3	1	44.6	4	0
5	HS 562 (C)	NHTSZ 1805	51.7	1	1	37.2	1	1	48.1	1	1
G.M.			48.7			35.5			45.4		
S.E.(M)			0.566			1.618			0.586		
C.D. (10%)			1.3			3.9			1.4		

Summary of Disease Data and Agronomic Characteristics

Northern Hills Zone **Trial: AVT-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics							Grain Characteristics			
			Yl	ACl	Br	PM	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HS 652	NHTSZ 1804	10S	5.0	0	3	133-144	139	173-186	179	85-109	95	Ey	A	SH	39-43	41
2	HPW 349 (C)	NHTSZ 1801	5S	3.8	tS	4	128-141	135	172-185	177	89-116	100	Ey	A	SH	35-43	39
3	VL 907 (C)	NHTSZ 1802	5S	3.8	5S	3	132-142	137	172-185	178	94-116	104	Ey	A	SH	38-44	41
4	HS 507 (C)	NHTSZ 1803	5S	3.8	tS	2	134-146	139	173-188	180	93-114	100	Ey	A	SH	40-44	43
5	HS 562 (C)	NHTSZ 1805	5S	2.5	tS	4	133-143	138	172-184	178	90-108	98	Ey	A	SH	39-47	42

1. Ancillary data from Almora, Bajaura, Malan and Shimla; 2. Yellow rust data from Almora, Bajaura, Malan and Shimla.
3. Brown rust data from Almora; 4. Powdery mildew data from Almora and Malan.

Northern Hills Zone
Individual Station Rust Data

SN	Variety	Code	Almora	Bajaura	Malan	Shimla
1	HS652	NHTSZ 1804	0	0	10S	10S
2	HPW349 (C)	NHTSZ 1801	0	5S	5S	5S
3	VL907 (C)	NHTSZ 1802	5S	0	5S	5S
4	HS507 (C)	NHTSZ 1803	5S	10MR	tS	5S
5	HS562 (C)	NHTSZ 1805	0	0	5S	5S

1813-AVT-RF-TS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	H.P.											
			Bajaura			Shimla			Berthin			Malan			Dhaulakuan		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HS 652	NHTSZ 1804	30.0	4	1	41.9	1	1	51.5	1	1	43.3	5	0	41.7	5	0
2	HPW 349 (C)	NHTSZ 1801	31.4	2	1	35.1	3	0	50.3	2	1	43.4	4	0	47.6	1	1
3	VL 907 (C)	NHTSZ 1802	30.8	3	1	38.8	2	0	47.2	4	1	45.4	3	0	43.6	3	0
4	HS 507 (C)	NHTSZ 1803	27.8	5	0	33.6	5	0	45.3	5	1	47.5	2	1	43.5	4	0
5	HS 562 (C)	NHTSZ 1805	31.8	1	1	35.0	4	0	47.9	3	1	48.5	1	1	47.0	2	1
G.M.			30.4			36.9			48.4			45.6			44.7		
S.E.(M)			0.961			0.888			3.242			1.004			1.392		
C.D. (10%)			2.3			2.2			7.9			2.4			3.4		
C.V.			7.8			5.9			16.4			5.4			7.6		
D.O.S.(dd.mm.yy)			25.10.18			20.10.18			13.10.18			27.10.18			28.10.18		

No. of Trials : Proposed = 11 Conducted = 11
Trials not conducted (0) = Nil
Trials not reported (01) = Ranichauri (RMT)

1813-AVT-RF-TS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	H.P.			J&K						UTK					
			Akrot			Khudwani			Wadura			Almora			Majhera		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HS 652	NHTSZ 1804	36.8	1	1	55.3	3	0	37.3	3	0	20.2	4	0	38.2	5	0
2	HPW 349 (C)	NHTSZ 1801	28.3	4	0	62.0	2	1	39.7	2	1	19.0	5	0	43.8	2	1
3	VL 907 (C)	NHTSZ 1802	30.4	3	0	51.8	4	0	35.0	4	0	21.6	3	0	39.2	4	0
4	HS 507 (C)	NHTSZ 1803	25.2	5	0	49.2	5	0	33.1	5	0	23.0	2	1	42.7	3	1
5	HS 562 (C)	NHTSZ 1805	35.2	2	0	64.5	1	1	41.9	1	1	24.4	1	1	45.5	1	1
G.M.			31.2			56.6			37.4			21.6			41.9		
S.E.(M)			0.306			1.310			1.553			1.117			1.939		
C.D. (10%)			0.7			3.2			3.8			2.7			4.7		
C.V.			2.4			5.7			10.2			12.6			11.3		
D.O.S.(dd.mm.yy)			20.10.18			23.10.18			25.10.18			16.10.18			27.10.18		

1813-AVT-RF-TS-TAS-NHZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

SN	Variety	Code	H.P.			J&K			UTK			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HS 652	NHTSZ 1804	40.9	2	1	46.3	3	0	29.2	5	0	39.6	3	0
2	HPW 349 (C)	NHTSZ 1801	39.4	3	0	50.9	2	1	31.4	3	0	40.1	2	0
3	VL 907 (C)	NHTSZ 1802	39.4	4	0	43.4	4	0	30.4	4	0	38.4	4	0
4	HS 507 (C)	NHTSZ 1803	37.1	5	0	41.2	5	0	32.8	2	1	37.1	5	0
5	HS 562 (C)	NHTSZ 1805	40.9	1	1	53.2	1	1	34.9	1	1	42.2	1	1
G.M.			39.5			47.0			31.8			39.5		
S.E.(M)			0.651			1.016			1.119			0.334		
C.D. (10%)			1.5			2.4			2.7			0.8		

Summary of Disease Data and Agronomic Characteristics

Northern Hills Zone **Trial: AVT-RF-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics							Grain Characteristics			
			Yl	ACI	Br	PM	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HS652	NHTSZ 1804	10S	4.5	-	2	189-189	138	167-237	192	83-106	93	Ey	A	SH	35-46	40
2	HPW349 (C)	NHTSZ 1801	60S	17.5	-	3	187-187	134	162-235	189	81-108	97	Ey	A	SH	35-45	41
3	VL907 (C)	NHTSZ 1802	10MR	1.5	-	4	190-190	134	164-236	189	83-110	97	Ey	A	SH	36-44	41
4	HS507 (C)	NHTSZ 1803	60S	20.2	-	3	187-187	138	165-236	192	76-108	96	Ey	A	SH	34-44	39
5	HS562 (C)	NHTSZ 1805	40MR	6.5	20S	4	187-187	138	166-236	192	82-109	96	Ey	A	SH	31-46	40

1. Ancillary data from Akrot, Almora, Bajaura, Berthin, Dhaulakuan, Khudwani, Malan, Majhera, Shimla and Wadura.
2. Yellow rust data from Akrot, Dhaulakuan, Khudwani and Malan.
3. Brown rust from Bajaura. Powdery mildew data from Almora and Malan.
4. Lodging data from Almora and Malan.

Northern Hills Zone
Individual Station Rust Data

SN	Variety	Code	Akrot	Dhaulakuan	Khudwani	Malan
1	HS652	NHLSZ 1804	10MR	0	10MR	10S
2	HPW349 (C)	NHLSZ 1801	0	5S	60S	5S
3	VL907 (C)	NHLSZ 1802	0	tS	10MR	tS
4	HS507 (C)	NHLSZ 1803	0	20S	60S	tS
5	HS562 (C)	NHLSZ 1805	0	5S	40MR	5S

1814-AVT-RI-LS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	H.P.													
			Bajaura			Dhaulakuan			Shimla			Malan			Una		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 468	NHLSZ 1803	35.1	7	0	27.3	8	0	29.5	7	0	11.4	10	0	26.3	8	0
2	HS 673	NHLSZ 1804	26.9	10	0	33.1	2	0	27.6	10	0	21.2	6	0	26.0	9	0
3	VL 3020	NHLSZ 1805	40.2	3	1	29.3	6	0	29.1	8	0	27.5	1	1	30.2	5	0
4	UP 3041	NHLSZ 1806	33.7	8	0	22.9	10	0	28.7	9	0	23.7	4	0	32.3	3	1
5	HPW 467	NHLSZ 1807	35.8	6	0	31.1	3	0	32.3	2	0	25.6	3	1	22.7	10	0
6	HS 674	NHLSZ 1808	43.5	1	1	28.6	7	0	30.0	4	0	22.3	5	0	26.3	7	0
7	VL 3019	NHLSZ 1809	40.3	2	1	26.9	9	0	29.6	5	0	16.7	8	0	26.8	6	0
8	VL 3021	NHLSZ 1810	31.2	9	0	30.1	4	0	31.5	3	0	20.9	7	0	32.9	2	1
9	VL 892 (C)	NHLSZ 1801	36.4	5	0	37.9	1	1	29.6	6	0	15.9	9	0	33.0	1	1
10	HS 490 (C)	NHLSZ 1802	39.2	4	0	30.1	5	0	35.6	1	1	26.3	2	1	30.7	4	0
G.M.			36.2			29.7			30.3			21.2			28.7		
S.E.(M)			1.416			0.843			0.986			0.970			0.586		
C.D. (10%)			3.4			2.0			2.3			2.3			1.4		
C.V.			9.6			6.9			8.0			11.2			5.0		
D.O.S.(dd.mm.yy)			05.12.18			01.12.18			04.12.18			03.12.18			06.12.18		

No. of Trials: Proposed = 11 Conducted = 10
Trial not conducted (01) = Gangtok Trials not Reported (01) = Ranichauri (LSM)

1814-AVT-RI-LS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	UTK						MANIPUR			W.B.		
			Almora			Majhera			CAU-Imphal			Kalimpong		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 468	NHLSZ 1803	24.9	8	0	15.1	9	0	22.6	4	0	29.0	9	0
2	HS 673	NHLSZ 1804	32.0	2	1	16.5	5	0	27.8	1	1	34.1	5	1
3	VL 3020	NHLSZ 1805	30.4	5	1	16.0	7	0	20.5	7	0	25.7	10	0
4	UP 3041	NHLSZ 1806	21.9	10	0	17.0	4	0	22.5	5	0	37.8	1	1
5	HPW 467	NHLSZ 1807	30.5	4	1	16.4	6	0	19.6	8	0	36.9	2	1
6	HS 674	NHLSZ 1808	28.5	7	0	20.0	1	1	19.6	9	0	29.2	8	0
7	VL 3019	NHLSZ 1809	30.4	6	1	12.5	10	0	16.6	10	0	35.2	4	1
8	VL 3021	NHLSZ 1810	32.3	1	1	18.2	2	1	20.7	6	0	33.4	7	0
9	VL 892 (C)	NHLSZ 1801	31.5	3	1	15.6	8	0	24.3	3	0	35.3	3	1
10	HS 490 (C)	NHLSZ 1802	24.5	9	0	18.1	3	1	26.3	2	1	34.1	6	1
G.M.			28.7			16.5			22.1			33.1		
S.E.(M)			1.051			1.125			1.248			1.599		
C.D. (10%)			2.5			2.7			3.0			4.1		
C.V.			9.0			16.7			13.9			6.8		
D.O.S.(dd.mm.yy)			10.12.18			10.12.18			07.12.18			10.11.18		

1814-AVT-RI-LS-TAS-NHZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	H.P.			UTK			MANIPUR			W.B.			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HPW 468	NHLSZ 1803	25.9	10	0	20.0	9	0	22.6	4	0	29.0	9	0	24.6	10	0
2	HS 673	NHLSZ 1804	26.9	9	0	24.3	2	1	27.8	1	1	34.1	5	1	27.2	7	0
3	VL 3020	NHLSZ 1805	31.3	2	0	23.2	6	0	20.5	7	0	25.7	10	0	27.7	5	0
4	UP 3041	NHLSZ 1806	28.2	7	0	19.5	10	0	22.5	5	0	37.8	1	1	26.7	8	0
5	HPW 467	NHLSZ 1807	29.5	5	0	23.4	5	0	19.6	8	0	36.9	2	1	27.9	4	0
6	HS 674	NHLSZ 1808	30.1	4	0	24.2	3	1	19.6	9	0	29.2	8	0	27.5	6	0
7	VL 3019	NHLSZ 1809	28.1	8	0	21.5	7	0	16.6	10	0	35.2	4	1	26.1	9	0
8	VL 3021	NHLSZ 1810	29.3	6	0	25.3	1	1	20.7	6	0	33.4	7	0	27.9	3	0
9	VL 892 (C)	NHLSZ 1801	30.5	3	0	23.6	4	1	24.3	3	0	35.3	3	1	28.8	2	1
10	HS 490 (C)	NHLSZ 1802	32.3	1	1	21.3	8	0	26.3	2	1	34.1	6	1	29.4	1	1
G.M.			29.2			22.6			22.1			33.1			27.4		
S.E.(M)			0.446			0.770			1.248			1.599			0.376		
C.D. (10%)			1.0			1.8			3.0			4.1			0.9		

Summary of Disease Data and Agronomic Characteristics

Northern Hills Zone **Trial: AVT-RI-LS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions				Agronomic Characteristics								Grain Characteristics			
			Yl	ACI	Br	PM	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.	Col.	Tex.	TGW.R	TGW.M
1	HPW468	NHLSZ 1803	tMR	0.1	0	1	82-125	109	125-178	153	77-115	93	M	0	A	SH	37-55	43
2	HS673	NHLSZ 1804	tMR	0.1	20S	3	82-126	108	123-176	152	79-101	89	M	5	A	SH	34-44	39
3	VL3020	NHLSZ 1805	10S	3.3	0	1	88-123	108	127-175	152	78-108	95	M	0	A	SH	37-55	43
4	UP3041	NHLSZ 1806	0	0.0	0	1	90-125	112	128-180	155	82-122	108	M	40	A	SH	36-51	41
5	HPW467	NHLSZ 1807	tS	0.5	0	1	92-123	110	124-175	153	77-118	93	M	0	A	SH	32-55	41
6	HS674	NHLSZ 1808	10S	5.0	0	1	82-125	110	125-178	153	77-103	91	M	0	A	SH	31-45	38
7	VL3019	NHLSZ 1809	tMR	0.2	0	1	82-126	110	129-179	154	79-105	93	M	0	A	SH	38-52	42
8	VL3021	NHLSZ 1810	tMR	0.5	tS	3	90-125	110	123-177	152	74-99	87	M	0	A	SH	36-52	41
9	VL892 (C)	NHLSZ 1801	10MS	2.7	0	1	85-126	108	121-175	148	74-103	87	M	20	A	SH	33-51	39
10	HS490 (C)	NHLSZ 1802	10MS	2.7	0	1	82-122	110	124-174	153	78-98	90	M	0	A	SH	36-59	44

1. Ancillary data from Almora, Bajaura, Dhaulakuan, Malan, Majhera, Shimla, Una and Imphal.
2. Yellow rust data from Almora, Bajaura and Una.
3. Brown rust and Powdery mildew data from Almora.
4. Lodging data from Almora and Malan.

Individual Station Rust Data

SN	Variety	Code	Dhaulakuan	Almora		Bajaura	Una
			Br	Br	Yl	Yl	Yl
1	HPW468	NHLSZ 1803	0	0	0	0	tMR
2	HS673	NHLSZ 1804	20S	20S	0	0	tMR
3	VL3020	NHLSZ 1805	0	0	0	10S	0
4	UP3041	NHLSZ 1806	0	0	0	0	0
5	HPW467	NHLSZ 1807	0	0	0	tS	tMR
6	HS674	NHLSZ 1808	0	0	5S	10S	0
7	VL3019	NHLSZ 1809	0	0	0	tR	tMR
8	VL3021	NHLSZ 1810	0	tS	tS	0	tMR
9	VL892 (C)	NHLSZ 1801	0	0	0	10MS	0
10	HS490 (C)	NHLSZ 1802	0	0	0	10MS	0

North Western Plains Zone

1821-AVT-IR-TS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Delhi			Haryana												J&K			Punjab											
			Delhi			Hisar			Rohtak			Karnal			Shikohpur			Jammu			Ludhiana			Bathinda			Gurdaspur			Kapurthala		
			YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G	YLd	Rk	G
1	DBW 221*	NW-TS-105	71.5	2	1	64.3	5	1	64.3	8	0	76.1	5	0	52.0	10	0	50.6	7	0	66.8	6	0	60.6	7	1	53.8	5	1	67.3	2	1
2	DBW 222*	NW-TS-106	73.0	1	1	68.4	1	1	71.1	1	1	82.1	1	1	54.1	8	0	52.4	4	0	63.6	8	0	62.6	2	1	51.8	7	0	65.5	3	1
3	NW 7049	NW-TS-110	56.7	10	0	64.8	4	1	62.1	11	0	77.0	3	0	65.0	1	1	59.4	1	1	66.2	7	0	64.3	1	1	52.8	6	0	59.7	9	0
4	PBW 820^{M}	NW-TS-104	55.7	12	0	62.8	7	0	65.8	5	0	73.3	7	0	48.4	11	0	52.9	3	0	72.8	2	1	54.2	11	0	56.2	3	1	63.9	4	1
5	PBW 821^{M}	NW-TS-108	56.4	11	0	59.6	10	0	63.7	9	0	66.2	12	0	53.7	9	0	51.9	5	0	72.5	4	1	62.0	3	1	57.4	1	1	62.3	6	0
6	DPW 621-50 (C)	NW-TS-111	58.5	8	0	64.8	3	1	65.0	7	0	71.8	9	0	64.8	2	1	41.1	10	0	53.9	9	0	61.4	5	1	41.6	11	0	68.6	1	1
7	DBW 88 (C)	NW-TS-112	63.3	5	0	65.0	2	1	65.3	6	0	77.3	2	1	63.3	3	1	38.3	12	0	52.9	10	0	60.8	6	1	49.3	10	0	62.8	5	0
8	HD 2967 (C)	NW-TS-109	58.2	9	0	55.3	12	0	67.0	2	1	66.8	11	0	61.6	4	1	48.2	8	0	44.9	11	0	61.4	4	1	38.7	12	0	58.2	10	0
9	HD 3086 (C)	NW-TS-103	59.3	7	0	63.0	6	0	63.0	10	0	70.7	10	0	46.4	12	0	51.7	6	0	73.2	1	1	57.6	9	0	56.3	2	1	61.1	7	0
10	PBW 550 (C)	NW-TS-107	59.3	6	0	59.6	9	0	66.8	4	1	72.5	8	0	61.1	5	1	40.1	11	0	43.2	12	0	52.8	12	0	50.6	8	0	55.9	11	0
11	WH 1105 (C)	NW-TS-101	69.2	3	0	60.6	8	0	66.9	3	1	75.9	6	0	57.7	7	0	46.5	9	0	71.2	5	1	58.8	8	0	56.1	4	1	60.0	8	0
12	HD 3226(I) (C)	NW-TS-102	64.0	4	0	57.6	11	0	59.8	12	0	76.9	4	0	60.8	6	1	54.1	2	0	72.6	3	1	54.7	10	0	50.4	9	0	55.3	12	0
G.M.			62.1			62.2			65.1			73.9			57.4			48.9			62.8			59.3			51.3			61.7		
S.E.(M)			1.464			1.703			2.198			2.117			2.092			1.675			1.854			1.856			1.675			2.116		
C.D. (10%)			3.5			4.1			5.3			5.1			5.0			4.0			4.4			4.4			4.0			5.1		
C.V.			4.7			5.5			6.8			5.7			7.3			6.8			5.9			6.3			6.5			6.9		
D.O.S.(dd.mm.yy)			15.11.18			05.11.18			14.11.18			01.11.18			13.11.18			03.11.18			10.11.18			14.11.18			13.11.18			10.11.18		

No. of Trials: Proposed = 24; Conducted = 23
Trial not conducted (01) = Dhakrani
Trials not reported (04) = Alwar (RMT), Bareilly (RMT), Bawal (LSM), KVK-Rampur (HCV)

1821-AVT-IR-TS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Punjab						Rajasthan									U.P.						UTK					
			Rauni			Faridkot			Durgapura			Tabiji			Sriganganagar			Nagina			Bulandshahr			Kashipur			Pantnagar		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 221*	NW-TS-105	68.4	3	1	75.2	1	1	74.4	2	0	39.8	12	0	67.0	8	0	66.7	2	0	66.2	2	1	67.5	5	0	61.7	9	0
2	DBW 222*	NW-TS-106	66.8	7	0	63.5	10	0	80.6	1	1	49.9	6	0	73.8	2	1	55.1	11	0	53.1	11	0	69.4	4	0	67.0	3	0
3	NW 7049	NW-TS-110	65.1	8	0	63.7	9	0	69.4	7	0	40.5	11	0	75.6	1	1	64.5	3	0	58.2	8	0	66.0	7	0	67.9	2	0
4	PBW 820^{M}	NW-TS-104	59.6	12	0	73.1	3	1	70.0	6	0	42.4	10	0	61.3	11	0	61.5	7	0	59.7	7	0	58.9	11	0	61.9	8	0
5	PBW 821^{M}	NW-TS-108	74.0	1	1	73.9	2	1	67.9	9	0	54.4	1	1	69.0	6	0	54.7	12	0	59.9	5	0	67.2	6	0	56.8	12	0
6	DPW 621-50 (C)	NW-TS-111	62.8	10	0	61.4	11	0	63.5	10	0	50.9	3	0	63.3	9	0	72.2	1	1	65.3	4	0	64.7	10	0	64.8	6	0
7	DBW 88 (C)	NW-TS-112	67.9	4	0	60.1	12	0	68.8	8	0	47.1	8	0	57.4	12	0	62.2	6	0	65.9	3	0	65.9	8	0	65.5	5	0
8	HD 2967 (C)	NW-TS-109	64.9	9	0	68.8	4	0	63.5	11	0	50.0	5	0	61.9	10	0	63.0	4	0	59.8	6	0	57.4	12	0	57.3	11	0
9	HD 3086 (C)	NW-TS-103	67.9	5	0	64.9	7	0	72.7	4	0	52.2	2	0	71.7	4	1	61.0	8	0	66.7	1	1	69.8	3	0	64.2	7	0
10	PBW 550 (C)	NW-TS-107	69.6	2	1	67.2	5	0	72.9	3	0	47.4	7	0	69.5	5	1	56.9	10	0	57.2	9	0	72.4	1	1	66.0	4	0
11	WH 1105 (C)	NW-TS-101	67.0	6	0	64.9	6	0	71.9	5	0	50.5	4	0	73.7	3	1	62.4	5	0	53.4	10	0	64.9	9	0	59.0	10	0
12	HD 3226(I) (C)	NW-TS-102	61.9	11	0	64.6	8	0	62.5	12	0	43.9	9	0	67.1	7	0	60.1	9	0	51.2	12	0	70.9	2	1	69.3	1	1
G.M.			66.3			66.8			69.8			47.4			67.6			61.7			59.7			66.2			63.4		
S.E.(M)			2.336			2.452			1.005			0.499			2.752			0.439			0.255			0.727			0.534		
C.D. (10%)			5.6			5.9			2.4			1.2			6.6			1.1			0.6			1.7			1.3		
C.V.			7.0			7.3			2.9			2.1			8.1			1.4			0.9			2.2			1.7		
D.O.S.(dd.mm.yy)			13.11.18			10.11.18			14.11.18			14.11.18			15.11.18			15.11.19			14.11.18			08.11.18			14.11.18		

1821-AVT-IR-TS-TAS-NWPZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Delhi			Haryana			J&K			Punjab			Rajasthan			U.P.			UTK			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 221*	NW-TS-105	71.5	2	1	64.2	7	0	50.6	7	0	65.3	2	1	60.4	7	0	66.4	2	0	64.6	8	0	63.9	2	1
2	DBW 222*	NW-TS-106	73.0	1	1	68.9	1	1	52.4	4	0	62.3	6	0	68.1	1	1	54.1	12	0	68.2	3	0	64.4	1	1
3	NW 7049	NW-TS-110	56.7	10	0	67.2	3	1	59.4	1	1	62.0	7	0	61.8	6	0	61.3	6	0	66.9	5	0	63.1	3	0
4	PBW 820^{M}	NW-TS-104	55.7	12	0	62.6	10	0	52.9	3	0	63.3	4	0	57.9	10	0	60.6	7	0	60.4	11	0	60.8	10	0
5	PBW 821^{M}	NW-TS-108	56.4	11	0	60.8	11	0	51.9	5	0	67.0	1	1	63.8	4	0	57.3	9	0	62.0	9	0	62.3	6	0
6	DPW 621-50 (C)	NW-TS-111	58.5	8	0	66.6	4	1	41.1	10	0	58.3	10	0	59.2	8	0	68.8	1	1	64.7	7	0	61.1	7	0
7	DBW 88 (C)	NW-TS-112	63.3	5	0	67.7	2	1	38.3	12	0	59.0	9	0	57.7	12	0	64.1	3	0	65.7	6	0	61.0	8	0
8	HD 2967 (C)	NW-TS-109	58.2	9	0	62.7	9	0	48.2	8	0	56.1	12	0	58.5	9	0	61.4	5	0	57.3	12	0	58.3	12	0
9	HD 3086 (C)	NW-TS-103	59.3	7	0	60.8	12	0	51.7	6	0	63.5	3	0	65.5	2	0	63.9	4	0	67.0	4	0	62.8	4	0
10	PBW 550 (C)	NW-TS-107	59.3	6	0	65.0	6	0	40.1	11	0	56.6	11	0	63.3	5	0	57.0	10	0	69.2	2	1	60.0	11	0
11	WH 1105 (C)	NW-TS-101	69.2	3	0	65.3	5	0	46.5	9	0	63.0	5	0	65.4	3	0	57.9	8	0	62.0	10	0	62.7	5	0
12	HD 3226(I) (C)	NW-TS-102	64.0	4	0	63.8	8	0	54.1	2	0	59.9	8	0	57.8	11	0	55.6	11	0	70.1	1	1	60.9	9	0
	G.M.		62.1			64.6			48.9			61.4			61.6			60.7			64.8			61.8		
	S.E.(M)		1.464			1.018			1.675			0.844			0.991			0.254			0.451			0.398		
	C.D. (10%)		3.5			2.4			4.0			2.0			2.3			0.6			1.1			0.9		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: AVT-IR-TS-TAS-NWPZ, 2018-19**

SN	Variety	Code	Disease Reaction				Agronomic Characteristics								Grain Characteristics				
			Br	ACI	YI	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.M	Col.	Tex.	TGW.R	TGW.M	BP
1	DBW 221*	NW-TS-105	40S	20.0	40S	11.3	83-123	100	139-168	149	90-115	103	Ey	25	A	SH-H	34-42	38	0.2
2	DBW 222*	NW-TS-106	tMS	0.2	20S	5.0	77-123	103	139-165	150	86-120	108	Ey-M	10	A	SH-H	36-46	42	0.4
3	NW 7049	NW-TS-110	10MS	3.3	15MS	4.4	82-120	102	140-165	151	87-126	110	Ey	40	A	SH-H	40-53	47	0.2
4	PBW820^{M}	NW-TS-104	tMS	0.2	5MS	0.9	87-123	105	139-168	150	89-110	101	Ey	20	A	SH-H	32-45	38	0.1
5	PBW821^{M}	NW-TS-108	20S	5.0	5S	1.3	77-115	94	134-162	145	81-105	91	Ey-M	5	A	SH-H	37-47	41	0.0
6	DPW621-50 (C)	NW-TS-111	10MS	2.0	60S	17.9	81-123	105	139-168	151	93-118	104	Ey	30	A	SH-H	34-44	39	0.0
7	DBW88 (C)	NW-TS-112	20S	5.0	60S	21.3	83-123	103	140-170	151	88-115	105	Ey	20	A	SH-H	37-45	40	0.1
8	HD2967 (C)	NW-TS-109	tMS	0.2	60S	27.5	78-116	106	141-165	152	90-119	105	Ey	20	A	SH-H	33-48	41	0.2
9	HD3086 (C)	NW-TS-103	20S	7.5	60S	9.6	83-115	99	137-165	149	93-119	104	Ey	0	A	SH-H	36-46	41	0.2
10	PBW550 (C)	NW-TS-107	5MS	1.0	60S	23.8	78-115	96	138-162	147	79-115	90	Ey-M	10	A	SH-H	35-47	41	0.0
11	WH1105 (C)	NW-TS-101	5S	1.5	40S	11.2	82-123	101	137-168	150	89-110	102	Ey	15	A	SH-H	35-43	39	0.1
12	HD3226(I) (C)	NW-TS-102	10MS	2.0	20MS	2.8	85-118	105	141-165	151	91-125	110	Ey-M	20	A	SH-H	37-46	41	0.1

1. Ancillary data from Delhi, Pantnagar, Faridkot, Bhatinda, Gurdaspur, Ludhiana, Hisar, Bawal, Rohtak, Shikopur, Karnal, Durgapura, Sriganganagar, Nagina, Jammu, Tabiji, Kashipur and Bulandshahar.
2. Yellow rust data from Delhi, Hisar, Rohtak, Karnal, Ludhiana, Gurdaspur, Jammu and Pantnagar.
3. Brown rust data from Karnal, Ludhiana, Gurdaspur and Pantnagar.
4. Black point data reported from Hisar and Gurdaspur.

Individual Station Rust Data

SN	Variety	Code	Gurdaspur		Ludhiana		Karnal		Pantnagar		Delhi	Hisar	Rohtak	Jammu
			Br	YI	Br	YI	Br	YI	Br	YI	YI	YI	YI	YI
1	DBW 221*	NW-TS-105	20S	40S	0	10S	40S	0	20S	0	0	0	0	40S
2	DBW 222*	NW-TS-106	0	10S	0	20S	tMS	0	0	0	0	0	0	10S
3	NW 7049	NW-TS-110	5S	10MS	0	0S	10MS	15MS	0	0	5S	0	0	10S
4	PBW820^{M}	NW-TS-104	0	tMS	0	5MR	tMS	0	0	0	0	0	0	5MS
5	PBW821^{M}	NW-TS-108	0	tMS	0	5S	20S	5MS	0	0	0	0	0	tMS
6	DPW621-50 (C)	NW-TS-111	0	20MS	0	60S	10MS	tr	0	0	5S	tMS	tMS	60S
7	DBW88 (C)	NW-TS-112	0	40S	0	40S	20S	tMR	0	20S	0	5S	5S	60S
8	HD2967 (C)	NW-TS-109	0	60S	0	60S	tMS	10S	0	40S	10S	10S	10S	20S
9	HD3086 (C)	NW-TS-103	0	10MS	10S	5MS	0	5S	20S	0	0	0	0	60S
10	PBW550 (C)	NW-TS-107	0	40S	0	60S	5MS	tr	0	30S	0	10S	10S	40S
11	WH1105 (C)	NW-TS-101	5S	10MS	0	40S	tMS	tMS	0	0	0	tMR	tMR	40S
12	HD3226(I) (C)	NW-TS-102	0	5S	0	tMR	10MS	tMS	0	0	0	0	0	20MS

1822-AVT-IR-LS-TAS-NWPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Delhi	Haryana												J&K			Punjab					
			Delhi	Bawal			Hisar			IIWBR-Karnal			Rohtak			Shikohpur			Jammu			Ludhiana			Kapurthala		
			Yield	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 771*	NW-LS-206	52.9	48.6	2	1	57.2	1	1	53.4	3	0	54.9	4	0	51.7	4	1	34.5	6	0	62.3	1	1	50.5	2	0
2	DBW 173 (C)	NW-LS-202	44.0	42.3	5	0	50.2	4	0	56.3	2	0	56.8	3	1	52.1	2	1	40.2	2	1	57.9	3	0	45.4	5	0
3	HD 3059 (C)	NW-LS-204	42.5	41.9	6	0	43.8	5	0	45.6	5	0	54.4	5	0	49.6	5	0	39.2	3	1	46.1	5	0	38.2	6	0
4	WH 1021 (C)	NW-LS-203	36.8	43.7	4	0	43.6	6	0	32.0	6	0	45.5	6	0	36.9	6	0	39.1	4	1	40.7	6	0	47.9	4	0
5	WH 1124 (C)	NW-LS-205	49.1	53.8	1	1	54.4	2	1	49.9	4	0	59.0	1	1	55.2	1	1	38.1	5	0	59.1	2	1	48.9	3	0
6	PBW 752(I) (C)	NW-LS-201	42.9	46.1	3	0	53.9	3	0	60.8	1	1	57.9	2	1	51.8	3	1	42.2	1	1	54.6	4	0	58.9	1	1
G.M.			44.7	46.1			50.5			49.7			54.7			49.6			38.9			53.4			48.3		
S.E.(M)			2.432	2.186			1.305			1.447			1.478			2.058			1.294			1.686			2.183		
C.D. (10%)			6.0	5.4			3.2			3.6			3.7			5.1			3.2			4.2			5.4		
C.V.			10.9	9.5			5.2			5.8			5.4			8.3			6.7			6.3			9.0		
D.O.S.(dd.mm.yy)			18.12.18	10.12.18			11.12.18			17.12.18			15.12.18			18.12.18			19.12.18			15.12.18			14.12.18		

No. of Trials: **Proposed = 25;** **Conducted = 24**

Trial not conducted (01) = Shahajahanpur

Trials not reported (03) = Bareilly (RMT), KVK-Rampur (HCV), Pilibhit (HCV)

1822-AVT-IR-LS-TAS-NWPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Punjab									Rajasthan											U.P.					
			Gurdaspur			Bathinda			Faridkot			Durgapura			Tabiji			Sriganganagar			Alwar			Nagina			Bulandshahr		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 771*	NW-LS-206	52.2	2	1	50.3	2	1	51.2	3	1	60.6	2	1	37.3	4	0	41.3	3	1	51.4	2	1	52.2	3	0	52.4	1	1
2	DBW 173 (C)	NW-LS-202	53.5	1	1	39.2	6	0	44.3	5	0	62.0	1	1	32.6	6	0	39.6	4	1	52.8	1	1	50.5	4	0	46.9	2	0
3	HD 3059 (C)	NW-LS-204	51.8	4	1	48.6	3	1	43.9	6	0	57.4	4	0	35.2	5	0	36.9	5	0	48.1	4	0	53.5	2	0	39.2	5	0
4	WH 1021 (C)	NW-LS-203	38.3	6	0	46.7	4	1	52.5	2	1	39.4	6	0	39.0	3	0	36.9	6	0	30.1	6	0	48.1	6	0	29.9	6	0
5	WH 1124 (C)	NW-LS-205	51.3	5	1	45.8	5	0	54.4	1	1	60.0	3	1	40.0	2	0	42.3	2	1	50.7	3	1	48.3	5	0	39.5	4	0
6	PBW 752(I) (C)	NW-LS-201	51.9	3	1	50.4	1	1	44.6	4	0	52.5	5	0	44.4	1	1	43.1	1	1	43.3	5	0	59.9	1	1	46.0	3	0
G.M.			49.8			46.8			48.5			55.3			38.1			40.0			46.1			52.1			42.3		
S.E.(M)			1.067			1.531			2.654			1.491			0.562			1.503			1.491			0.487			0.530		
C.D. (10%)			2.6			3.8			6.6			3.7			1.4			3.7			3.7			1.2			1.3		
C.V.			4.3			6.5			10.9			5.4			2.9			7.5			6.5			1.9			2.5		
D.O.S.(dd.mm.yy)			19.12.18			18.12.18			17.12.18			12.12.18			15.12.18			21.12.18			04.12.18			10.12.18			24.12.18		

1822-AVT-IR-LS-TAS-NWPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	U.P.			UTK					
			Ujhani			Pantnagar			Kashipur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 771*	NW-LS-206	41.6	1	1	56.6	1	1	60.0	3	0
2	DBW 173 (C)	NW-LS-202	34.5	5	0	48.9	3	0	54.6	5	0
3	HD 3059 (C)	NW-LS-204	37.7	4	1	50.4	2	0	54.6	6	0
4	WH 1021 (C)	NW-LS-203	31.8	6	0	40.4	6	0	60.8	2	0
5	WH 1124 (C)	NW-LS-205	38.2	3	1	44.0	5	0	64.3	1	1
6	PBW 752(I) (C)	NW-LS-201	40.5	2	1	44.5	4	0	55.8	4	0
G.M.			37.4			47.5			58.4		
S.E.(M)			1.862			0.657			0.512		
C.D. (10%)			4.6			1.6			1.3		
C.V.			10.0			2.8			1.8		
D.O.S.(dd.mm.yy)			15.12.18			20.12.18			14.12.18		

1822-AVT-IR-LS-TAS-NWPZ, 2018-19

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Delhi			Haryana			J&K			Punjab			Rajasthan			U.P.			UTK			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 771*	NW-LS-206	52.9	1	1	53.2	3	1	34.5	6	0	53.3	1	1	47.7	2	1	48.7	2	1	58.3	1	1	51.1	1	1
2	DBW 173 (C)	NW-LS-202	44.0	3	0	51.6	4	0	40.2	2	1	48.1	4	0	46.8	3	1	44.0	3	0	51.8	4	0	47.9	4	0
3	HD 3059 (C)	NW-LS-204	42.5	5	0	47.0	5	0	39.2	3	1	45.7	5	0	44.4	5	0	43.4	4	0	52.5	3	0	45.7	5	0
4	WH 1021 (C)	NW-LS-203	36.8	6	0	40.4	6	0	39.1	4	1	45.2	6	0	36.3	6	0	36.6	6	0	50.6	5	0	41.0	6	0
5	WH 1124 (C)	NW-LS-205	49.1	2	1	54.5	1	1	38.1	5	0	51.9	3	1	48.3	1	1	42.0	5	0	54.1	2	0	49.8	2	0
6	PBW 752(I) (C)	NW-LS-201	42.9	4	0	54.1	2	1	42.2	1	1	52.1	2	1	45.8	4	0	48.8	1	1	50.2	6	0	49.8	3	0
G.M.			44.7			50.1			38.9			49.4			44.9			43.9			52.9			47.5		
S.E.(M)			2.432			0.774			1.294			0.852			0.663			0.665			0.417			0.345		
C.D. (10%)			6.0			1.8			3.2			2.0			1.6			1.6			1.0			0.8		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: AVT-IR-LS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction			Agronomic Characteristics								Grain Characteristics			
			Br	Yl	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod. Max.	Col.	Tex.	TGW.R	TGW.M
1	PBW 771*	NW-LS-206	0	20S	4.6	75-93	84	108-133	121	72-104	87	M	0	A	SH	32-43	38
2	DBW173 (C)	NW-LS-202	0	15MS	4.7	75-96	85	108-135	123	85-108	98	M	0	A	SH	29-42	36
3	HD3059 (C)	NW-LS-204	0	60S	26.1	76-94	85	111-135	123	78-107	94	M	0	A	SH	29-40	34
4	WH1021 (C)	NW-LS-203	5S	60S	36.2	75-96	85	110-133	122	80-110	96	M	30	A	SH	25-39	33
5	WH1124 (C)	NW-LS-205	5S	40S	7.0	75-94	83	112-132	121	85-106	95	Ey	0	A	SH	26-42	35
6	PBW752(I) (C)	NW-LS-201	10S	5MS	0.6	74-93	84	108-132	122	80-108	93	M	70	A	SH	30-46	37

1. Ancillary data from Delhi, Bawal, Hisar, Rohtak, Shikohpur, Ludhiana, Gurdaspur, Bhatinda, Faridkot, Durgapura, Sriganganagar, Kashipur, Karnal, Bulandshahar Pantnagar, Nagina, Jammu, Tabiji and Alwar.
2. Yellow rust data from Delhi, Hisar Rohtak, Karnal, Pantnagar, Shikohpur, Ludhiana, Gurdaspur and Jammu.
3. Brown rust data from Pantnagar.
4. Lodging data from Gurdaspur and Hisar.

Individual Station Rust Data

SN	Variety	Code	Pantnagar		Gurdaspur	Ludhiana	Delhi	Shikohpur	Rohtak	Hisar	Jammu	Karnal
			Br	Yl	Yl	Yl	Yl	Yl	Yl	Yl	Yl	Yl
1	PBW 771*	NW-LS-206	0	0	5S	10MS	0	0	0	0	20S	10MS
2	DBW173 (C)	NW-LS-202	0	0	5S	5MS	5S	5S	TS	TS	10S	15MS
3	HD3059 (C)	NW-LS-204	0	20S	10S	20S	5S	0	40S	40S	40S	60S
4	WH1021 (C)	NW-LS-203	5S	40S	40S	40S	5S	ts	40S	40S	60S	60S
5	WH1124 (C)	NW-LS-205	5S	0	5S	10MS	0	0	TS	TS	40S	10MS
6	PBW752(I) (C)	NW-LS-201	10S	0	tR	TMS	0	0	0	0	5MS	0

1823-AVT-RI-TS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Delhi			Haryana									J&K			Punjab											
			Delhi			Hisar			Bawal			IIWBR-Karnal			Jammu			Ludhiana			Gurdaspur			Kapurthala			Balachaur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	BRW 3806*#	NW-RI-308	56.9	6	0	53.5	3	0	41.4	4	1	64.1	9	0	42.3	4	0	49.3	4	0	43.6	8	0	41.1	9	0	52.9	6	0
2	HI 1628*	NW-RI-303	51.2	8	0	52.6	4	0	40.7	6	0	65.0	7	0	41.3	5	0	50.4	3	0	51.9	3	0	53.3	3	1	52.9	5	1
3	NIAW 3170*	NW-RI-309	63.2	1	1	50.4	7	0	44.3	2	1	71.7	1	1	38.9	8	0	49.1	5	0	47.9	5	0	52.0	4	1	47.5	10	0
4	PBW 796	NW-RI-302	61.5	2	1	49.5	8	0	42.7	3	1	71.7	2	1	42.5	3	0	48.2	6	0	51.6	4	0	55.3	1	1	53.1	4	1
5	HD 3043 (C)	NW-RI-305	51.1	9	0	46.2	9	0	36.0	10	0	56.8	10	0	46.9	1	1	45.9	9	0	47.6	6	0	47.0	5	0	49.1	8	0
6	WH 1080 (C)	NW-RI-310	53.3	7	0	52.4	5	0	36.6	9	0	64.3	8	0	37.6	10	0	47.8	7	0	41.5	10	0	44.4	7	0	49.0	9	0
7	WH 1142 (C)	NW-RI-304	59.7	3	1	43.0	10	0	37.4	8	0	70.3	4	1	40.4	6	0	52.4	2	0	45.2	7	0	36.1	10	0	53.2	3	1
8	PBW 644 (C)	NW-RI-306	50.5	10	0	56.1	1	1	40.9	5	0	67.0	6	0	38.2	9	0	37.4	10	0	43.3	9	0	42.6	8	0	54.0	2	1
9	HD 3237(I) (C)	NW-RI-307	59.2	4	1	54.3	2	1	40.0	7	0	69.7	5	1	40.1	7	0	46.1	8	0	54.5	1	1	44.8	6	0	56.8	1	1
10	HI 1620(I) (C)	NW-RI-301	59.1	5	1	51.4	6	0	44.9	1	1	71.2	3	1	44.5	2	1	59.8	1	1	52.4	2	1	55.2	2	1	51.8	7	0
G.M.			56.6			50.9			40.5			67.2			41.3			48.6			47.9			47.2			52.0		
S.E.(M)			1.999			0.938			1.592			1.841			1.543			1.826			0.997			1.774			1.624		
C.D. (10%)			4.8			2.3			3.8			4.4			3.7			4.4			2.4			4.3			3.9		
C.V.			7.1			3.7			7.9			5.5			7.5			7.5			4.2			7.5			6.2		
D.O.S.(dd.mm.yy)			03.11.18			03.11.18			04.11.18			25.10.18			02.11.18			01.11.18			31.10.18			05.11.18			05.11.18		

No. of Trials: Proposed = 14 **Conducted = 14**

1823-AVT-RI-TS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	U.P.			UTK			Rajasthan								
			Bulandshahr			Pantnagar			Diggi			Sriganganagar			Bharatpur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	BRW 3806*#	NW-RI-308	47.6	9	0	54.3	3	0	44.4	3	1	54.1	1	1	51.7	1	1
2	HI 1628*	NW-RI-303	58.4	3	0	52.1	5	0	47.7	1	1	43.8	5	0	45.0	3	0
3	NIAW 3170*	NW-RI-309	62.1	1	1	44.7	10	0	34.8	7	0	52.6	2	1	41.9	4	0
4	PBW 796	NW-RI-302	44.7	10	0	49.9	7	0	31.7	8	0	46.5	4	0	39.9	6	0
5	HD 3043 (C)	NW-RI-305	48.9	8	0	50.2	6	0	30.0	10	0	37.7	10	0	37.2	9	0
6	WH 1080 (C)	NW-RI-310	49.0	7	0	56.5	2	0	30.6	9	0	38.8	9	0	37.3	8	0
7	WH 1142 (C)	NW-RI-304	58.7	2	0	58.2	1	1	36.9	5	0	42.1	7	0	37.2	9	0
8	PBW 644 (C)	NW-RI-306	51.3	5	0	46.5	9	0	36.0	6	0	41.2	8	0	37.6	7	0
9	HD 3237(I) (C)	NW-RI-307	56.8	4	0	52.6	4	0	39.8	4	0	43.7	6	0	41.6	5	0
10	HI 1620(I) (C)	NW-RI-301	51.1	6	0	49.8	8	0	46.0	2	1	49.2	3	0	45.6	2	0
G.M.			52.9			51.5			37.8			45.0			41.5		
S.E.(M)			0.219			0.608			1.768			1.860			1.036		
C.D. (10%)			0.5			1.5			4.3			4.5			2.5		
C.V.			0.8			2.4			9.4			8.3			5.0		
D.O.S.(dd.mm.yy)			04.11.18			27.10.18			05.11.18			05.11.18			05.11.18		

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Delhi			Haryana			J&K			Punjab			U.P.			UTK			Rajasthan			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	BRW 3806*#	NW-RI-308	56.9	6	0	53.0	6	0	42.3	4	0	46.7	8	0	47.6	9	0	54.3	3	0	50.0	1	1	49.8	5	0
2	HI 1628*	NW-RI-303	51.2	8	0	52.8	7	0	41.3	5	0	52.1	2	0	58.4	3	0	52.1	5	0	45.5	3	0	50.5	2	0
3	NIAW 3170*	NW-RI-309	63.2	1	1	55.4	2	1	38.9	8	0	49.1	5	0	62.1	1	1	44.7	10	0	43.1	4	0	50.1	3	0
4	PBW 796	NW-RI-302	61.5	2	1	54.6	5	1	42.5	3	0	52.0	3	0	44.7	10	0	49.9	7	0	39.4	6	0	49.2	6	0
5	HD 3043 (C)	NW-RI-305	51.1	9	0	46.3	10	0	46.9	1	1	47.4	6	0	48.9	8	0	50.2	6	0	35.0	10	0	45.0	10	0
6	WH 1080 (C)	NW-RI-310	53.3	7	0	51.1	8	0	37.6	10	0	45.7	9	0	49.0	7	0	56.5	2	0	35.6	9	0	45.7	9	0
7	WH 1142 (C)	NW-RI-304	59.7	3	1	50.2	9	0	40.4	6	0	46.7	7	0	58.7	2	0	58.2	1	1	38.7	7	0	47.9	7	0
8	PBW 644 (C)	NW-RI-306	50.5	10	0	54.7	4	1	38.2	9	0	44.3	10	0	51.3	5	0	46.5	9	0	38.3	8	0	45.9	8	0
9	HD 3237(I) (C)	NW-RI-307	59.2	4	1	54.7	3	1	40.1	7	0	50.6	4	0	56.8	4	0	52.6	4	0	41.7	5	0	50.0	4	0
10	HI 1620(I) (C)	NW-RI-301	59.1	5	1	55.8	1	1	44.5	2	1	54.8	1	1	51.1	6	0	49.8	8	0	47.0	2	0	52.3	1	1
G.M.			56.6			52.9			41.3			48.9			52.9			51.5			41.4			48.6		
S.E.(M)			1.999			0.869			1.543			0.795			0.219			0.608			0.922			0.400		
C.D. (10%)			4.8			2.0			3.7			1.9			0.5			1.5			2.2			0.9		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: AVT-RI-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reaction				Agronomic Characteristics								Grain Characteristics				
			Br	ACI	Yl	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M	BP
1	BRW 3806*#	NW-RI-308	0	0.0	40S	18.4	93-121	105	135-174	151	95-126	110	30	Ey	A	SH	36-52	43	0.0
2	HI 1628*	NW-RI-303	10MS	1.6	20S	11.7	86-124	102	131-175	150	98-126	111	30	Ey	A	SH	34-51	44	0.1
3	NIAW 3170*	NW-RI-309	5MS	0.8	40S	14.1	83-121	101	132-171	149	88-118	107	0	Ey	A	SH	31-51	43	0.0
4	PBW 796	NW-RI-302	20S	7.2	60S	18.3	85-124	104	133-175	150	90-120	103	0	Ey	A	SH	32-52	44	0.1
5	HD3043 (C)	NW-RI-305	30S	11.0	40S	14.7	93-127	109	137-177	153	96-125	109	0	Ey	A	SH	31-44	37	0.2
6	WH1080 (C)	NW-RI-310	20S	5.2	40S	8.9	90-127	105	133-175	152	86-110	97	0	Ey	A	SH	35-49	41	0.1
7	WH1142 (C)	NW-RI-304	20S	8.2	60S	14.2	88-127	106	132-178	152	92-115	104	0	Ey	A	SH	29-45	39	0.1
8	PBW644 (C)	NW-RI-306	10S	3.0	60S	23.5	91-129	107	135-178	152	97-128	111	30	Ey	A	SH	34-48	41	0.2
9	HD3237(I) (C)	NW-RI-307	20S	7.2	20S	5.0	80-127	100	134-175	150	99-130	110	0	Ey	A	SH	31-51	42	0.1
10	HI1620(I) (C)	NW-RI-301	20S	6.0	5S	2.2	83-127	101	135-177	151	93-119	104	0	Ey	A	SH	32-53	44	0.1

1. Ancillary data from Balachaur, Bawal, Bharatpur, Delhi, Diggi, Gurdaspur, Hisar, Jammu, Karnal, Ludhiana, Pantnagar and Sriganganagar.
2. Yellow rust data from Balachaur, Gurdaspur Hisar Jammu, Ludhiana and Karnal.
3. Brown rust data from Balachaur, Gurdaspur, Pantnagar, Ludhiana and Karnal.
4. Lodging data reported from Ludhiana.
5. Black point data reported from Gurdaspur and Hisar

Individual Station Rust Data

SN	Variety	Code	Gurdaspur		Ludhiana		Balachaur		Karnal		Hisar	Jammu	Pantnagar
			Br	Yl	Br	Yl	Br	Yl	Br	Yl	Yl	Yl	Br
1	BRW 3806*#	NW-RI-308	0	40S	0	20S	0	10S	0	tMR	0	40S	0
2	HI 1628*	NW-RI-303	0	10S	0	20S	10MS	20S	0	tMR	0	20S	0
3	NIAW 3170*	NW-RI-309	0	20S	0	40S	5MS	5MS	0	tMR	0	20S	0
4	PBW 796	NW-RI-302	5S	5S	10S	5S	0	40S	tMS	0	0	60S	20S
5	HD3043 (C)	NW-RI-305	0	10MS	5S	20S	10S	40S	10S	tMR	0	20S	30S
6	WH1080 (C)	NW-RI-310	0	5MS	0	5MS	20S	5S	tMS	tMR	0	40S	5S
7	WH1142 (C)	NW-RI-304	tMS	5MS	10S	ts	20S	20S	0	tMR	0	60S	10S
8	PBW644 (C)	NW-RI-306	0	20S	0	60S	5MS	20S	tMS	tMS	tMR	40S	10S
9	HD3237(I) (C)	NW-RI-307	5S	5S	10S	5S	tr	tr	tMS	0	0	20S	20S
10	HI1620(I) (C)	NW-RI-301	0	5MS	0	5S	20S	0	10S	tMR	0	5MS	0

North Eastern Plains Zone

1831-AVT-IR-TS-TAS-NEPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	U.P.												Bihar					
			Kanpur			Faizabad			Varanasi			Gorakhpur			IARI Pusa			Sabour		
			Yld	Rk	G	Yld	Rk	G	Yld	Rk	G	Yld	Rk	G	Yld	Rk	G	Yld	Rk	G
1	HD 3249*#Q	NE-IR-101	48.1	9	0	54.0	6	0	47.6	2	1	54.4	4	0	48.1	9	0	48.0	2	1
2	PBW 781	NE-IR-103	55.7	3	0	51.5	10	0	42.0	9	0	56.6	2	1	45.0	10	0	40.4	7	0
3	DBW 257	NE-IR-104	47.2	10	0	52.8	9	0	42.3	8	0	49.3	8	0	44.3	11	0	44.8	4	0
4	HD 3277	NE-IR-106	53.2	5	0	53.9	7	0	42.7	7	0	55.4	3	1	50.3	4	0	39.4	8	0
5	RAJ 4529	NE-IR-107	58.9	2	0	53.1	8	0	40.5	11	0	32.2	11	0	49.0	8	0	36.5	11	0
6	WH 1239	NE-IR-109	54.1	4	0	60.1	1	1	44.3	5	0	51.9	6	0	50.8	2	0	46.4	3	0
7	DBW 187(I) (C)	NE-IR-108	52.1	6	0	59.0	2	1	48.5	1	1	52.2	5	0	49.0	7	0	42.0	6	0
8	HD 2733 (C)	NE-IR-102	61.8	1	1	50.4	11	0	47.5	3	1	57.9	1	1	50.0	6	0	50.0	1	1
9	DBW 39 (C)	NE-IR-105	51.3	8	0	58.2	3	1	44.2	6	0	33.7	10	0	50.7	3	0	42.6	5	0
10	K0307 (C)	NE-IR-110	44.6	11	0	56.8	4	0	40.7	10	0	40.7	9	0	58.6	1	1	37.8	10	0
11	HD 2967 (C)	NE-IR-111	51.4	7	0	55.4	5	0	44.8	4	0	51.7	7	0	50.1	5	0	38.3	9	0
G.M.			52.6			55.0			44.1			48.7			49.6			42.4		
S.E.(M)			1.190			1.098			0.993			1.041			2.771			1.472		
C.D. (10%)			2.9			2.6			2.4			2.5			6.6			3.5		
C.V.			4.5			4.0			4.5			4.3			11.2			6.9		
D.O.S.(dd.mm.yy)			25.11.18			24.11.18			24.11.18			25.11.18			24.11.18			24.11.18		

No. of Trials : Proposed = 23 Conducted = 23
Trials not reported (08) = Araul (RMT), Amethi (RMT), Basti (RMT), Chandauli (RMT), Allahabad (LSM), Coochbehar (LSM), Majhian (LSM), Bishwanath (LSM)

1831-AVT-IR-TS-TAS-NEPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Bihar									Jharkhand								
			Purnea			Banka			RPCAU-Pusa			Ranchi			Chianki			Dumka		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3249*#Q	NE-IR-101	51.4	4	0	51.9	3	0	57.7	4	0	53.8	6	1	42.2	7	0	51.0	6	1
2	PBW 781	NE-IR-103	43.7	10	0	53.2	2	1	55.0	5	0	49.5	11	0	35.8	10	0	48.7	9	1
3	DBW 257	NE-IR-104	45.9	8	0	47.2	10	0	52.2	8	0	54.0	5	1	31.7	11	0	51.3	5	1
4	HD 3277	NE-IR-106	46.2	7	0	50.2	7	0	47.3	10	0	52.3	7	1	48.8	3	1	53.9	1	1
5	RAJ 4529	NE-IR-107	43.3	11	0	55.7	1	1	55.0	5	0	55.2	2	1	52.1	1	1	42.1	11	0
6	WH 1239	NE-IR-109	53.9	3	0	50.4	6	0	60.1	3	0	54.1	4	1	52.0	2	1	53.6	2	1
7	DBW 187(I) (C)	NE-IR-108	68.0	1	1	50.6	4	0	63.1	1	1	54.4	3	1	47.5	4	0	53.3	3	1
8	HD 2733 (C)	NE-IR-102	51.4	5	0	47.9	9	0	47.1	11	0	56.4	1	1	41.4	8	0	51.5	4	1
9	DBW 39 (C)	NE-IR-105	44.5	9	0	48.3	8	0	53.6	7	0	50.4	9	0	43.5	5	0	47.8	10	1
10	K0307 (C)	NE-IR-110	49.2	6	0	50.4	5	0	47.7	9	0	50.1	10	0	43.2	6	0	50.1	7	1
11	HD 2967 (C)	NE-IR-111	62.0	2	0	44.8	11	0	62.2	2	1	51.8	8	1	38.7	9	0	49.0	8	1
G.M.			50.9			50.0			54.6			52.9			43.4			50.2		
S.E.(M)			2.406			1.300			0.566			2.384			1.882			3.440		
C.D. (10%)			5.8			3.1			1.4			5.7			4.5			8.3		
C.V.			9.5			5.2			2.1			9.0			8.7			13.7		
D.O.S.(dd.mm.yy)			20.11.18			24.11.18			20.11.18			20.11.18			22.11.18			17.11.18		

1831-AVT-IR-TS-TAS-NEPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	W.B						Assam		
			Kalyani			Burdhwan			Shillongani		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3249*#Q	NE-IR-101	42.3	3	0	36.6	8	0	45.1	1	1
2	PBW 781	NE-IR-103	38.3	8	0	39.2	5	0	34.2	7	0
3	DBW 257	NE-IR-104	35.7	11	0	41.8	2	0	39.6	3	1
4	HD 3277	NE-IR-106	38.9	6	0	41.7	3	0	31.7	10	0
5	RAJ 4529	NE-IR-107	38.4	7	0	35.3	11	0	37.7	6	0
6	WH 1239	NE-IR-109	49.6	1	1	36.0	10	0	39.1	4	1
7	DBW 187(I) (C)	NE-IR-108	42.7	2	0	46.6	1	1	38.2	5	0
8	HD 2733 (C)	NE-IR-102	39.6	5	0	36.0	9	0	33.5	9	0
9	DBW 39 (C)	NE-IR-105	36.3	10	0	40.1	4	0	41.7	2	1
10	K0307 (C)	NE-IR-110	42.0	4	0	36.7	7	0	34.0	8	0
11	HD 2967 (C)	NE-IR-111	36.6	9	0	37.3	6	0	26.7	11	0
G.M.			40.0			38.8			36.5		
S.E.(M)			0.589			1.240			2.761		
C.D. (10%)			1.4			3.0			6.6		
C.V.			2.9			6.4			15.1		
D.O.S.(dd.mm.yy)			17.11.18			22.11.18			13.11.18		

1831-AVT-IR-TS-TAS-NEPZ, 2018-19

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	U.P.			Bihar			Jharkhand			W.B.			Assam			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3249*#Q	NE-IR-101	51.0	6	0	51.4	4	0	49.0	6	0	39.5	4	0	45.1	1	1	48.8	3	0
2	PBW 781	NE-IR-103	51.4	4	0	47.4	9	0	44.7	11	0	38.8	6	0	34.2	7	0	45.9	7	0
3	DBW 257	NE-IR-104	47.9	8	0	46.9	10	0	45.7	10	0	38.7	7	0	39.6	3	1	45.3	11	0
4	HD 3277	NE-IR-106	51.3	5	0	46.7	11	0	51.7	3	1	40.3	3	0	31.7	10	0	47.1	5	0
5	RAJ 4529	NE-IR-107	46.2	10	0	47.9	8	0	49.8	4	1	36.8	11	0	37.7	6	0	45.7	9	0
6	WH 1239	NE-IR-109	52.6	3	0	52.3	2	0	53.2	1	1	42.8	2	0	39.1	4	1	50.4	2	1
7	DBW 187(I) (C)	NE-IR-108	53.0	2	0	54.6	1	1	51.8	2	1	44.7	1	1	38.2	5	0	51.2	1	1
8	HD 2733 (C)	NE-IR-102	54.4	1	1	49.3	5	0	49.8	5	1	37.8	9	0	33.5	9	0	48.2	4	0
9	DBW 39 (C)	NE-IR-105	46.8	9	0	48.0	7	0	47.2	8	0	38.2	8	0	41.7	2	1	45.8	8	0
10	K0307 (C)	NE-IR-110	45.7	11	0	48.7	6	0	47.8	7	0	39.3	5	0	34.0	8	0	45.5	10	0
11	HD 2967 (C)	NE-IR-111	50.8	7	0	51.5	3	0	46.5	9	0	36.9	10	0	26.7	11	0	46.7	6	0
G.M.			50.1			49.5			48.8			39.4			36.5			47.3		
S.E.(M)			0.542			0.840			1.530			0.686			2.761			0.485		
C.D. (10%)			1.3			2.0			3.6			1.6			6.6			1.1		

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: AVT-IR-TS-TAS-NEPZ, 2018-19**

SN	Variety	Code	Disease Reaction		Agronomic Characteristics								Grain Characteristics			
			Br	LB (HS, Av)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.M	Col.	Tex.	TGW.R	TGW.M
1	HD 3249*#Q	NE-IR-101	0	46(24)	65-87	78	109-138	123	87-109	99	M	35	A	SH	32-50	42
2	PBW 781	NE-IR-103	0	24(13)	72-93	85	116-144	130	85-101	94	M	25	A	SH	32-54	39
3	DBW 257	NE-IR-104	5S	25(13)	64-93	84	115-146	128	79-107	96	Ey	35	A	SH	34-51	39
4	HD 3277	NE-IR-106	0	38(35)	65-93	83	113-146	127	88-112	102	Ey	55	A	SH	34-51	42
5	RAJ 4529	NE-IR-107	10S	45(24)	62-88	79	114-144	126	80-117	103	M	50	A	SH	33.-53	43
6	WH 1239	NE-IR-109	0	47(24)	66-90	80	116-140	127	88-111	101	M	35	A	SH	34-47	41
7	DBW 187(I) (C)	NE-IR-108	0	56(24)	60-88	78	113-136	125	81-111	97	Ey	50	A	SH	33-51	43
8	HD 2733 (C)	NE-IR-102	0	26(13)	64-94	84	114-148	129	81-95	89	Ey	35	A	SH	35-49	42
9	DBW 39 (C)	NE-IR-105	0	36(24)	63-92	83	114-143	127	90-116	104	M	55	A	SH	32-48	40
10	K0307 (C)	NE-IR-110	0	57(35)	67-90	80	112-138	126	89-119	102	Ey	55	A	SH	32-49	39
11	HD 2967 (C)	NE-IR-111	10S	24(13)	72-95	86	115-146	131	83-107	97	Ey	30	A	SH	30-51	38

1. The ancillary data from Kanpur, Faizabad, IARI-PUSA, Sabour, Ranchi, Chianki, Dumka, Coochbehar, Kalyani, Burdwan, Shillongani, Varanasi, Majhian, Bishwanath, Purnea, RPCAU-PUSA and Banka
2. Brown Rust reported in Kanpur only; Leaf blight data from Shillongani, Faizabad and Sabour centres.
3. Lodging data from Burdwan, Shillongani, Coochbehar and Bishwanath.

Individual Station Leaf Blight Data

SN	Variety	Code	Faizabad	Sabour	Shillongani	Coochbehar
1	HD 3249*#Q	NE-IR-101	12	35	46	23
2	PBW 781	NE-IR-103	24	03	13	23
3	DBW 257	NE-IR-104	12	02	25	23
4	HD 3277	NE-IR-106	35	03	38	34
5	RAJ 4529	NE-IR-107	45	23	25	23
6	WH 1239	NE-IR-109	12	02	47	34
7	DBW 187(I) (C)	NE-IR-102	12	02	26	24
8	HD 2733 (C)	NE-IR-105	36	25	14	23
9	DBW 39 (C)	NE-IR-108	12	23	56	23
10	K0307 (C)	NE-IR-110	24	35	57	34
11	HD 2967 (C)	NE-IR-111	24	02	12	12

1833-AVT-RI-TS-TAS-NEPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	U.P.												Bihar		
			Varanasi			Faizabad			Kanpur			Deegh			Ghaghraghat			IARI-Pusa		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 252*#	NE-RI-306	37.9	4	0	45.1	8	0	34.6	7	0	48.2	3	1	40.3	3	1	30.1	3	1
2	HD 3293	NE-RI-303	43.8	1	1	52.1	2	0	47.3	1	1	39.2	6	0	40.1	4	1	26.2	6	0
3	DBW 273	NE-RI-308	35.5	6	0	48.3	6	0	33.8	8	0	48.6	2	1	45.8	1	1	28.8	4	0
4	K 1317 (C)	NE-RI-301	36.3	5	0	50.5	3	0	44.3	3	0	47.2	4	0	37.4	5	0	33.5	1	1
5	HI 1612 (C)	NE-RI-302	39.2	3	0	49.6	4	0	45.8	2	1	50.0	1	1	42.3	2	1	28.3	5	0
6	HD 3171 (C)	NE-RI-304	41.4	2	0	54.4	1	1	44.2	4	0	45.2	5	0	36.4	6	0	30.6	2	1
7	HD 2888 (C)	NE-RI-305	15.7	8	0	47.8	7	0	43.5	5	0	27.7	8	0	34.3	7	0	25.3	7	0
8	K 8027 (C)	NE-RI-307	17.4	7	0	49.5	5	0	35.7	6	0	32.0	7	0	32.4	8	0	25.2	8	0
G.M.			33.4			49.6			41.2			42.3			38.6			28.5		
S.E.(M)			0.975			0.883			0.982			1.049			2.931			1.687		
C.D. (10%)			2.4			2.1			2.4			2.6			7.1			4.1		
C.V.			5.8			3.6			4.8			5.0			15.2			11.8		
D.O.S.(dd.mm.yy)			08.11.18			09.11.18			09.11.18			04.11.18			03.11.18			08.11.18		

No. of Trials : Proposed = 20 Conducted = 20
Trial not conducted (00) = Nil
Trials not reported (04) = Maharajganj (RMT), Dumka (RMT), Goriakarma (RMT), Bishwanath (TF)

1833-AVT-RI-TS-TAS-NEPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Bihar									W.B.								
			Sabour			Purnea			RPCAU-Pusa			Kalyani			Burdwan			Coochbehar		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 252*#	NE-RI-306	33.4	6	1	18.8	7	0	45.0	4	0	32.9	7	0	32.1	5	0	25.2	2	1
2	HD 3293	NE-RI-303	37.1	1	1	32.3	4	0	38.5	5	0	34.6	3	0	30.5	6	0	24.3	3	1
3	DBW 273	NE-RI-308	36.9	2	1	16.1	8	0	46.7	2	0	33.1	6	0	36.9	2	1	26.8	1	1
4	K 1317 (C)	NE-RI-301	33.7	5	1	41.2	1	1	30.7	7	0	36.6	1	1	36.1	3	0	21.6	5	0
5	HI 1612 (C)	NE-RI-302	34.0	3	1	37.3	2	1	45.4	3	0	34.7	2	0	34.8	4	0	21.7	4	0
6	HD 3171 (C)	NE-RI-304	33.9	4	1	28.8	5	0	49.6	1	1	33.2	5	0	40.1	1	1	16.8	8	0
7	HD 2888 (C)	NE-RI-305	29.9	7	0	33.6	3	0	29.4	8	0	29.8	8	0	21.8	8	0	20.8	6	0
8	K 8027 (C)	NE-RI-307	21.0	8	0	24.6	6	0	37.3	6	0	33.6	4	0	22.2	7	0	18.2	7	0
G.M.			32.5			29.1			40.3			33.6			31.8			21.9		
S.E.(M)			1.665			2.264			0.596			0.486			1.492			1.411		
C.D. (10%)			4.1			5.5			1.4			1.2			3.6			3.4		
C.V.			10.2			15.6			3.0			2.9			9.4			12.9		
D.O.S.(dd.mm.yy)			06.11.18			07.11.18			10.11.18			10.11.18			10.11.18			03.11.18		

1833-AVT-RI-TS-TAS-NEPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Jharkhand									Assam		
			Ranchi			Chianki			KVK-Gumla			Shillongani		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 252*#	NE-RI-306	55.6	5	1	41.0	2	1	44.0	5	0	21.3	5	0
2	HD 3293	NE-RI-303	60.7	1	1	36.1	4	0	48.8	2	1	27.2	1	1
3	DBW 273	NE-RI-308	57.0	4	1	32.5	7	0	51.9	1	1	22.2	4	0
4	K 1317 (C)	NE-RI-301	57.5	2	1	41.8	1	1	46.3	3	1	20.9	6	0
5	HI 1612 (C)	NE-RI-302	49.6	6	0	34.9	5	0	43.8	6	0	26.7	2	1
6	HD 3171 (C)	NE-RI-304	57.3	3	1	31.2	8	0	45.0	4	0	22.5	3	0
7	HD 2888 (C)	NE-RI-305	28.4	8	0	34.1	6	0	29.4	7	0	20.8	8	0
8	K 8027 (C)	NE-RI-307	33.4	7	0	37.2	3	0	26.0	8	0	20.9	6	0
G.M.			49.9			36.1			41.9			22.8		
S.E.(M)			2.798			1.330			2.627			1.083		
C.D. (10%)			6.8			3.2			6.4			2.6		
C.V.			11.2			7.4			12.5			9.5		
D.O.S.(dd.mm.yy)			30.10.18			31.10.18			10.11.18			29.10.18		

1833-AVT-RI-TS-TAS-NEPZ, 2018-19

STATE AND ZONAL MEANS (q/ha)

S.N.	Variety	Code	U.P.			Bihar			W.B.			Jharkhand			Assam			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	DBW 252*#	NE-RI-306	41.2	6	0	31.8	6	0	30.1	4	0	46.8	4	1	21.3	5	0	36.6	6	0
2	HD 3293	NE-RI-303	44.5	2	1	33.5	4	0	29.8	6	0	48.5	2	1	27.2	1	1	38.7	1	1
3	DBW 273	NE-RI-308	42.4	5	0	32.1	5	0	32.3	1	1	47.1	3	1	22.2	4	0	37.6	5	0
4	K 1317 (C)	NE-RI-301	43.2	4	0	34.8	3	1	31.4	2	1	48.5	1	1	20.9	6	0	38.5	3	1
5	HI 1612 (C)	NE-RI-302	45.4	1	1	36.3	1	1	30.4	3	0	42.7	6	0	26.7	2	1	38.6	2	1
6	HD 3171 (C)	NE-RI-304	44.3	3	1	35.7	2	1	30.0	5	0	44.5	5	0	22.5	3	0	38.2	4	1
7	HD 2888 (C)	NE-RI-305	33.8	7	0	29.6	7	0	24.1	8	0	30.6	8	0	20.8	8	0	29.5	7	0
8	K 8027 (C)	NE-RI-307	33.4	8	0	27.0	8	0	24.7	7	0	32.2	7	0	20.9	6	0	29.2	8	0
G.M.			41.0			32.6			29.1			42.6			22.8			35.8		
S.E.(M)			0.704			0.833			0.703			1.354			1.083			0.422		
C.D. (10%)			1.7			2.0			1.7			3.2			2.6			1.0		

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: AVT-RI-TS-TAS, 2018-19**

SN	Variety	Code	Leaf Blight Reaction	Agronomic Characteristics							Grain Characteristics				
			HS(Av.)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	DBW 252*#	NE-RI-306	35(24)	68-93	83	103-150	130	87-112	99	-	Ey	A	SH	32-51	44
2	HD 3293	NE-RI-303	48(24)	70-93	81	105-145	130	88-118	102	-	Ey	A	SH	37-53	46
3	DBW 273	NE-RI-308	57(35)	69-96	86	110-147	132	83-106	98	-	Ey	A	SH	27-54	39
4	K 1317 (C)	NE-RI-301	68(35)	62-95	84	105-148	131	91-109	100	-	Ey	A	SH	36-55	46
5	HI 1612 (C)	NE-RI-302	46(24)	70-99	88	103-151	131	80-112	97	-	Ey	A	SH	34-53	42
6	HD 3171 (C)	NE-RI-304	68(34)	59-89	76	100-139	127	82-108	98	-	Ey	A	SH	36-55	44
7	HD 2888 (C)	NE-RI-305	46(23)	68-94	84	100-141	129	82-133	114	55	Ey	A	SH	35-50	42
8	K 8027 (C)	NE-RI-307	34(23)	64-94	76	98-142	127	83-131	115	50	Ey	A	SH	37-50	45

1. Ancillary data from Chianki, Deegh, Purnea, Varanasi, Burdwan, Coochbehar, Faizabad, Ghagraghat, Kanpur, Pusa, Ranchi, Sabour, Kalyani, Gumla, RPCAU, Pusa and Shillongani; Leaf blight data from Burdwan, Coochbehar, Faizabad, Sabour, Kalyani and Shillongani.

Individual Station Leaf Blight Data

SN	Variety	Code	Burdwan	Coochbehar	Faizabad	Sabour	Kalyani	Shillongani
1.	DBW 252*#	NE-RI-306	34	23	35	35	01	35
2.	HD 3293	NE-RI-303	45	23	12	35	01	48
3.	DBW 273	NE-RI-308	46	34	24	57	12	47
4.	K 1317 (C)	NE-RI-301	34	34	35	68	12	56
5.	HI 1612 (C)	NE-RI-302	34	12	24	46	01	36
6.	HD 3171 (C)	NE-RI-304	35	34	12	68	12	23
7.	HD 2888 (C)	NE-RI-305	35	00	46	46	12	32
8.	K 8027 (C)	NE-RI-307	34	12	12	24	12	25

Central Zone

1841 - AVT-IR-TS-TAD-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Gujarat												M.P.		
			Anand			Amreli			Junagarh			SK Nagar			Vijapur			Gwalior		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	NIDW 1158 (d)	CZ-TS-102	54.9	11	0	39.5	10	0	48.6	4	1	71.6	7	0	74.0	4	1	92.6	3	1
2	HI 8811 (d)	CZ-TS-103	60.4	4	0	43.8	5	1	50.0	1	1	74.2	5	1	79.8	1	1	89.8	8	1
3	HD 3343^{M}	CZ-TS-104	60.2	5	0	44.8	4	1	44.6	10	0	78.6	1	1	70.2	10	0	87.8	9	1
4	HI 8812 (d)	CZ-TS-108	58.6	6	0	48.1	1	1	48.0	6	1	74.4	4	1	76.1	3	1	95.2	1	1
5	GW 1348 (d)	CZ-TS-109	46.3	13	0	28.7	13	0	45.6	8	0	71.3	9	0	78.6	2	1	90.0	6	1
6	DDW 49 (d)	CZ-TS-110	54.9	10	0	46.5	2	1	42.4	13	0	70.1	11	0	66.8	12	0	91.4	5	1
7	PBW 822^{B}	CZ-TS-111	61.8	3	0	40.0	7	0	48.2	5	1	73.2	6	1	70.7	9	0	87.4	10	1
8	HD 3345^{B}	CZ-TS-112	56.8	8	0	38.7	11	0	42.9	12	0	59.3	13	0	66.1	13	0	67.8	13	0
9	DDW 48 (d)	CZ-TS-113	49.2	12	0	40.0	8	0	47.1	7	1	70.3	10	0	71.4	8	0	90.0	6	1
10	HI 8713(d) (C)	CZ-TS-101	58.5	7	0	37.5	12	0	44.3	11	0	75.5	3	1	67.9	11	0	92.5	4	1
11	GW 322 (C)	CZ-TS-105	69.5	1	1	46.5	3	1	49.7	2	1	77.3	2	1	72.2	7	0	83.4	11	0
12	HI 1544 (C)	CZ-TS-106	62.7	2	1	39.7	9	0	44.9	9	0	71.4	8	0	73.8	5	1	82.4	12	0
13	HI 8737(d) (C)	CZ-TS-107	56.7	9	0	42.6	6	1	49.3	3	1	69.7	12	0	73.5	6	0	93.9	2	1
G.M.			57.7			41.3			46.6			72.1			72.4			88.0		
S.E.(M)			3.031			2.568			1.498			2.451			2.602			4.235		
C.D. (10%)			7.2			6.1			3.6			5.9			6.2			10.1		
C.V.			10.5			12.4			6.4			6.8			7.2			9.6		
D.O.S.(dd.mm.yy)			19.11.18			10.11.18			15.11.18			19.11.18			16.11.18			11.11.18		

No. of Trials: Proposed = 23; Conducted = 21
Trials not Conducted (02): Banswara, Ratlam
Trials not reported (07) = Jabalpur (RMT), NIBSM-Raipur (RMT), Sagar (LS), KVK-Ujjain (HCV), IGKV-Raipur (LS), Shahdol (DNR), Mandor (DNR)

1841 - AVT-IR-TS-TAD-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	M.P.												Rajasthan		
			Indore			Powarkheda			Bhopal			Tikamgarh			Morena			Kota		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	NIDW 1158 (d)	CZ-TS-102	57.4	11	0	62.8	10	0	40.5	7	0	60.5	12	0	35.7	11	0	64.3	8	0
2	HI 8811 (d)	CZ-TS-103	60.0	5	0	70.5	4	0	34.9	11	0	74.1	1	1	47.7	1	1	65.1	6	0
3	HD 3343^{M}	CZ-TS-104	57.5	10	0	62.8	10	0	46.0	2	1	68.7	6	0	38.4	9	0	53.6	12	0
4	HI 8812 (d)	CZ-TS-108	61.3	4	1	73.0	1	1	34.4	12	0	58.0	13	0	43.9	4	1	74.6	1	1
5	GW 1348 (d)	CZ-TS-109	59.7	6	0	67.8	8	0	43.9	4	0	72.9	2	1	31.2	13	0	68.4	3	1
6	DDW 49 (d)	CZ-TS-110	64.2	1	1	68.8	7	0	48.4	1	1	69.1	5	0	46.9	2	1	67.4	4	1
7	PBW 822^{B}	CZ-TS-111	62.9	3	1	64.3	9	0	44.1	3	0	64.3	9	0	34.1	12	0	60.0	10	0
8	HD 3345^{B}	CZ-TS-112	42.7	13	0	59.8	13	0	33.5	13	0	61.1	11	0	40.1	7	0	43.8	13	0
9	DDW 48 (d)	CZ-TS-113	57.8	9	0	69.0	6	0	42.4	5	0	68.6	7	0	43.8	5	1	66.3	5	0
10	HI 8713(d) (C)	CZ-TS-101	64.2	2	1	71.7	3	1	39.5	8	0	69.7	4	1	40.0	8	0	64.6	7	0
11	GW 322 (C)	CZ-TS-105	54.8	12	0	62.8	10	0	41.2	6	0	62.0	10	0	38.0	10	0	54.9	11	0
12	HI 1544 (C)	CZ-TS-106	59.1	8	0	72.0	2	1	39.1	9	0	70.2	3	1	40.1	6	0	62.1	9	0
13	HI 8737(d) (C)	CZ-TS-107	59.4	7	0	69.8	5	0	37.9	10	0	65.3	8	0	45.7	3	1	69.6	2	1
G.M.			58.5			67.3			40.4			66.5			40.4			62.7		
S.E.(M)			1.726			0.845			1.555			1.953			1.959			3.291		
C.D. (10%)			4.1			2.0			3.7			4.7			4.7			7.9		
C.V.			5.9			2.5			7.7			5.9			9.7			10.5		
D.O.S.(dd.mm.yy)			12.11.18			14.11.18			12.11.18			16.11.18			20.11.18			17.11.18		

1841 - AVT-IR-TS-TAD-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Rajasthan			Chhatisgarh		
			Udaipur			Bilaspur		
			Yield	Rk	G	Yield	Rk	G
1	NIDW 1158 (d)	CZ-TS-102	64.6	4	0	37.3	9	0
2	HI 8811 (d)	CZ-TS-103	60.6	7	0	40.2	6	0
3	HD 3343^{M}	CZ-TS-104	66.3	3	1	33.8	11	0
4	HI 8812 (d)	CZ-TS-108	61.9	5	0	33.6	12	0
5	GW 1348 (d)	CZ-TS-109	60.7	6	0	51.3	1	1
6	DDW 49 (d)	CZ-TS-110	58.4	8	0	34.2	10	0
7	PBW 822^{B}	CZ-TS-111	57.3	9	0	37.8	8	0
8	HD 3345^{B}	CZ-TS-112	52.7	12	0	42.5	5	0
9	DDW 48 (d)	CZ-TS-113	55.3	10	0	30.7	13	0
10	HI 8713(d) (C)	CZ-TS-101	69.0	2	1	43.9	4	0
11	GW 322 (C)	CZ-TS-105	70.2	1	1	47.3	2	1
12	HI 1544 (C)	CZ-TS-106	50.1	13	0	46.9	3	1
13	HI 8737(d) (C)	CZ-TS-107	53.5	11	0	39.6	7	0
G.M.			60.1			39.9		
S.E.(M)			2.284			1.904		
C.D. (10%)			5.5			4.5		
C.V.			7.6			9.5		
D.O.S.(dd.mm.yy)			18.11.18			14.11.18		

1841 - AVT-IR-TS-TAD-CZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

SN	Variety	Code	Gujarat			M.P.			Rajasthan			Chhatisgarh			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	NIDW 1158 (d)	CZ-TS-102	57.7	8	0	58.2	11	0	64.5	4	1	37.3	9	0	57.4	11	0
2	HI 8811 (d)	CZ-TS-103	61.7	2	1	62.8	3	1	62.9	6	0	40.2	6	0	60.8	1	1
3	HD 3343^{M}	CZ-TS-104	59.7	4	0	60.2	9	0	59.9	10	0	33.8	11	0	58.1	9	0
4	HI 8812 (d)	CZ-TS-108	61.0	3	1	61.0	6	0	68.3	1	1	33.6	12	0	60.1	2	1
5	GW 1348 (d)	CZ-TS-109	54.1	12	0	60.9	7	0	64.5	3	1	51.3	1	1	58.3	7	0
6	DDW 49 (d)	CZ-TS-110	56.1	10	0	64.8	1	1	62.9	5	0	34.2	10	0	59.2	5	0
7	PBW 822^{B}	CZ-TS-111	58.8	5	0	59.5	10	0	58.6	11	0	37.8	8	0	57.6	10	0
8	HD 3345^{B}	CZ-TS-112	52.7	13	0	50.8	13	0	48.2	13	0	42.5	5	0	50.5	13	0
9	DDW 48 (d)	CZ-TS-113	55.6	11	0	61.9	5	0	60.8	9	0	30.7	13	0	57.3	12	0
10	HI 8713(d) (C)	CZ-TS-101	56.7	9	0	62.9	2	1	66.8	2	1	43.9	4	0	59.9	3	1
11	GW 322 (C)	CZ-TS-105	63.0	1	1	57.0	12	0	62.5	7	0	47.3	2	1	59.3	4	0
12	HI 1544 (C)	CZ-TS-106	58.5	6	0	60.5	8	0	56.1	12	0	46.9	3	1	58.2	8	0
13	HI 8737(d) (C)	CZ-TS-107	58.4	7	0	62.0	4	0	61.6	8	0	39.6	7	0	59.0	6	0
G.M.			58.0			60.2			61.4			39.9			58.1		
S.E.(M)			1.110			0.938			2.003			1.904			0.647		
C.D. (10%)			2.6			2.2			4.7			4.5			1.5		

Summary of Disease Data and Agronomic Characteristics

Central Zone **Trial: AVT-IR-TS-TAD-CZ, 2018-19**

SN	Variety	Code	Rust Reactions		Agronomic Characteristics								Grain Characteristics			
			Bl	Br	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.M	Col.	Tex.	TGW.R	TGW.M
1	NIDW 1158 (d)	CZ-TS-102	5MR	tR	56-81	70	103-139	120	75-98	86	M	15	A	SH	44-59	50
2	HI 8811 (d)	CZ-TS-103	tMR	tMR	58-81	71	105-138	120	76-100	86	M	10	A	SH	49-62	54
3	HD3343[M]	CZ-TS-104	ts	tMS	58-87	75	106-139	122	80-102	92	M	10	A	SH	35-47	41
4	HI 8812 (d)	CZ-TS-108	MR	tMR	57-84	73	108-154	123	73-98	83	M	5	A	SH	45-58	53
5	GW 1348 (d)	CZ-TS-109	MR	0	51-81	68	101-140	120	74-110	87	M	20	A	SH	46-46	54
6	DDW 49 (d)	CZ-TS-110	5MR	tMR	57-86	76	110-140	122	82-105	92	M	0	A	SH	39-39	47
7	PBW 822[B]	CZ-TS-111	tMR	5MS	54-85	72	99-140	119	75-103	91	M	15	A	SH	42-52	45
8	HD 3345[B]	CZ-TS-112	tR	0	53-86	73	98-141	120	81-118	99	M	10	A	SH	39-51	45
9	DDW 48 (d)	CZ-TS-113	tMR	tR	57-86	76	108-139	123	79-98	86	M	10	A	SH	39-50	46
10	HI8713(d) (C)	CZ-TS-101	tMR	tMS	57-88	76	110-143	125	82-103	93	M	15	A	SH	43-55	49
11	GW322 (C)	CZ-TS-105	10MR	tMS	54-86	74	99-139	120	78-104	91	M	15	A	SH	35-46	41
12	HI1544 (C)	CZ-TS-106	MR	0	49-81	67	95-140	118	76-111	91	M	20	A	SH	39-76	46
13	HI8737(d) (C)	CZ-TS-107	ts	tMS	57-81	71	104-141	120	75-98	84	M	15	A	SH	46-58	53

1. Ancillary data from Anand, Amreli, Bilaspur, Bhopal, Indore, Junagarh, Gwalior, Kota, Powarkheda, IGKV Raipur, S.K.Nagar, Tikamgarh, Udaipur and Vijapur centres
2. Black rust data reported from Anand and Vijapur.
3. Brown rust data from Vijapur.

AVT-IR-TS-TAD-CZ, 2018-19
Central Zone
Individual Station Rust Data

SN	Variety	Code	Black Rust	
			Vijapur	Anand
1	NIDW 1158 (d)	CZ-TS-102	5MR	R
2	HI 8811 (d)	CZ-TS-103	tMR	MR
3	HD3343[M]	CZ-TS-104	ts	R
4	HI 8812 (d)	CZ-TS-108	tr	MR
5	GW 1348 (d)	CZ-TS-109	tr	MR
6	DDW 49 (d)	CZ-TS-110	5MR	R
7	PBW 822[B]	CZ-TS-111	tMR	R
8	HD 3345[B]	CZ-TS-112	tr	R
9	DDW 48 (d)	CZ-TS-113	tMR	R
10	HI8713(d) (C)	CZ-TS-101	tMR	R
11	GW322 (C)	CZ-TS-105	10MR	R
12	HI1544 (C)	CZ-TS-106	tr	MR
13	HI8737(d) (C)	CZ-TS-107	ts	R

1842 - AVT-IR-LS-TAS-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Gujarat													
			Anand			Bardoli			Junagarh			S.K.Nagar			Vijapur			Sanosara		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	CG 1029	CZ-LS-205	54.6	5	0	75.6	2	1	35.1	1	1	44.3	7	0	56.4	1	1	53.3	4	1
2	UAS 3002	CZ-LS-206	45.6	9	0	60.2	10	0	28.1	8	0	40.7	10	0	43.1	10	0	44.6	10	0
3	HI 1633	CZ-LS-207	50.1	7	0	66.4	7	0	28.1	9	0	56.0	1	1	54.5	5	1	54.3	1	1
4	HI 1634	CZ-LS-208	58.2	2	1	69.6	5	1	32.4	4	1	44.4	6	0	49.7	7	0	49.9	6	0
5	HI 8808 (d)	CZ-LS-209	45.2	10	0	67.7	6	0	32.8	3	1	43.7	8	0	55.3	4	1	54.1	3	1
6	HI 8807 (d)	CZ-LS-210	47.7	8	0	73.8	3	1	32.9	2	1	41.1	9	0	56.3	2	1	54.2	2	1
7	HD 2932 (C)	CZ-LS-201	61.5	1	1	75.8	1	1	29.6	6	0	44.8	5	0	55.4	3	1	49.5	7	0
8	HD 2864 (C)	CZ-LS-202	56.5	3	0	71.4	4	1	28.7	7	0	45.5	3	0	48.6	9	0	47.6	8	0
9	MP 3336 (C)	CZ-LS-203	54.5	6	0	65.2	8	0	31.4	5	0	46.0	2	0	50.2	6	0	51.0	5	1
10	MP 4010 (C)	CZ-LS-204	55.0	4	0	63.7	9	0	25.9	10	0	45.5	4	0	49.5	8	0	45.9	9	0
G.M.			52.9			68.9			30.5			45.2			51.9			50.4		
S.E.(M)			1.976			3.298			1.277			2.647			2.246			1.432		
C.D. (10%)			4.8			7.9			3.1			6.4			5.4			3.4		
C.V.			7.5			9.6			8.4			11.7			8.7			5.7		
D.O.S.(dd.mm.yy)			11.12.18			06.12.18			11.12.18			07.12.18			06.12.18			14.12.18		

No. of Trials : Proposed =21 Conducted = 18
Trials not Conducted (03): Rewa, Banswara, Mandor
Trials not reported (02) = Sagar (DNR), NIBSM-Raipur (RMT)

1842 - AVT-IR-LS-TAS-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	M.P.									Rajasthan					
			Gwalior			Indore			Jabalpur			Powarkheda			Udaipur			Kota		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	CG 1029	CZ-LS-205	94.9	2	1	38.9	8	0	44.5	3	0	56.2	1	1	43.9	10	0	65.3	1	1
2	UAS 3002	CZ-LS-206	80.8	8	0	32.8	10	0	33.4	9	0	42.6	10	0	45.3	9	0	46.3	8	0
3	HI 1633	CZ-LS-207	80.8	7	0	42.0	4	0	44.2	4	0	53.6	3	0	55.8	8	0	59.2	4	1
4	HI 1634	CZ-LS-208	95.7	1	1	46.5	1	1	48.4	1	1	49.6	7	0	60.0	3	1	62.6	2	1
5	HI 8808 (d)	CZ-LS-209	86.8	4	1	42.0	5	0	35.7	8	0	52.1	5	0	61.8	1	1	55.7	7	0
6	HI 8807 (d)	CZ-LS-210	91.0	3	1	45.0	2	1	44.6	2	0	49.4	8	0	55.8	7	0	61.0	3	1
7	HD 2932 (C)	CZ-LS-201	80.0	9	0	42.6	3	0	43.7	5	0	55.0	2	1	60.0	2	1	58.2	5	0
8	HD 2864 (C)	CZ-LS-202	71.2	10	0	40.6	6	0	41.0	6	0	52.9	4	0	56.3	5	0	56.0	6	0
9	MP 3336 (C)	CZ-LS-203	83.4	5	0	38.6	9	0	28.5	10	0	46.4	9	0	56.3	6	0	46.0	9	0
10	MP 4010 (C)	CZ-LS-204	83.3	6	0	40.6	7	0	36.0	7	0	50.0	6	0	57.1	4	0	37.6	10	0
G.M.			84.8			41.0			40.0			50.8			55.2			54.8		
S.E.(M)			3.866			1.037			1.111			0.865			1.826			2.744		
C.D. (10%)			9.3			2.5			2.7			2.1			4.4			6.6		
C.V.			9.1			5.1			5.6			3.4			6.6			10.0		
D.O.S.(dd.mm.yy)			06.12.18			07.12.18			12.12.18			10.12.18			05.12.18			08.12.18		

1842 - AVT-IR-LS-TAS-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Chhattisgarh											
			Bilaspur			Jagdalpur			Ambikapur			IGKV-Raipur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	CG 1029	CZ-LS-205	43.8	1	1	42.5	2	1	45.9	1	1	51.6	2	1
2	UAS 3002	CZ-LS-206	36.5	6	0	35.9	8	0	39.6	6	0	50.9	4	1
3	HI 1633	CZ-LS-207	37.4	5	0	33.8	10	0	38.9	8	0	42.6	6	0
4	HI 1634	CZ-LS-208	35.8	7	0	42.0	4	1	45.8	2	1	40.4	7	0
5	HI 8808 (d)	CZ-LS-209	32.3	10	0	43.3	1	1	40.6	4	0	38.0	8	0
6	HI 8807 (d)	CZ-LS-210	37.7	4	0	37.8	6	0	39.3	7	0	35.9	9	0
7	HD 2932 (C)	CZ-LS-201	34.6	8	0	37.3	7	0	37.9	9	0	51.1	3	1
8	HD 2864 (C)	CZ-LS-202	34.5	9	0	38.5	5	0	40.7	3	0	50.9	4	1
9	MP 3336 (C)	CZ-LS-203	41.5	3	1	42.1	3	1	40.0	5	0	33.7	10	0
10	MP 4010 (C)	CZ-LS-204	43.4	2	1	35.0	9	0	37.8	10	0	53.1	1	1
G.M.			37.8			38.8			40.6			44.8		
S.E.(M)			2.401			1.779			1.935			2.585		
C.D. (10%)			5.8			4.3			4.7			6.2		
C.V.			12.7			9.2			9.5			11.5		
D.O.S.(dd.mm.yy)			13.12.18			10.12.18			04.12.18			15.12.18		

1842 - AVT-IR-LS-TAS-CZ, 2018-19
STATE AND ZONAL MEANS (q/ha)

SN	Variety	Code	Gujarat			M.P.			Rajasthan			Chhattisgarh			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	CG 1029	CZ-LS-205	53.2	1	1	58.6	2	1	54.6	7	0	45.9	1	1	52.9	1	1
2	UAS 3002	CZ-LS-206	43.7	10	0	47.4	10	0	45.8	10	0	40.7	5	0	44.1	10	0
3	HI 1633	CZ-LS-207	51.6	3	1	55.2	5	0	57.5	5	1	38.2	9	0	49.9	5	0
4	HI 1634	CZ-LS-208	50.7	5	0	60.1	1	1	61.3	1	1	41.0	4	0	52.0	2	1
5	HI 8808 (d)	CZ-LS-209	49.8	6	0	54.1	6	0	58.7	3	1	38.5	8	0	49.2	6	0
6	HI 8807 (d)	CZ-LS-210	51.0	4	0	57.5	3	0	58.4	4	1	37.6	10	0	50.2	4	0
7	HD 2932 (C)	CZ-LS-201	52.8	2	1	55.3	4	0	59.1	2	1	40.2	6	0	51.1	3	0
8	HD 2864 (C)	CZ-LS-202	49.7	7	0	51.4	8	0	56.1	6	0	41.2	3	0	48.8	7	0
9	MP 3336 (C)	CZ-LS-203	49.7	8	0	49.3	9	0	51.2	8	0	39.3	7	0	47.2	9	0
10	MP 4010 (C)	CZ-LS-204	47.6	9	0	52.5	7	0	47.4	9	0	42.3	2	0	47.4	8	0
G.M.			50.0			54.1			55.0			40.5			49.3		
S.E.(M)			0.921			1.061			1.648			1.100			0.555		
C.D. (10%)			2.2			2.5			3.9			2.6			1.3		

Summary of Disease Data and Agronomic Characteristics

Central Zone **Trial: AVT-IR-LS-TAS-CZ, 2018-19**

SN	Variety	Code	Rust Reaction		Agronomic Characteristics								Grain Characteristics			
			Br	Bl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.M	Col.	Tex.	TGW.R	TGW.M
1	CG1029	CZ-LS-205	0	0	51-81	67	90-123	110	72-108	89	M	5	A	SH	35-56	45
2	UAS3002	CZ-LS-206	0	tR	56-84	70	94-126	112	72-107	90	M	5	A	SH	31-46	38
3	HI1633	CZ-LS-207	0	0	49-79	67	88-130	110	67-100	86	M	0	A	SH	32-47	39
4	HI1634	CZ-LS-208	0	0	49-78	67	86-128	110	72-109	86	M	10	A	SH	33-50	39
5	HI8808 (d)	CZ-LS-209	0	tR	57-80	69	94-125	112	71-103	84	M	25	A	SH	35-54	42
6	HI8807 (d)	CZ-LS-210	0	0	57-82	70	94-125	111	70-103	85	M	20	A	SH	36-53	43
7	HD2932 (C)	CZ-LS-201	tR	tR	51-82	68	88-127	110	71-110	89	M	0	A	SH	32-49	38
8	HD2864 (C)	CZ-LS-202	0	tR	47-78	64	91-125	110	67-97	85	M	0	A	SH	31-46	37
9	MP3336 (C)	CZ-LS-203	0	tR	45-76	62	85-129	108	60-96	78	M	0	A	SH	32-48	39
10	MP4010 (C)	CZ-LS-204	0	tR	47-77	64	13-125	102	62-97	79	M	10	A	SH	34-54	42

1. Ancillary data from Anand, Ambikapur, Bardoli, Bilaspur, Indore, Jabalpur, Jagdalpur, Junagarh, Gwalior, Kota, Powarkheda, IGKV Raipur, Lok Bharti Sanosara, S.K. Nagar, Udaipur and Vijapur centres
2. Black and Brown rust reported from Vijapur only.
3. Lodging data from Gwalior, Powarkheda and Anand.

1843- AVT-RI-TS-TAD-CZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Gujarat										M.P					
			Vijapur			Dhandhuka			Sanosara			Anand			Indore			Jabalpur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	UAS 466(d)*	CZ-RI-303	32.3	4	0	20.5	6	0	32.0	4	0	26.9	4	0	43.4	3	1	51.7	1	1
2	DBW 277	CZ-RI-305	36.3	2	1	26.5	4	0	33.9	3	0	38.8	1	1	41.3	5	0	29.6	6	0
3	DDW 47(d)*^{Q}	CZ-RI-306	27.9	6	0	25.0	5	0	31.4	5	0	26.1	6	0	40.1	6	0	34.7	4	0
4	HI 8627(d) (C)	CZ-RI-301	29.0	5	0	30.1	3	1	27.3	6	0	26.5	5	0	42.6	4	0	44.2	2	0
5	DBW 110 (C)	CZ-RI-302	33.9	3	0	32.3	1	1	39.6	1	1	35.9	3	1	45.5	2	1	30.0	5	0
6	MP 3288 (C)	CZ-RI-304	39.2	1	1	31.1	2	1	36.6	2	0	36.4	2	1	46.3	1	1	36.2	3	0
G.M.			33.1			27.6			33.5			31.8			43.2			37.8		
S.E.(M)			1.980			0.948			1.019			1.296			1.280			0.798		
C.D. (10%)			4.9			2.3			2.5			3.2			3.2			2.0		
C.V.			12.0			6.9			6.1			8.2			5.9			4.2		
D.O.S.(dd.mm.yy)			05.11.18			02.11.18			07.11.18			30.10.18			26.10.18			08.11.18		

No. of Trials:Proposed = 18 Conducted = 16
Trials not Conducted (02): Rewa, Banswara
Trial not reported (04) = Sagar (RMT), Amreli (RMT), Junagarh (LSM), NIBSM-Raipur (DNR)

LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	M.P.									Rajasthan						Chhattisgarh		
			Bhopal			Powarkheda			Gwalior			Pratapgarh			Udaipur			Bilaspur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	UAS 466(d)*	CZ-RI-303	35.5	5	0	47.3	4	1	62.5	5	0	30.4	5	1	29.0	5	0	32.1	5	0
2	DBW 277	CZ-RI-305	39.7	1	1	48.4	2	1	66.7	4	1	32.9	3	1	41.5	2	0	38.2	2	1
3	DDW 47(d)*^{Q}	CZ-RI-306	35.4	6	0	47.6	3	1	71.7	1	1	28.7	6	1	28.1	6	0	34.8	4	0
4	HI 8627(d) (C)	CZ-RI-301	39.7	2	1	45.0	5	0	61.7	6	0	31.6	4	1	35.8	4	0	38.0	3	1
5	DBW 110 (C)	CZ-RI-302	36.3	4	0	48.9	1	1	66.7	3	1	33.3	2	1	46.2	1	1	39.9	1	1
6	MP 3288 (C)	CZ-RI-304	38.0	3	1	43.0	6	0	69.4	2	1	33.3	1	1	37.0	3	0	28.6	6	0
G.M.			37.5			46.7			66.5			31.7			36.3			35.3		
S.E.(M)			1.319			0.899			3.600			2.090			1.358			1.004		
C.D. (10%)			3.3			2.2			8.9			5.2			3.4			2.5		
C.V.			7.0			3.9			10.8			13.2			7.5			5.7		
D.O.S.(dd.mm.yy)			09.11.18			03.11.18			07.11.18			10.11.18			02.11.18			05.11.18		

STATE AND ZONAL MEANS (q/ha)

SN	Variety	Code	Gujarat			M.P.			Rajasthan			Chhattisgarh			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	UAS 466(d)*	CZ-RI-303	27.9	5	0	48.1	1	1	29.7	5	0	32.1	5	0	37.0	5	0
2	DBW 277	CZ-RI-305	33.8	3	0	45.1	6	0	37.2	2	1	38.2	2	1	39.5	3	0
3	DDW 47(d)*^{Q}	CZ-RI-306	27.6	6	0	45.9	4	0	28.4	6	0	34.8	4	0	36.0	6	0
4	HI 8627(d) (C)	CZ-RI-301	28.2	4	0	46.7	2	1	33.7	4	0	38.0	3	1	37.6	4	0
5	DBW 110 (C)	CZ-RI-302	35.4	2	1	45.5	5	0	39.7	1	1	39.9	1	1	40.7	1	1
6	MP 3288 (C)	CZ-RI-304	35.8	1	1	46.6	3	1	35.2	3	0	28.6	6	0	39.6	2	0
G.M.			31.5			46.3			34.0			35.3			38.4		
S.E.(M)			0.686			0.843			1.246			1.004			0.475		
C.D. (10%)			1.6			2.0			3.0			2.5			1.1		

Summary of Agronomic Characteristics

Central Zone **Trial: AVT-RI-TS-TAD-CZ, 2018-19**

SN	Variety	Code	Agronomic Characteristics							Grain Characteristics			
			Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	UAS 466(d)*	CZ-RI-303	59-83	68	99-138	121	69-93	80	M	A	SH	28-46	39
2	DBW 277	CZ-RI-305	61-79	71	96-139	120	70-100	85	M	A	SH	26-44	37
3	DDW 47(d)*[Q]	CZ-RI-306	71-85	73	104-138	122	69-99	83	M	A	SH	28-48	37
4	HI8627(d) (C)	CZ-RI-301	65-84	74	105-137	123	69-101	87	M	A	SH	30-52	44
5	DBW110 (C)	CZ-RI-302	62-82	73	99-141	121	70-104	89	M	A	SH	28-47	40
6	MP3288 (C)	CZ-RI-304	60-81	71	98-137	120	74-102	87	M	A	SH	27-46	39

1. Ancillary data from Anand, Bilaspur, Bhopal, Dhandhuka, Indore, Jabalpur, Junagarh, Gwalior, Sanosara, Udaipur and Vijapur centres
2. No disease incidence reported from any centre.

Peninsular Zone

1851-AVT-IR-TS-TAD-PZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Maharashtra																	
			Niphad			Pune			Akola			Parbhani			Nasik			Kolhapur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 823[B]	PZ-TS-101	39.3	11	0	37.5	11	0	45.8	4	0	44.5	8	0	44.9	11	0	32.5	11	0
2	DDW 49 (d)	PZ-TS-103	56.5	1	1	73.0	2	1	40.6	9	0	46.3	6	0	57.1	2	1	40.7	10	0
3	UAS 3001	PZ-TS-104	48.1	4	0	62.5	8	0	50.8	1	1	45.8	7	0	51.3	9	0	45.5	7	0
4	DDW 48 (d)	PZ-TS-108	47.1	5	0	72.0	3	1	40.3	10	0	49.7	4	1	54.3	5	0	46.1	6	0
5	HD 3343[M]	PZ-TS-110	44.9	9	0	54.9	10	0	45.5	5	0	44.1	9	0	55.3	3	1	51.4	3	1
6	WHD 963 (d)	PZ-TS-111	51.2	2	1	63.2	7	0	43.6	6	0	41.1	11	0	54.2	6	0	44.4	8	0
7	UAS 428 (d) (C)	PZ-TS-102	46.7	6	0	71.1	4	1	39.8	11	0	43.0	10	0	51.5	8	0	54.6	1	1
8	MACS 3949(d)(C)	PZ-TS-105	46.4	7	0	73.0	1	1	41.1	8	0	53.0	2	1	53.9	7	0	49.0	4	1
9	MACS 6222 (C)	PZ-TS-106	48.7	3	0	66.6	5	0	47.0	3	0	50.4	3	1	55.1	4	1	54.3	2	1
10	GW 322 (C)	PZ-TS-107	44.3	10	0	60.6	9	0	49.1	2	1	53.9	1	1	57.8	1	1	47.6	5	1
11	MACS 6478 (C)	PZ-TS-109	46.2	8	0	63.4	6	0	42.2	7	0	48.1	5	1	50.6	10	0	41.5	9	0
G.M.			47.2			63.4			44.2			47.3			53.3			46.2		
S.E.(M)			2.590			1.662			1.232			2.478			1.358			3.304		
C.D. (10%)			6.2			4.0			3.0			5.9			3.3			7.9		
C.V.			11.0			5.2			5.6			10.5			5.1			14.3		
D.O.S.(dd.mm.yy)			14.11.18			08.11.18			12.11.18			14.11.18			14.11.18			15.11.18		

No. of Trials : Proposed = 17 Conducted = 17

Trial not reported (06) = Karad (DNR), Pravaranagar (LSM), Mahabaleshwar (RMT), Mudhol (RMT), Mandya (LS), Hyderabad(DNR)

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Karnataka																	
			Dharwad			Arbhavi			Kalloli			Nippani			Ugar-Khurd					
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G			
1	PBW 823[B]	PZ-TS-101	35.1	11	0	34.6	10	0	30.6	11	0	34.8	11	0	42.0	5	1			
2	DDW 49 (d)	PZ-TS-103	43.6	4	1	45.0	2	1	43.3	9	0	48.5	5	1	37.8	10	1			
3	UAS 3001	PZ-TS-104	47.2	2	1	44.8	3	1	50.4	2	1	54.2	1	1	44.5	2	1			
4	DDW 48 (d)	PZ-TS-108	43.3	5	1	41.4	6	1	53.0	1	1	48.8	4	1	44.6	1	1			
5	HD 3343[M]	PZ-TS-110	42.5	6	1	46.4	1	1	39.0	10	0	51.9	2	1	44.3	3	1			
6	WHD 963 (d)	PZ-TS-111	36.1	10	0	33.7	11	0	44.1	7	0	47.3	6	1	39.8	7	1			
7	UAS 428 (d) (C)	PZ-TS-102	40.4	9	0	41.2	7	1	46.7	6	0	49.0	3	1	34.8	11	0			
8	MACS 3949 (d) (C)	PZ-TS-105	46.4	3	1	40.3	9	1	43.8	8	0	40.0	10	0	44.3	4	1			
9	MACS 6222 (C)	PZ-TS-106	42.3	7	1	40.9	8	1	49.8	3	1	45.4	8	0	38.4	9	1			
10	GW 322 (C)	PZ-TS-107	47.8	1	1	42.4	4	1	47.2	5	0	45.0	9	0	42.0	6	1			
11	MACS 6478 (C)	PZ-TS-109	41.5	8	0	41.5	5	1	48.9	4	1	46.7	7	0	38.7	8	1			
G.M.			42.4			41.1			45.2			46.5			41.0					
S.E.(M)			2.588			2.787			2.253			2.914			2.946					
C.D. (10%)			6.2			6.7			5.4			7.0			7.1					
C.V.			12.2			13.6			10.0			12.5			14.4					
D.O.S.(dd.mm.yy)			06.11.18			12.11.18			12.11.18			14.11.18			15.11.18					

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Maharashtra			Karnataka			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	PBW 823[B]	PZ-TS-101	40.7	11	0	35.4	11	0	38.3	11	0
2	DDW 49 (d)	PZ-TS-103	52.4	3	1	43.6	5	0	48.4	5	1
3	UAS 3001	PZ-TS-104	50.6	7	0	48.2	1	1	49.5	1	1
4	DDW 48 (d)	PZ-TS-108	51.6	5	1	46.2	2	1	49.1	2	1
5	HD 3343[M]	PZ-TS-110	49.4	9	0	44.8	4	0	47.3	7	0
6	WHD 963 (d)	PZ-TS-111	49.6	8	0	40.2	10	0	45.3	10	0
7	UAS 428 (d) (C)	PZ-TS-102	51.1	6	0	42.4	9	0	47.2	8	0
8	MACS 3949 (d) (C)	PZ-TS-105	52.7	2	1	42.9	8	0	48.3	6	1
9	MACS 6222 (C)	PZ-TS-106	53.7	1	1	43.4	7	0	49.0	3	1
10	GW 322 (C)	PZ-TS-107	52.2	4	1	44.9	3	0	48.9	4	1
11	MACS 6478 (C)	PZ-TS-109	48.7	10	0	43.4	6	0	46.3	9	0
G.M.			50.2			43.2			47.1		
S.E.(M)			0.911			1.212			0.742		
C.D. (10%)			2.1			2.8			1.7		

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: AVT-IR-TS-TAS-PZ, 2018-19**

SN	Variety	Code	Disease Reaction		Agronomic Characteristics							Grain Characteristics			
			Br	Bl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	PBW 823[B]	PZ-IR-TS-101	0	0	62-78	67	96-130	114	74-99	90	M	A	SH	28-46	37
2	DDW 49 (d)	PZ-IR-TS-103	0	40S	61-76	67	109-127	116	77-102	87	M	A	SH	38-53	45
3	UAS 3001	PZ-IR-TS-104	20MS	0	53-76	64	95-125	112	71-109	91	M	A	SH	36-47	44
4	DDW 48 (d)	PZ-IR-TS-108	0	0	55-75	63	90-126	110	72-99	89	M	A	SH	44-61	51
5	HD3343[M]	PZ-IR-TS-110	10MS	0	60-72	65	97-123	112	72-98	89	Ey	A	SH	30-45	39
6	WHD 963 (d)	PZ-IR-TS-111	0	0	56-75	66	103-124	113	77-104	88	M	A	SH	34-58	45
7	UAS428 (d) (C)	PZ-IR-TS-102	0	0	61-79	68	102-126	115	69-96	86	M	A	SH	40-60	51
8	MACS3949 (d) (C)	PZ-IR-TS-105	0	0	62-82	68	108-131	117	74-96	86	M	A	SH	39-58	50
9	MACS6222 (C)	PZ-IR-TS-106	0	0	51-76	62	100-127	111	68-97	84	M	A	SH	33-59	44
10	GW 322 (C)	PZ-IR-TS-107	0	0	57-76	64	102-126	110	72-96	86	Ey	A	SH	32-53	42
11	MACS6478 (C)	PZ-IR-TS-109	20S	0	59-74	64	105-132	113	70-95	87	M	A	SH	32-52	45

1. Ancillary data from Niphad, Pune, Akola, Parbhani, Nasik, Dharwad, Nippani, Ugar-Khurd, Pravaranagar, Arbhavi, Kalloli & Kolhapur.
2. Black rust data from Dharwad.
3. Brown Rust data from Ugar-Khurd.

1852-AVT-IR-LS-TAS-PZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Maharashtra																	
			Niphad			Pune			Parbhani			Nasik			Karad			Kolhapur		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HI 8807(d)	PZ-LS-201	43.6	5	0	64.3	2	1	44.8	5	0	44.4	3	1	45.5	2	1	36.5	5	0
2	HI 1633	PZ-LS-202	52.6	1	1	65.8	1	1	42.9	6	0	46.8	1	1	47.6	1	1	39.4	3	0
3	UAS 3002	PZ-LS-203	43.4	7	0	50.2	7	0	42.4	7	0	42.8	4	1	45.5	2	1	41.6	2	1
4	GW 509	PZ-LS-206	43.6	6	0	55.8	6	0	48.1	2	1	41.1	6	0	43.8	6	0	34.4	6	0
5	Raj 4083 (C)	PZ-LS-204	46.4	4	0	64.0	3	1	45.1	4	0	44.5	2	1	44.4	5	1	37.5	4	0
6	HD 2932 (C)	PZ-LS-205	49.5	2	1	62.8	4	1	51.1	1	1	40.8	7	0	43.3	7	0	46.1	1	1
7	HD 3090 (C)	PZ-LS-207	47.4	3	0	56.0	5	0	47.7	3	1	41.7	5	0	44.7	4	1	26.9	7	0
G.M.			46.7			59.9			46.0			43.2			45.0			37.5		
S.E.(M)			2.045			1.374			1.799			1.833			1.477			2.492		
C.D. (10%)			5.0			3.4			4.4			4.5			3.6			6.1		
C.V.			8.8			4.6			7.8			8.5			6.6			13.3		
D.O.S.(dd.mm.yy)			04.12.18			06.12.18			04.12.18			10.12.18			05.12.18			05.12.18		

No. of Trials: Proposed = 17 Conducted = 17

Trials not Reported (05) = Akola (RMT), Mahabaleshwar (RMT), Hyderabad (DNR), Pravarnagar (LSM), Bailhongal (LS)

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Karnataka																	
			Dharwad			Arbhavi			Kalloli			Nippani			Ugar-Khurd			Mandya		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HI 8807(d)	PZ-LS-201	38.8	7	0	37.2	3	1	32.8	6	0	43.1	5	0	38.9	4	1	33.5	7	0
2	HI 1633	PZ-LS-202	46.0	1	1	39.3	2	1	38.8	1	1	51.3	2	1	41.4	2	1	39.7	4	0
3	UAS 3002	PZ-LS-203	43.7	2	1	40.0	1	1	35.4	2	1	38.1	6	0	41.9	1	1	38.6	5	0
4	GW 509	PZ-LS-206	42.3	3	1	34.7	6	0	33.4	5	0	45.0	4	0	37.6	6	1	42.2	3	0
5	Raj 4083 (C)	PZ-LS-204	40.9	5	1	31.0	7	0	32.3	7	0	52.9	1	1	39.2	3	1	49.2	1	1
6	HD 2932 (C)	PZ-LS-205	39.6	6	0	35.5	5	0	33.4	4	1	32.0	7	0	38.3	5	1	37.8	6	0
7	HD 3090 (C)	PZ-LS-207	41.8	4	1	36.4	4	1	33.4	3	1	47.3	3	1	36.8	7	1	46.8	2	1
G.M.			41.9			36.3			34.2			44.2			39.2			41.1		
S.E.(M)			2.525			1.674			2.191			3.094			2.142			2.278		
C.D. (10%)			6.2			4.1			5.4			7.6			5.3			5.6		
C.V.			12.1			9.2			12.8			14.0			10.9			11.1		
D.O.S.(dd.mm.yy)			01.12.18			06.12.18			06.12.18			10.12.18			10.12.18			12.12.18		

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Maharashtra			Karnataka			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HI 8807(d)	PZ-LS-201	46.5	4	0	37.4	6	0	42.0	6	0
2	HI 1633	PZ-LS-202	49.2	1	1	42.7	1	1	45.9	1	1
3	UAS 3002	PZ-LS-203	44.3	6	0	39.6	4	0	42.0	5	0
4	GW 509	PZ-LS-206	44.4	5	0	39.2	5	0	41.8	7	0
5	Raj 4083 (C)	PZ-LS-204	47.0	3	0	40.9	2	1	44.0	2	0
6	HD 2932 (C)	PZ-LS-205	48.9	2	1	36.1	7	0	42.5	3	0
7	HD 3090 (C)	PZ-LS-207	44.1	7	0	40.4	3	0	42.2	4	0
G.M.			46.4			39.5			42.9		
S.E.(M)			0.765			0.962			0.615		
C.D. (10%)			1.8			2.2			1.4		

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: AVT-IR-LS-TAS-PZ, 2018-19**

SN	Variety	Code	Disease Data		Agronomic Characteristics							Grain Characteristics			
			BR	BL	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1.	HI8807(d)	PZ-IR-LS-201	0	tMS	59-85	70	93-116	109	66-101	87	M	A	SH	41-54	46
2.	HI1633	PZ-IR-LS-202	0	0	50-78	59	89-114	105	63-90	80	M	A	SH	34-53	43
3.	UAS 3002	PZ-IR-LS-203	tMS	tMS	47-77	64	88-116	106	63-104	86	M	A	SH	37-60	44
4.	GW509	PZ-IR-LS-206	0	0	49-77	58	91-115	104	65-100	84	M	A	SH	38-55	47
5.	Raj4083 (C)	PZ-IR-LS-204	0	0	49-75	58	89-116	105	63-91	76	M	A	SH	30-52	43
6.	HD2932 (C)	PZ-IR-LS-205	5MS	tMS	51-78	61	91-115	106	64-103	83	M	A	SH	36-48	40
7.	HD3090 (C)	PZ-IR-LS-207	0	5MS	55-77	65	92-115	107	66-108	87	M	A	SH	34-49	39

1. Ancillary data from Niphad, Pune, Parbhani, Nasik, Kharad, Dharwad, Bialahongal, Nippani, Ugar-Khurd, Pravaranagar, Arbhavi, Kalloli, Mandya & Kolhapur.
2. Black rust reported in Dharwad & Bialahongal
3. Brown rust reported in Ugar-Khurd & Dharwad

Individual station rust data

SN	Variety	Code	Black rust		Brown rust	
			Dharwad	Bialahongal	Dharwad	Ugar-Khurd
1.	HI8807(d)	PZ-IR-LS-201	tMS	0	0	0
2.	HI1633	PZ-IR-LS-202	0	0	0	0
3.	UAS 3002	PZ-IR-LS-203	0	tMS	tMS	0
4.	GW509	PZ-IR-LS-206	0	0	0	0
5.	Raj4083 (C)	PZ-IR-LS-204	0	0	0	0
6.	HD2932 (C)	PZ-IR-LS-205	tMS	tMS	tMS	5MS
7.	HD3090 (C)	PZ-IR-LS-207	5MS	0	0	0

1853-AVT-RI-TS-TAD-PZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Maharashtra										Karnataka									
			Niphad			Pune			Parbhani			Savalivihir			Dharwad			Bailahongal			Nippani			Bagalkot		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	NIAW 3170*	PZ-RI-301	37.6	1	1	38.8	3	0	32.1	6	0	34.6	1	1	33.5	4	1	29.6	5	1	41.7	1	1	32.2	7	1
2	GW 1346(d)*	PZ-RI-302	33.1	3	1	24.4	12	0	29.7	11	0	17.4	12	0	29.0	11	0	24.8	10	0	25.4	11	0	35.0	4	1
3	MACS 4058(d)*	PZ-RI-303	32.5	4	0	28.1	10	0	33.1	4	0	22.5	7	0	29.1	10	0	31.3	2	1	24.2	12	0	31.2	9	0
4	HI 8805(d)*	PZ-RI-305	29.1	9	0	33.0	6	0	29.6	12	0	26.5	6	0	32.5	7	0	29.8	4	1	34.4	6	0	32.8	6	1
5	MACS 6695*	PZ-RI-307	30.8	8	0	43.0	1	1	35.9	2	1	30.9	2	0	38.7	1	1	31.4	1	1	31.3	8	0	37.9	1	1
6	MACS 6696*	PZ-RI-310	32.4	5	0	40.2	2	1	30.3	10	0	30.3	3	0	34.2	3	1	25.5	9	0	41.5	2	1	37.3	2	1
7	HI 8802(d)*	PZ-RI-312	31.7	6	0	31.5	8	0	32.0	7	0	19.8	10	0	32.6	6	0	27.4	6	1	30.0	10	0	30.8	10	0
8	NIDW 1149(d)	PZ-RI-311	31.0	7	0	36.0	5	0	36.8	1	1	28.0	4	0	31.6	8	0	26.3	8	1	35.8	3	1	28.8	12	0
9	DBW 93 (C)	PZ-RI-304	29.0	10	0	32.2	7	0	33.0	5	0	22.4	8	0	34.4	2	1	23.4	11	0	35.6	4	1	34.2	5	1
10	AKDW 2997-16(d) (C)	PZ-RI-306	26.9	11	0	25.8	11	0	30.9	9	0	22.0	9	0	29.8	9	0	31.1	3	1	30.8	9	0	31.3	8	0
11	UAS 446(d) (C)	PZ-RI-308	26.8	12	0	30.6	9	0	31.2	8	0	18.6	11	0	27.9	12	0	17.9	12	0	32.3	7	0	29.9	11	0
12	HI 1605 (C)	PZ-RI-309	34.3	2	1	37.3	4	0	34.7	3	1	26.7	5	0	33.2	5	0	26.5	7	1	35.2	5	0	36.4	3	1
G.M.			31.3			33.4			32.4			25.0			32.2			27.1			33.2			33.1		
S.E.(M)			1.984			1.356			1.375			1.010			2.182			2.223			2.616			2.681		
C.D. (10%)			4.7			3.2			3.3			2.4			5.2			5.3			6.3			6.4		
C.V.			12.7			8.1			8.5			8.1			13.6			16.4			15.8			16.2		
D.O.S.(dd.mm.yy)			01.11.18			31.10.18			11.11.18			01.11.18			11.10.18			03.11.18			10.11.18			10.11.18		

No. of Trials : Proposed & Conducted = 11 **Trials not reported (3) = Baramati (RMT), Nashik (LSM), Karjat (LSM)**

STATE AND ZONAL MEANS (q/ha)

S.N	Variety	Code	Maharashtra			Karnataka			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	NIAW 3170*	PZ-RI-301	35.8	1	1	34.2	3	1	35.0	1	1
2	GW 1346(d)*	PZ-RI-302	26.2	12	0	28.6	11	0	27.4	11	0
3	MACS 4058(d)*	PZ-RI-303	29.0	8	0	28.9	10	0	29.0	9	0
4	HI 8805(d)*	PZ-RI-305	29.5	6	0	32.4	5	1	30.9	6	0
5	MACS 6695*	PZ-RI-307	35.1	2	1	34.8	1	1	35.0	2	1
6	MACS 6696*	PZ-RI-310	33.3	3	0	34.6	2	1	34.0	3	1
7	HI 8802(d)*	PZ-RI-312	28.8	9	0	30.2	9	0	29.5	8	0
8	NIDW 1149(d)	PZ-RI-311	32.9	5	0	30.6	8	0	31.8	5	0
9	DBW 93 (C)	PZ-RI-304	29.1	7	0	31.9	6	0	30.5	7	0
10	AKDW 2997-16(d) (C)	PZ-RI-306	26.4	11	0	30.8	7	0	28.6	10	0
11	UAS 446(d) (C)	PZ-RI-308	26.8	10	0	27.0	12	0	26.9	12	0
12	HI 1605 (C)	PZ-RI-309	33.2	4	0	32.8	4	1	33.0	4	0
G.M.			30.5			31.4			31.0		
S.E.(M)			0.737			1.218			0.712		
C.D. (10%)			1.7			2.9			1.7		

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: AVT-RI-TS-TAS-PZ, 2018-19**

SN	Variety	Code	Agronomic Characteristics							Grain Characteristics			
			Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	NIAW 3170*	PZ-RI-TS-301	44-64	51	98-118	104	75-98	88	M	A-W	SH	28-43	40
2	GW 1346(d)*	PZ-RI-TS-302	38-72	52	89-117	100	74-100	92	M	A	SH	33-44	39
3	MACS 4058(d)*	PZ-RI-TS-303	45-61	49	99-120	105	80-116	97	M	A	SH	33-51	45
4	HI 8805(d)*	PZ-RI-TS-305	38-67	50	89-115	100	68-107	93	M	A	SH	35-49	43
5	MACS 6695*	PZ-RI-TS-307	39-60	47	89-109	99	65-87	82	Ey	A	SH	34-43	40
6	MACS 6696*	PZ-RI-TS-310	41-60	48	97-111	103	58-87	81	Ey	A-W	SH	28-41	38
7	HI 8802(d)*	PZ-RI-TS-312	43-70	54	99-121	106	91-108	104	M	A	SH	36-46	41
8	NIDW 1149(d)	PZ-RI-TS-311	37-61	47	89-113	101	73-86	81	M	A	SH	32-52	45
9	DBW93 (C)	PZ-RI-TS-304	36-68	51	86-110	100	55-87	73	M	A	SH	22-39	33
10	AKDW2997-16(d) (C)	PZ-RI-TS-306	39-68	53	88-116	101	66-88	77	M	A	SH	27-39	36
11	UAS446(d) (C)	PZ-RI-TS-308	39-67	52	88-120	101	60-90	84	M	A	SH	24-39	34
12	HI1605 (C)	PZ-RI-TS-309	37-66	49	89-118	101	70-97	90	Ey	A	SH	22-43	35

1. Ancillary data reported from Niphad, Pune, Parbhani, Nassik, Savalvihir, Dharwad, Bailhongal, NIppani and Bagalkot.
2. No rust data reported from any centre.

Special Trials

1861-SPL-AST-IR-TS-TAS-ALL ZONES, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Punjab			Haryana												Rajasthan		
			Mukatsar			Hisar			IIWBR-Hisar			CSSRI-Karnal			Nain (Panipat)			Vallabhnagar		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	WH 1223	AST-101	41.6	1	1	35.7	4	0	27.7	5	0	34.6	3	1	18.2	6	0	34.9	7	0
2	WH 1228	AST-106	38.8	3	0	39.2	2	1	30.8	2	1	29.6	5	0	27.0	3	1	41.8	3	1
3	NW 7062	AST-107	37.5	4	0	28.0	5	0	27.4	6	0	22.9	7	0	17.2	7	0	42.9	1	1
4	NW 7060	AST-104	26.1	7	0	38.4	3	1	33.0	1	1	37.4	2	1	28.7	1	1	36.3	6	0
5	KRL 19 (C)	AST-102	31.3	6	0	25.7	6	0	29.4	4	0	33.4	4	0	25.8	4	1	38.6	5	1
6	KRL 210 (C)	AST-105	41.0	2	1	39.2	1	1	30.5	3	1	39.1	1	1	28.0	2	1	41.3	4	1
7	Kharchia 65(C)	AST-103	35.7	5	0	4.7	7	0	20.4	7	0	28.1	6	0	25.1	5	1	42.9	2	1
G.M.			36.0			30.1			28.4			32.2			24.3			39.8		
S.E.(M)			1.126			1.046			1.163			2.312			2.170			1.820		
C.D. (10%)			2.7			2.5			2.8			5.5			5.2			4.4		
C.V.			7.7			8.5			10.0			17.6			21.9			11.2		
D.O.S.(dd.mm.yy)			14.11.18			13.11.18			14.11.18			10.11.18			14.11.18			22.11.18		

No. of Trials: Proposed = 22; Conducted = 19 Trials not conducted (03) = Bawal, RRS-Bhuj, KVK-Chaswad
Trials not reported (08) = Faizabad (RMT), RRS-Pali (HCV), KVK-Devataj (LS), KVK-Kaushambi (DNR), Vanasthali (DNR), KVK-Kheda (DNR), KVK-Jamnagar (DNR), KVK-Sanosara (DNR)

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Gujarat						U.P.								
			Bharuch			Mangrol			Dalipnagar			Lucknow			KVK-Pratapgarh		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	WH 1223	AST-101	26.7	2	1	35.4	2	1	34.3	4	0	26.1	2	0	42.1	1	1
2	WH 1228	AST-106	24.5	4	1	30.1	3	0	38.0	2	0	22.1	4	0	24.7	7	0
3	NW 7062	AST-107	19.2	6	0	21.6	7	0	28.9	6	0	19.6	6	0	37.1	3	0
4	NW 7060	AST-104	28.5	1	1	35.7	1	1	35.5	3	0	23.8	3	0	27.7	5	0
5	KRL 19 (C)	AST-102	22.1	5	0	22.4	6	0	31.2	5	0	15.3	7	0	27.8	4	0
6	KRL 210 (C)	AST-105	25.7	3	1	25.6	5	0	40.7	1	1	28.9	1	1	26.8	6	0
7	Kharchia 65 (C)	AST-103	14.4	7	0	28.5	4	0	26.6	7	0	22.0	5	0	40.1	2	0
G.M.			23.0			28.5			33.6			22.6			32.3		
S.E.(M)			1.775			1.583			0.733			0.531			0.714		
C.D. (10%)			4.3			3.8			1.8			1.3			1.8		
C.V.			18.9			13.6			5.3			4.7			4.4		
D.O.S.(dd.mm.yy)			16.11.18			15.11.18			17.11.18			20.11.18			20.11.18		

STATE AND ZONAL MEANS (q/ha)

S.N.	Variety	Code	Haryana			Gujarat			U.P.			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	WH 1223	AST-101	29.1	4	0	31.1	2	1	34.2	1	1	32.5	2	1
2	WH 1228	AST-106	31.6	3	0	27.3	3	0	28.3	6	0	31.5	4	0
3	NW 7062	AST-107	23.9	6	0	20.4	7	0	28.5	5	0	27.5	6	0
4	NW 7060	AST-104	34.4	1	1	32.1	1	1	29.0	4	0	31.9	3	0
5	KRL 19 (C)	AST-102	28.6	5	0	22.3	5	0	24.8	7	0	27.5	5	0
6	KRL 210 (C)	AST-105	34.2	2	1	25.6	4	0	32.1	2	0	33.3	1	1
7	Kharchia 65 (C)	AST-103	19.6	7	0	21.5	6	0	29.5	3	0	26.2	7	0
G.M.			28.8			25.8			29.5			30.1		
S.E.(M)			0.884			1.189			0.384			0.446		
C.D. (10%)			2.1			2.8			0.9			1.0		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: SPL-AST-IR-TS-TAS, 2018-19**

SN	Variety	Code	Disease Reactions		Agronomic Characteristics							Grain Characteristics				
			Br	Yl	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Lod.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	WH1223	SPL-AST-101	-	tS	97-107	102	137-149	143	64-119	91	10	E	A	SH	35-43	38
2	WH 1228	SPL-AST-106	tS	tS	92-103	97	134-148	139	60-114	87	20	E	A	SH	35-42	39
3	NW 7062	SPL-AST-107	30S	10S	99-110	103	138-149	143	84-119	98	15	E	A	H	38-46	43
4	NW 7060	SPL-AST-104	tS	-	93-104	98	135-149	141	58-105	87	20	E	A	SH	32-49	43
5	KRL19 (C)	SPL-AST-102	60S	10S	92-105	96	134-148	140	64-104	85	10	E	A	H	34-45	38
6	KRL210 (C)	SPL-AST-105	tS	5S	92-103	98	134-150	140	61-120	90	10	E	A	H	39-45	42
7	Kharchia65 (C)	SPL-AST-103	80S	60S	92-102	98	134-148	139	68-137	112	45	E	R	H	33-40	37

1. Ancillary data from Nain, CSSRI, Karnal, CCSHAU, Hisar, Muktsar and IIWBR, Hisar
2. Brown and yellow rust data from CCSRI, Karnal and CCSHAU, Hisar.

Individual Station Disease Data

SN	Variety	Code	CSSRI, Karnal		CCSHAU, Hisar	
			Br	Yl	Br	Yl
1	WH1223	SPL-AST-101	0	0	0	tS
2	WH 1228	SPL-AST-106	0	0	tS	tS
3	NW 7062	SPL-AST-107	0	0	30S	10S
4	NW 7060	SPL-AST-104	0	0	tS	0
5	KRL19 (C)	SPL-AST-102	40S	0	60S	10S
6	KRL210 (C)	SPL-AST-105	0	0	tS	5S
7	Kharchia65 (C)	SPL-AST-103	80S	60S	80S	20S

1862-SPL-IR-TS-DIC-ALL-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Maharashtra											
			Pune			Karad			Kolhapur			K-Digraj		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	MACS 5052	DIC-102	39.3	7	0	46.2	6	0	55.6	1	1	42.5	6	0
2	MACS 5053	DIC-106	43.8	5	0	49.3	5	0	44.6	6	0	48.1	4	0
3	DDK 1056	DIC-104	40.1	6	0	39.1	7	0	52.8	3	1	38.8	7	0
4	DDK 1057	DIC-107	44.3	4	0	51.7	4	1	51.7	4	1	61.9	1	1
5	DDK 1029 (C)	DIC-101	54.3	2	0	55.2	1	1	54.2	2	1	50.2	2	0
6	HW 1098 (C)	DIC-105	53.9	3	0	53.7	3	1	51.1	5	1	45.8	5	0
7	MACS 6222 (*aest* .)(C)	DIC-103	62.3	1	1	54.0	2	1	32.8	7	0	48.2	3	0
G.M.			48.3			49.9			49.0			47.9		
S.E.(M)			1.488			1.683			3.113			2.414		
C.D. (10%)			3.6			4.1			7.6			5.9		
C.V.			6.2			6.7			12.7			10.1		
D.O.S.(dd.mm.yy)			08.11.18			14.11.18			14.11.18			18.11.18		

No. of Trials: Proposed = 12 Conducted = 12

Trials not reported (03) = Mahabaleshwar (RMT), Mudhol (RMT), Wellington (LS)

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Karnataka											
			Dharwad			Arbhavi			Ugar-Khurd			Kalloli			Mandya		
			Yld	Rk	G	Yld	Rk	G	Yld	Rk	G	Yld	Rk	G	Yld	Rk	G
1	MACS 5052	DIC-102	36.7	2	0	56.3	1	1	51.0	5	0	54.5	1	1	53.8	1	1
2	MACS 5053	DIC-106	31.5	7	0	51.4	3	1	55.8	2	1	48.6	4	0	46.3	3	0
3	DDK 1056	DIC-104	35.2	4	0	47.3	4	0	54.2	4	0	54.0	2	1	47.8	2	0
4	DDK 1057	DIC-107	32.3	6	0	44.2	6	0	48.7	6	0	47.0	6	0	39.7	7	0
5	DDK 1029 (C)	DIC-101	36.6	3	0	52.9	2	1	61.3	1	1	49.0	3	1	45.5	4	0
6	HW 1098 (C)	DIC-105	33.3	5	0	47.0	5	0	55.4	3	1	47.3	5	0	44.1	6	0
7	MACS 6222 (*aest* .)(C)	DIC-103	41.8	1	1	33.4	7	0	46.2	7	0	44.3	7	0	45.4	5	0
G.M.			35.3			47.5			53.2			49.2			46.1		
S.E.(M)			1.917			3.305			2.808			2.392			1.722		
C.D. (10%)			4.7			8.1			6.9			5.9			4.2		
C.V.			10.8			13.9			10.6			9.7			7.5		
D.O.S.(dd.mm.yy)			10.11.18			12.11.18			15.11.18			12.11.18			19.11.18		

STATE AND ZONAL MEANS (q/ha)

S.N.	Variety	Code	Maharashtra			Karnataka			ZONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	MACS 5052	DIC-102	45.9	6	0	50.5	1	1	48.4	2	0
2	MACS 5053	DIC-106	46.5	5	0	46.7	4	0	46.6	5	0
3	DDK 1056	DIC-104	42.7	7	0	47.7	3	0	45.5	6	0
4	DDK 1057	DIC-107	52.4	2	1	42.4	6	0	46.8	4	0
5	DDK 1029 (C)	DIC-101	53.5	1	1	49.1	2	1	51.0	1	1
6	HW 1098 (C)	DIC-105	51.1	3	1	45.4	5	0	47.9	3	0
7	MACS 6222 (*aest* .)(C)	DIC-103	49.3	4	0	42.2	7	0	45.4	7	0
G.M.			48.8			46.3			47.4		
S.E.(M)			1.134			1.117			0.799		
C.D. (10%)			2.7			2.6			1.9		

Summary of Disease Data and Agronomic Characteristics

Peninsular Zone **Trial: SPL-IR-TS-DIC-All- Zone, 2018-19**

SN	Variety	Code	Agronomic Characteristics						Grain Characteristics				
			Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	MACS5052	DIC-102	53-76	71	109-119	113	76-100	94	H	A	SH	37-103	53
2	MACS5053	DIC-106	59-79	71	100-118	111	76-93	89	M	R	SH	40-97	54
3	DDK1056	DIC-104	55-75	68	107-117	111	74-100	86	H	R	SH	36-96	54
4	DDK1057	DIC-107	47-79	71	108-120	113	76-107	89	H	A	SH	40-101	54
5	DDK1029 (C)	DIC-101	53-78	70	108-119	113	66-97	82	H	R	SH	41-97	53
6	HW1098 (C)	DIC-105	47-80	68	91-115	110	76-98	84	H	R	SH	39-97	56
7	MACS6222 (*aest*.) (C)	DIC-103	48-78	61	103-116	108	72-97	83	M	A	SH	42-49	46

1. Ancillary data from Wellington, Pune, Arbhavi, ARS Digraj, Kalloli, Dharwad, Ugar Khurd, Kolhapur, Karad and Mandya.
2. No disease incidence reported from any centre.

1863-SPL-VLS-TAS-NWPZ/NEPZ-ZONE, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Delhi			Haryana						Punjab			Uttrakhand			U.P.		
			Delhi			Hisar			Karnal			Ludhiana			Pantnagar			Bulandshahr		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3298	VLS-103	39.4	1	1	40.9	2	1	40.8	3	1	37.9	4	0	35.1	5	0	41.7	1	1
2	HD 3271	VLS-104	31.1	6	0	41.2	1	1	45.5	1	1	36.3	7	0	36.6	2	1	38.2	5	0
3	HI 1621	VLS-107	36.8	4	1	36.6	4	0	40.0	4	1	41.9	1	1	33.6	6	0	39.9	4	0
4	PBW 797	VLS-108	35.4	5	0	33.3	7	0	44.6	2	1	39.2	2	1	32.7	7	0	41.0	2	0
5	PBW 757 (I)(C)	VLS-101	37.4	2	1	34.3	6	0	32.9	6	0	38.2	3	0	35.4	3	0	36.8	6	0
6	WR 544 (C)	VLS-102	23.2	8	0	33.1	8	0	17.7	8	0	36.3	6	0	28.6	8	0	34.1	8	0
7	DBW 14 (C)	VLS-105	27.3	7	0	36.8	3	0	32.4	7	0	31.2	8	0	38.1	1	1	40.4	3	0
8	DBW 71 (C)	VLS-106	37.1	3	1	35.6	5	0	39.1	5	0	37.5	5	0	35.1	4	0	36.0	7	0
G.M.			33.5			36.5			36.6			37.3			34.4			38.5		
S.E.(M)			1.462			1.543			2.349			1.520			0.812			0.244		
C.D. (10%)			3.6			3.8			5.7			3.7			2.0			0.6		
C.V.			8.7			8.5			12.8			8.1			4.7			1.3		
D.O.S.(dd.mm.yy)			05.01.19			09.01.19			01.01.19			01.01.19			15.01.19			04.01.19		

No. of Trials : Proposed = 15 Conducted = 15

Trials not reported (03) = Rampur (RMT), Chandauli (RMT), RPCAU-Pusa (LSM)

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	U.P.									Bihar			W.B.		
			Nagina			Kanpur			Faizabad			Varanasi			Sabour			Coochbehar		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3298	VLS-103	43.9	1	1	27.5	3	0	20.7	5	0	33.1	4	0	22.3	6	0	25.4	6	0
2	HD 3271	VLS-104	43.5	2	1	29.7	2	0	19.6	8	0	35.8	1	1	30.2	2	1	26.1	5	0
3	HI 1621	VLS-107	38.9	7	0	21.9	7	0	24.0	2	1	27.9	8	0	31.1	1	1	28.2	3	0
4	PBW 797	VLS-108	38.4	8	0	21.4	8	0	20.4	6	0	32.7	5	0	26.6	3	0	33.6	1	1
5	PBW 757 (I)(C)	VLS-101	42.5	3	1	25.9	5	0	21.6	4	0	32.2	6	0	18.7	8	0	29.7	2	0
6	WR 544 (C)	VLS-102	41.0	5	0	24.2	6	0	22.9	3	1	29.0	7	0	22.1	7	0	23.9	7	0
7	DBW 14 (C)	VLS-105	39.3	6	0	26.4	4	0	25.3	1	1	35.5	2	1	25.6	4	0	23.7	8	0
8	DBW 71 (C)	VLS-106	41.6	4	0	32.2	1	1	20.4	6	0	34.9	3	1	25.4	5	0	28.0	4	0
G.M.			41.2			26.2			21.9			32.6			25.3			27.3		
S.E.(M)			0.630			0.565			1.056			0.838			0.696			0.944		
C.D. (10%)			1.5			1.4			2.6			2.0			1.7			2.3		
C.V.			3.1			4.3			9.7			5.1			5.5			6.9		
D.O.S.(dd.mm.yy)			03.01.19			10.01.19			14.01.19			01.01.19			02.01.19			02.01.19		

ZONAL AND NATIONAL MEANS (q/ha)

S.N	Variety	Code	NWPZ			NEPZ			NATIONAL		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3298	VLS-103	40.0	1	1	28.8	5	0	34.1	2	1
2	HD 3271	VLS-104	38.9	2	1	30.8	1	1	34.5	1	1
3	HI 1621	VLS-107	38.3	3	0	28.7	6	0	33.4	4	0
4	PBW 797	VLS-108	37.8	4	0	28.8	4	0	33.3	5	0
5	PBW 757 (I)(C)	VLS-101	36.8	6	0	28.5	7	0	32.1	6	0
6	WR 544 (C)	VLS-102	30.6	8	0	27.2	8	0	28.0	8	0
7	DBW 14 (C)	VLS-105	35.1	7	0	29.3	3	0	31.8	7	0
8	DBW 71 (C)	VLS-106	37.5	5	0	30.4	2	1	33.6	3	0
G.M.			36.9			29.1			32.6		
S.E.(M)			0.524			0.395			0.343		
C.D. (10%)			1.2			0.9			0.8		

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: SPL-VLS -TAS-NWPZ/NEPZ, 2018-19**

SN	Variety	Code	Disease Reactions			Agronomic Characteristics						Grain Characteristics				
			Br	Yl	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HD3298	VLS-103	0	5S	1.2	68-75	73	99-113	104	90-103	96	Ey	A	H	28-38	33
2	HD3271	VLS-104	5S	10S	3.0	71-86	76	101-113	105	93-99	97	Ey	A	SH	27-38	33
3	HI1621	VLS-107	5S	5S	1.2	66-78	72	95-109	102	88-103	96	Ey	A	SH	28-37	33
4	PBW 797	VLS-108	tS	5S	2.0	69-77	74	99-116	106	80-94	89	Ey	A	H	25-36	32
5	PBW757 (C)	VLS-101	30S	5S	2.2	65-74	70	94-109	102	81-86	83	Ey	A	H	30-39	35
6	WR544 (C)	VLS-102	tS	40S	18.0	59-70	63	91-107	98	84-100	91	Ey	A	SH	26-40	34
7	DBW14 (C)	VLS-105	5S	10S	3.2	66-74	71	95-109	102	77-100	86	Ey	A	SH	31-40	35
8	DBW71 (C)	VLS-106	0	15S	4.0	69-75	72	94-109	101	84-92	88	Ey	A	H	29-35	32

1. Ancillary data from Ludhiana, Hisar, Delhi, Pantnagar, Nagina, Karnal and Bulandshahr.
2. Brown rust data from Hisar and Pantnagar centres.
3. Yellow rust data from Ludhiana, Hisar, Delhi, Pantnagar and Karnal centres.

Individual Station Rust Data

SN	Variety	Code	Brown rust		Yellow rust				
			Hisar	Pantnagar	Ludhiana	Hisar	Delhi	Pantnagar	Karnal
1	HD3298	VLS-103	0	0	0	0	5S	0	tMS
2	HD3271	VLS-104	5S	0	0	5S	10S	0	0
3	HI1621	VLS-107	0	5S	0	0	5S	0	tMS
4	PBW 797	VLS-108	tS	0	5MS	0	5S	0	tMS
5	PBW757 (C)	VLS-101	30S	0	0	0	5S	5S	tMS
6	WR544 (C)	VLS-102	tS	0	20S	0	20S	10S	40S
7	DBW14 (C)	VLS-105	0	5S	5S	0	10S	0	5MR
8	DBW71 (C)	VLS-106	0	0	0	0	5S	0	15S

Summary of Disease Data and Agronomic Characteristics

North Eastern Plains Zone **Trial: SPL-VLS -TAS-NWPZ/NEPZ, 2018-19**

SN	Variety	Code	Disease Reactions		Agronomic Characteristics						Grain Characteristics				
			Br	Leaf Blight HS(Avg.)	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Col.	Tex.	TGW.R	TGW.M
1	HD3298	VLS-103	40S	36(24)	62-68	65	92-107	99	66-96	83	M	A	SH	26-36	30
2	HD3271	VLS-104	-	36(24)	60-69	65	91-105	98	74-98	83	Ey	A	SH	27-39	33
3	HI1621	VLS-107	40S	45(23)	62-67	63	88-103	96	69-94	81	Ey	A	SH	27-35	30
4	PBW 797	VLS-108	-	35(13)	64-73	68	93-109	101	64-88	77	Ey	A	SH	23-36	32
5	PBW757 (C)	VLS-101	-	25(13)	57-66	61	87-105	97	63-87	77	Ey	A	SH	27-35	31
6	WR544 (C)	VLS-102	40S	35(13)	53-57	55	84-100	93	68-92	80	Ey	A	SH	32-39	36
7	DBW14 (C)	VLS-105	-	36(24)	57-64	61	88-105	97	67-82	74	Ey	A	SH	29-39	34
8	DBW71 (C)	VLS-106	60S	35(13)	62-67	64	91-105	98	68-91	79	M	A	SH	24-41	32

1. Ancillary data from Coochbehar, Sabour, Kanpur, Faizabad, Varanasi and RPCAU, Pusa centres.
2. Brown rust data from Kanpur centre.
3. Leaf blight data from Coochbehar, Sabour, Kanpur, Faizabad centres.

Individual Station Leaf blight data

SN	Variety	Code	Coochbehar	Sabour	Kanpur	Faizabad
1	HD3298	VLS-103	35	36	00	35
2	HD3271	VLS-104	34	25	13	36
3	HI1621	VLS-107	45	13	00	24
4	PBW 797	VLS-108	35	14	00	23
5	PBW757 (C)	VLS-101	23	25	00	24
6	WR544 (C)	VLS-102	35	13	00	25
7	DBW14 (C)	VLS-105	34	36	24	12
8	DBW71 (C)	VLS-106	23	13	00	35

1864-SPL-HYPT-IR-TS-TAS-NWPZ, 2018-19

LOCATIONWISE AND ZONAL MEAN YIELD (q/ha)

S.N.	Variety	Code	Delhi			Haryana			Punjab									Uttrakhand			ZONAL		
			Delhi			Karnal			Ludhiana			Gurdaspur			Ladowal (BISA)			Pantnagar					
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3317	HYPT-101	73.0	5	1	84.5	12	0	82.1	6	0	63.4	11	0	65.3	12	0	74.0	5	0	73.7	10	0
2	WH 1254	HYPT-102	66.0	13	0	80.4	14	0	75.4	14	0	60.1	14	0	69.9	5	1	72.4	7	0	70.7	13	0
3	DBW 301	HYPT-103	71.4	6	1	78.0	15	0	79.1	10	0	66.7	8	0	68.4	7	0	66.6	15	0	71.7	11	0
4	WH 1270	HYPT-104	77.2	1	1	91.5	6	0	84.6	4	1	78.3	1	1	67.5	11	0	71.8	10	0	78.5	3	1
5	PBW 824	HYPT-106	68.4	11	0	98.8	1	1	87.2	2	1	66.5	9	0	68.0	8	0	71.1	11	0	76.7	5	0
6	UP 3043	HYPT-107	77.0	2	1	92.9	5	0	74.8	15	0	67.2	7	0	70.1	4	1	77.7	3	0	76.6	6	0
7	DBW 187	HYPT-108	70.9	7	1	96.6	3	1	77.4	12	0	75.6	2	1	74.6	1	1	76.5	4	0	78.6	2	1
8	DBW 303	HYPT-110	69.7	10	0	97.4	2	1	91.9	1	1	73.0	3	0	70.9	2	1	79.2	2	1	80.4	1	1
9	DBW 304	HYPT-111	62.2	14	0	87.8	9	0	77.4	12	0	66.3	10	0	49.5	15	0	71.0	12	0	69.0	14	0
10	UP 3042	HYPT-112	73.2	4	1	96.4	4	1	86.7	3	1	68.3	6	0	64.7	13	0	72.3	8	0	76.9	4	0
11	DBW 302	HYPT-113	70.4	8	1	89.2	7	0	79.2	9	0	60.1	13	0	69.4	6	0	79.3	1	1	74.6	9	0
12	PBW 825	HYPT-114	75.1	3	1	86.2	10	0	82.4	5	0	69.1	5	0	67.7	10	0	68.4	13	0	74.8	8	0
13	HD 3347	HYPT-115	67.0	12	0	85.2	11	0	81.9	7	0	62.6	12	0	63.5	14	0	67.3	14	0	71.2	12	0
14	HD 2967(C)	HYPT-105	57.5	15	0	81.6	13	0	78.4	11	0	38.1	15	0	67.8	9	0	72.0	9	0	65.9	15	0
15	HD 3086(C)	HYPT-109	70.3	9	1	88.3	8	0	80.5	8	0	69.9	4	0	70.4	3	1	73.9	6	0	75.6	7	0
G.M.			70.0			89.0			81.3			65.7			67.2			72.9			74.3		
S.E.(M)			3.108			1.915			3.233			1.941			2.091			0.471			0.945		
C.D. (10%)			7.4			4.6			7.7			4.6			5.0			1.1			2.2		
C.V.			8.9			4.3			8.0			5.9			6.2			1.3					
D.O.S.(dd.mm.yy)			25.10.18			25.10.18			22.10.18			30.10.18			19.10.18			02.11.18					

No. of Trials: Proposed = 07; Conducted = 07

Trials not reported (01) = Hisar (LSM)

Summary of Disease Data and Agronomic Characteristics

North Western Plains Zone **Trial: SPL-HYPT-IR-TS, 2018-19**

SN	Variety		Disease Reactions				Agronomic Characteristics								Grain Characteristics			
			Yl	ACI	Br	ACI	Hd.R	Hd.M	Mat.R	Mat.M	Ht.R	Ht.M	Thr.	Lod.M	Col.	Tex.	TGW.R	TGW.M
1	HD 3317	HYPT-1	10S	3.0	0	0	101-119	110	153-173	161	91-117	107	M	20	A	H	44-57	50
2	WH 1254	HYPT-2	5S	1.0	0	0	96-119	108	150-171	157	97-109	101	M	5	A	H	39-44	41
3	DBW 301	HYPT-3	tMS	0.1	0	0	102-130	116	150-174	159	82-104	92	M	10	A	H	35-43	40
4	WH 1270	HYPT-4	5MS	0.6	0	0	94-115	103	143-172	156	88-104	96	M	0	A	H	45-53	48
5	PBW 824	HYPT-6	5S	4.9	0	0	95-111	103	149-171	155	91-114	101	M	0	A	H	41-47	44
6	UP 3043	HYPT-7	5MS	1.0	5S	1.0	95-115	103	147-172	156	95-119	106	M	10	A	H	42-53	48
7	DBW 187	HYPT-8	5S	1.0	tS	0.2	96-115	103	148-172	157	96-125	106	M	10	A	H	42-61	49
8	DBW 303	HYPT-10	10S	3.4	tS	0.6	92-110	99	143-172	154	92-118	102	M	5	A	H	40-48	43
9	DBW 304	HYPT-11	5S	1.1	0	0	94-113	103	144-170	155	89-101	100	M	10	A	H	42-50	46
10	UP 3042	HYPT-12	10S	3.4	0	0	99-113	107	148-172	158	97-116	105	M	10	A	H	44-53	49
11	DBW 302	HYPT-13	10S	2.3	tS	0.2	104-125	115	156-174	161	94-118	107	M	15	A	H	35-48	42
12	PBW 825	HYPT-14	20S	7.4	0	0	96-112	105	149-171	157	89-110	102	M	10	A	H	40-50	44
13	HD 3347	HYPT-15	20S	6.0	40S	12.0	95-113	105	148-170	155	97-110	101	M	0	A	H	44-49	45
14	HD 2967 (C)	HYPT-5	60S	19.3	10S	2.0	100-119	111	153-171	159	94-112	103	M	5	A	H	23-47	41
15.	HD 3086 (C)	HYPT-9	5S	1.5	10S	5.0	91-110	100	141-172	154	92-112	100	M	5	A	H	40-51	45

1. Ancillary data from PAU- Ludhiana, Hisar, Karnal, Delhi, Gurdaspur, Pantnagar and BISA, Ludhiana centres.
2. Yellow rust data from PAU, Ludhiana, Hisar, Karnal, Delhi, Gurdaspur, Pantnagar and BISA, Ludhiana centres.
3. Brown rust data from Hisar, Delhi, Gurdaspur, Pantnagar and Karnal centres.
4. Lodging data from Hisar, Delhi, Gurdaspur, Ludhiana, Pantnagar and BISA, Ludhiana.

Individual Station Rust Data
Trial: SPL-HYPT-IR-TS, 2018-19

SN	Variety	Code	Hisar		Pantnagar		Karnal		Gurdaspur		Delhi	BISA	PAU
			Yl	Br	Yl	Br	Yl	Yl	Yl	Br	Yl	Yl	Yl
1	HD 3317	HYPT-1	tMS	0	0	0	10S	0	10S	0	0	0	0
2	WH 1254	HYPT-2	0	0	0	0	tMS	0	5S	0	0	0	0
3	DBW 301	HYPT-3	0	0	0	0	0	0	tMS	0	0	0	0
4	WH 1270	HYPT-4	0	0	0	0	0	0	5MS	0	0	0	0
5	PBW 824	HYPT-6	5S	0	0	0	tMR	0	5S	0	0	30MS	0
6	UP 3043	HYPT-7	tMS	0	0	5S	tMR	0	5MS	0	0	5MR	0
7	DBW 187	HYPT-8	tMS	0	0	0	tMS	0	5S	0	0	5R	0
8	DBW 303	HYPT-10	0	0	0	0	tS	0	10S	0	5S	10MS	0
9	DBW 304	HYPT-11	tMS	0	0	0	0	0	5S	0	0	5MR	0
10	UP 3042	HYPT-12	0	0	0	0	tMS	0	10S	0	5S	10MS	0
11	DBW 302	HYPT-13	tMS	0	0	ts	10S	tMR	5MS	0	0	0	tMR
12	PBW 825	HYPT-14	5MS	0	0	0	5S	5S	20S	0	10S	10MS	5S
13	HD 3347	HYPT-15	0	0	0	40S	10S	20S	10S	10S	0	5MR	20S
14	HD 2967 (C)	HYPT-5	15S	0	0	10S	20S	10S	60S	0	0	30S	10S
15	HD 3086 (C)	HYPT-9	tMS	5S	0	5S	tMS	0	5S	5S	0	5MS	0

Breeder Seed Production

Seed Production and Test Stock Multiplication 2018-19

An indent of 20321.78q breeder seed of 141 wheat varieties was received from DAC&FW, New Delhi for its supply to thirteen states, six public sector agencies (NSC, IFFDC, Kribhco, NFL, Hindustan Insecticide Ltd. and NAFED) and National Seed Association of India (NSAI) during 2019-20. This included maximum breeder requirement from NSAI (4755.60q) for pvt. seed companies requirement. MP (4010q) state was the highest indenting state followed by UP (3265q), Uttarakhand (1809q), Rajasthan (1379q), Bihar (1050q) and other states (2199.38q). Among public sector, NSC placed maximum breeder seed indent of 1287q followed by IFFDC (179.20q), Kribhco (159.60q), NFL (149q), Hindustan Insecticide Ltd. (55q) and NAFED (24q).

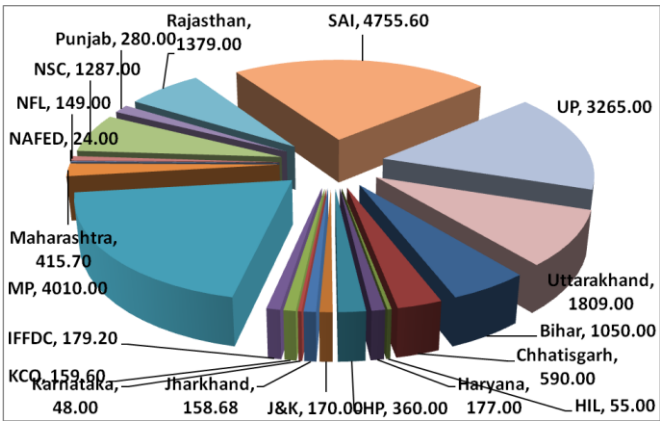

Figure 1. Indent proportion of different agencies for breeder seed for 2019-20.

The highest indented varieties were HD 2967 (2972.88q), HD 3086 (1936.30q), PBW 723 (1569.40), Raj 4238 (955q), PBW 725 (746.20q), HI 8713 (462.20q), GW 366 (445q), HI 1544 (398.80q), MP 3336 (377q) and HI 8737 (356.80q). The detail of breeder seed allocated and produced is given in table below;

Table 1: Highest breeder seed indent & production of recent wheat varieties 2018-19.

Variety	Year of release	DAC Indent (q)	Breeder seed (q)	
			Allocation	Production
1. HD 2967	2011	2972.88	2972.88	4060.08
2. HD 3086 (Pusa Gautami)	2014	1936.30	1936.30	1960.00
3. PBW 723	2017	1569.40	1569.40	1404.40
4. Raj 4238	2013	955.00	955.00	1195.00
5. PBW 725	2015	746.20	746.20	748.00
6. HI 8713 (Pusa Mangal)	2013	462.20	462.20	520.00
7. GW 366	2007	445.00	445.00	647.55
8. HI 1544 (Purna)	2008	398.80	398.80	886.50
9. MP(JW) 3336	2013	377.00	377.00	0.00
10. HI 8737 (Pusa Anmol)	2015	356.80	356.80	360.00

Breeder Seed Production:

- Total allocation of 19650.85q breeder seed of 128 varieties was made for production at 35 centres in the country, excluding 13 varieties namely WH 147, HD 2189, PBW 373, PBW 750, HD 2329, HDR 77, K 9423 (Unnat Halna), HI 1479 (Swarna), HW 2004 (Amar), HD 2285

(Gobind), WH 542, DL153-2 (Kundan) and Raj 6560 for which production was denied by the centres for the reasons of variety being either >15 years old or not having nucleus seed.

- Due to insufficient nucleus seed availability, partial breeder seed production of five varieties HD 2985, HD 2987, HI 8663, GW 322 and C 306 was accepted.
- Total production of breeder seed during the year was 28361.72q. Thus there was a surplus production of 8710.87q over the allocated quantity (19650.85q) of breeder seed.
- JNKVV, Jabalpur produced highest quantity of breeder seed (2676.98q) followed by PAU, Ludhiana (2560.40q) and IIWBR Karnal (2327q).
- The highest quantity of breeder seed was produced for HD 2967 varieties (4060.08q) followed by HD 3086 (1960q), PBW 723 (1404.40q), MP 3288 (1398.84q), Raj 4238 (1192q), HI 1544 (886.50q), Raj 4079 (860.50q) etc.
- Breeder seed production of five allocated varieties, MP(JW) 3336 (377q) at JNKVV Jabalpur, WR 544 (26.74 q) at RPCAU Pusa, HI 1500 (5q) at IARI Indore, HI 1479 (5q) at MAF (AU) Kota, K 7903 (27.60q) at CSAUAT Kanpur and HI 1418 (18q) at IARI Indore was not taken up.
- Apart from this, a deficient breeder seed production was observed for nine varieties namely MP(JW) 1201 (-184.09q), PBW 723 (-165 q), HD 3059 (-131.40q), MPO(JW) 1215 (-116.63q), DBW 93 (-44q), Raj 4037 (-27.70q), HD 3043 (-22.80q), DBW 17 (-7.42q) and DPW 621-50 (-5.80q). A center-wise breeder seed production deficit is given in table below;

Table 2: Center wise deficient breeder seed production 2018-19.

Variety	Year of release	DAC Indent (q)	Breeder seed (q)		
			Allocation	Production	Deficient
JNKVV Jabalpur					
1. MP(JW) 3336	2013	377.00	377.00	0.00	-377.00
2. MP(JW) 1201	2011	250.00	250.00	65.91	-184.09
3. MPO(JW) 1215	2010	140.00	140.00	23.37	-116.63
BISA Ludhhiana					
4. PBW 723	2017	1569.40	1569.40	1404.40	-165.00
IARI, New Delhi					
5. HD 3059 (Pusa Pachhati)	2013	209.40	209.40	78.00	-131.40
6. HD 3043	2012	64.80	64.80	42.00	-22.80
IIWBR Karnal					
7. DBW 93	2015	50.00	50.00	6.00	-44.00
SKNAU Durgapura					
8. Raj 4037	2004	180.20	150.20	122.50	-27.70
CSAUA&T Kanpur					
9. K 7903 (Halana)	2001	27.60	27.60	0.00	-27.60
RPCAU Pusa					
10. WR 544 (Pusa Gold)	2005	26.74	26.74	0.00	-26.74
IARI Indore					
11. HI 1418	2000	18.00	18.00	0.00	-18.00
12. HI 1500 (Amrita)	2003	5.00	5.00	0.00	-5.00
NDUA&T Faizabad					
13. DBW 17	2007	138.98	34.38	6.86	-27.52
PAU Ludhiana					
14. PBW 443	2000	4.40	4.40	1.00	-3.40
15. DPW 621-50	2011	73.80	65.00	28.00	-37.00

Nucleus Seed Production:

- Against an allocation of 766.30 q nucleus seed of 141 wheat varieties, 1153.67 q nucleus seed was produced. Apart from allocated varieties, an additional 635.60 q nucleus seed was also produced. Hence, a total nucleus seed of 1789.27 q of 222 varieties was produced.
- IARI Indore produced maximum quantity (194.30 q) of nucleus seed followed by PAU Ludhiana (116.75 q), MAF (AU) Kota (110.86 q) and IARI New Delhi (91.40 q)
- The maximum nucleus seed of variety HD 2967 (109.60 q) was produced followed by HD 3086 (50.30 q), PBW 723 (46.55 q), GW 496 (41.55 q), HI 8713 (40.60q) and HI 1544 (32.0 q).

Test stock multiplication

- NSC reported to produce 909.50 q test stock multiplication of 5 newly identified wheat varieties viz., HD 3226 (204.5 q), HD 3237 (86.4 q), HI 1620 (266.60 q), PBW 752 (261.0 q) and DBW 187 (91.0 q)
- It is also carried over with 135.20 q test stock multiplication HI 1612 (61 q), MACS 4028 (24 q), HD 4728 (14.40 q), HI 8759 (33.10 q) and MACS 3949 (2.70 q).

Wheat Physiology

Physiological investigations on thermal stress tolerance in wheat

Multi-location Heat Tolerance trial (MLHT) was conducted to identify the temperature stress tolerant lines from AVT genotypes under testing in different trials under TS and LS conditions and from other promising entries. Two trials MLHT1 and MLHT2 (each with 16 entries for CZ and PZ trial and 25 entries for NWPZ and NEPZ trial) were conducted during the crop season 2018-19. Both MLHT1 and MLHT2 trials were sent to 15 locations and were conducted at all locations. The data from Dharwad, Indore,Niphad, Ranchi was not included in the MLHT1/MLHT2 analysis due to erroneous data in one of the two year and Faizabad centre due to trial rejection. Sowing was done under timely (November) and late sown (December) conditions with at least 21 days difference between the sowing dates to expose the crop to optimum and high temperature environments, respectively. The two trials were sown in 4 x 4 and 5 x 5 lattice square design for 16 and 25 entries with two replications. Observations on weather, growth and yield parameters were recorded at all the locations in the prescribed format. Physiological parameters *viz.* canopy temperature (CT), chlorophyll content index (CCI) and chlorophyll fluorescence (CFL) were recorded at 15 DAA and 21 DAA at Pune, Junagadh, Hisar, Pantnagar, Ludhiana, Kanpur, Karnal and Malda.

Magnitude of heat stress:

- Compared to previous crop season minimum temperature across centres were higher by 0.6^0C and 0.4^0C under TS and LS conditions, respectively during vegetative phase. During reproductive phase, minimum temperature was higher by 0.6^0C and 0.7^0C under TS and LS conditions, respectively.
- Maximum temperature, compared to previous crop season during vegetative phase across centres were higher by 0.8^0C & lower by 0.6^0C under TS and LS conditions, respectively. However, the maximum temperature was lower by 1^0C & 0.3^0C under TS and LS conditions respectively during reproductive phase.
- The temperature during vegetative phase has remained cooler across the centres, but there was clear temperature difference during grain filling period under timely and late sown conditions indicating late sown trials were exposed to higher temperature during grain filling period.
- MLHT1 trial consisted the entries tested under 2018-19 and MLHT2 included the same set of entries tested in 2017-18 & 2018-19.

Table 1: List of wheat genotypes identified as less heat sensitive(HSI<1.0) in MLHT1&2 trials during 2018-19

Trial	Zone	Genotypes
MLHT1	**CZ & PZ**	PBW823(0.65),PBW822(0.78),DBW277(0.80),DWAP1715(0.83),CG1029(0.86),HD3345(0.95) and RWP-2018-29 (0.95)
	NWPZ & NEPZ	HD3293(0.76), RWP-2018-32(0.87), RWP -2018-31(0.88), PBW821(0.88), DBW273(0.89), RWP-2018-27(0.89), RAJ4529(0.90), RWP-2018-26(0.92), PBW796(0.97), WH1239(0.97), DBW257(0.97)
MLHT2	**CZ & PZ**	HI1625(0.54),AKAW4924(0.66),RWP-2017-21(0.93),GW492(0.96),GW491(0.98), MP1338(0.98)
	NWPZ & NEPZ	HD3249(0.84), PBW771(0.88), PBW762(0.89), DBW221(0.91), K1601(0.91), BRW3792(0.95), DBW233(0.97), WH1218(0.97), PBW769(0.99)

Values in the paranthesis indicates Heat Sensitivity Index(HSI)

Table 2a: HSI of MLHT1 genotypes in CZ&PZ, across locations and pooled during 2018-19

Genotype	Heat Sensitivity Index						R%*
	Dharwad	Indore	Junagadh	Parbhani	Pune	Pooled	
CG1029	0.96	1.13	0.24	0.15	1.08	**0.86**	**23.2**
DBW277	0.03	1.03	1.21	0.74	0.74	**0.8**	**21.5**
DWAP1715	0.57	0.62	1.4	-0.88	1.21	**0.83**	**22.5**
GW509	1.04	0.82	1.39	1.62	0.94	1.06	28.5
HD3343	0.7	1.38	1.04	2.23	0.87	1.11	30
HD3345	1.33	0.68	0.75	1.02	0.95	**0.95**	**25.5**
HI1633	1.45	1.34	1.02	-0.38	1.08	1.14	30.9
PBW822	0.94	1.39	0.69	-1.28	0.9	**0.78**	**21**
PBW823	1.03	0.21	0.13	1.11	0.92	**0.65**	**17.6**
RWP-2018-29	-0.45	1.33	0.51	2.4	1.16	**0.95**	**25.7**
UAS3001	1.33	1.08	1.21	1.82	1.27	1.32	35.6
UAS3002	1.14	1.55	0.53	2.5	1.24	1.3	35
DBW14(C)	0.88	0.54	2.03	0.53	0.76	**0.99**	**26.6**
HD2932(C)	1.07	1.24	1.39	2.06	0.96	1.21	32.6
RAJ3765(C)	1.14	0.88	0.93	-0.48	0.95	**0.86**	**23.2**
WH730(C)	1.69	0.34	1.15	1.07	0.78	**0.98**	**26.4**

*Reduction% in grain yield under LS compared to TS

Table 2b: HSI of MLHT1genotypes in NWPZ & NEPZ, across locations and Pooled during 2018-19

Genotype	Heat Sensitivity Index									R%*
	Durgapura	Hisar	Kanpur	Karnal	Ludhiana	Malda	Pantnagar	Ranchi	Pooled	
DBW257	1	0.76	0.81	1.07	1.07	1.1	1.07	0.91	**0.97**	**35.2**
DBW273	0.76	1.03	0.41	0.98	0.5	0.87	1.16	1.38	**0.89**	**32.1**
HD3277	0.74	1.24	1.39	1.08	0.73	1.33	1.11	1.15	1.22	44.1
HD3293	0	0.87	0.61	0.66	1.03	0.91	0.64	1.14	**0.76**	**27.7**
NW7049	1.19	0.83	1.51	0.7	-0.25	1.04	0.96	1.25	1.11	40.2
PBW781	0.91	1.15	0.71	0.98	1.42	1.17	1.34	0.9	1	36.2
PBW796	0.78	0.78	1.37	1.05	0.34	0.66	0.62	1.29	**0.97**	**35.1**
PBW820	0.58	1.15	1.33	1.01	1.53	0.98	0.47	0.95	1.06	38.4
PBW821	0.91	1	0.83	1.23	0.75	0.89	0.82	0.75	**0.88**	**31.8**
RAJ4529	1.19	1.05	0.71	1.29	0.19	0.64	1.04	1.11	**0.9**	**32.6**
RWP-2018-26	1.04	1	0.38	1.12	1.2	1.04	0.95	0.64	**0.92**	**33.4**
RWP-2018-27	1.48	0.79	0.4	1.34	1.46	0.71	1.18	0.75	**0.89**	**32.2**
RWP-2018-28	1.1	0.91	0.12	1.38	1.15	0.84	0.98	0.91	1.02	36.9
RWP-2018-30	0.71	1.15	0.8	1.16	1.2	1.03	1.18	1.11	1.1	40
RWP -2018-31	1.4	1.28	1.42	1	-1.34	1.24	0.94	0.85	**0.88**	**31.8**
RWP-2018-32	1.22	0.73	0.41	1.08	0.91	1.07	0.72	1.03	**0.87**	**31.5**
SBP-MABB1	1.14	1.1	1.48	0.54	0.82	0.8	1.15	1.2	1.13	41
SBP-MABB2	1.33	1.05	1.41	0.85	1.66	1.15	0.79	0.65	1.18	42.9
WH1239	0.74	1.32	0.61	0.82	1.45	0.98	0.97	1.23	**0.97**	**35.1**
DBW14(C)	0.54	1	0.62	0.78	1.85	0.91	0.86	0.94	**0.89**	**32.1**
DBW150(C)	1.36	0.96	0.73	0.98	1.31	1.23	1.41	0.86	1.06	38.4
DBW71(C)	0.79	1.13	0.65	0.69	1.25	1	0.95	0.61	**0.84**	**30.3**
HD2932(C)	1.52	0.86	1.23	1.14	1.59	1.1	1.09	1.15	1.22	44.1
RAJ3765(C)	1.04	0.79	1.23	0.77	1.41	1.15	1.34	0.8	1.06	38.4
WH730(C)	1.33	1.12	0.2	1.11	-0.73	1.09	0.98	0.99	**0.85**	**30.8**

*Reduction% in grain yield under LS compared to TS

Table 3a: HSI of MLHT2 genotypes in CZ&PZ, across locations and pooled over years and locations

Genotype	Heat Sensitivity Index				R%*
	Junagadh	Parbhani	Pune	Pooled	
AKAW4924	1.05	-5.53	1.11	**0.66**	**12.7**
DBW235	0.83	2.53	1.32	1.14	22
GW491	0.95	-1.05	1.27	**0.98**	**18.8**
GW492	0.9	2.06	0.8	**0.96**	**18.5**
GW 493	1	2.56	0.86	1.07	20.6
GW495	1.15	0.15	1.07	1.03	19.9
HI1624	0.98	2.37	0.75	1.15	22.2
HI1625	0.78	-1.4	0.74	**0.54**	**10.4**
MACS6709	1.05	0.8	1.07	1.04	20
MP1338	1.01	0.51	1.04	**0.98**	**18.9**
PBW770	1.1	1.65	1.01	1.09	20.9
RW5	1.03	2.09	0.98	1.07	20.7
RWP-2017-21	0.85	1.21	1.01	**0.93**	**18**
DBW150 (C)	1.25	0.36	0.81	1.01	19.4
HD2932 (C)	1.13	-0.66	0.95	**0.98**	**18.8**
WH730 (C)	0.91	2.3	1.1	1.25	24

***Reduction% in grain yield under LS compared to TS**

Table 3b: HSI of MLHT2 genotypes in NWPZ & NEPZ, across locations and pooled over years and locations

Genotype	Heat Sensitivity Index								R%*
	Durgapura	Hisar	Kanpur	Karnal	Ludhiana	Malda	Pantnagar	Pooled	
BRW3792	0.43	0.95	1.01	1.04	1.12	0.76	1.3	**0.95**	**22.6**
DBW221	0.39	0.9	1.21	0.97	1	0.85	0.84	**0.91**	**21.7**
DBW222	1.33	1.03	0.88	0.91	1.18	1.09	0.64	1.03	24.6
DBW223	1.25	0.98	1.27	1.4	0.87	0.8	0.86	1.05	25
DBW233	0.79	1.12	0.76	0.96	0.84	1.24	0.81	**0.97**	**23.1**
DBW237	0.72	1.05	1.75	1.38	1.13	1.17	0.72	1.18	28.1
HD3249	0.12	1.15	0.92	0.51	0.75	0.97	0.81	**0.84**	**20**
HD3254	0.63	1.15	0.67	0.94	1.49	0.78	1.66	1.06	25.3
HI1621	1.44	1.02	1.63	1.14	0.28	1.17	0.75	1.08	25.9
K1601	1.36	1	-0.05	1.09	1.15	0.8	1.45	**0.91**	**21.8**
PBW762	0.89	0.93	0.25	1.53	1.02	0.85	0.76	**0.89**	**21.3**
PBW763	1.74	0.89	1.44	0.27	1.31	1.33	0.21	1.12	26.8
PBW766	0.64	1.03	0.89	1	1.17	1.16	0.83	1	24
PBW769	0.87	0.97	0.84	1.27	0.89	1.02	1.29	**0.99**	**23.7**
PBW771	0.07	0.86	1.32	1.08	1.23	0.48	0.73	**0.88**	**21**
PBW773	1.1	0.78	1.17	1.52	0.9	1.16	0.72	1.05	25.2
RW5	0.98	1.09	1.42	0.39	0.89	0.97	1.05	1.02	24.3
RWP-2017-21	1.37	1.08	0.96	1.56	0.97	1.27	0.95	1.16	27.6
UP2981	1.65	0.9	0.34	1.97	1.03	1.43	0.88	1.14	27.3
WH1218	1.59	1.22	0.84	0.68	1.31	0.41	0.65	**0.97**	**23.2**
DBW14 (C)	0.86	1.22	0.08	-0.42	0.35	0.77	1.04	**0.63**	**15.1**
DBW150 (C)	0.4	0.96	1.83	0.93	1.25	1.09	1.23	**0.83**	**19.9**
DBW71 (C)	0.04	0.76	1.01	0.62	1.33	0.98	2.08	**0.98**	**23.4**
RAJ3765 (C)	1.32	0.98	0.74	0.65	0.62	0.89	0.57	1.1	26.2
WH730 (C)	2.07	0.99	1.04	0.49	0.37	1.28	1.87	1.15	27.6

***Reduction% in grain yield under LS compared to TS**

Correlation of grain yield with different traits under late sown conditions

The pooled analysis of the data over locations and over years indicated reduction in most of the measured traits under LS condition. In order to identify the trait association with yield under late sown conditions in different zones, the stepwise regression analysis revealed that, Days to maturity, Biomass and Harvest index had significant correlation with grain yield under CZ & PZ trials. whereas under NWPZ&NEPZ the Biomass, Harvest index and Chlorophyll fluorescence measured at 15DAA directly influenced the grain yield.

Evaluation of National and International Germplasm

National Genetic Stock Nursery

National Genetic Stock Nursery (NGSN) is considered as “suggested crossing block” and is constituted with the objective to provide new germplasm lines to cooperating centres. The NGSN comprising 80 lines including T. aestivum (67), T. durum (09), T. dicoccum (2) and Triticale (2) was provided to 34 centres. The bread wheat entries were categorized as agronomic bases, disease resistant, registered genetic stocks and elite lines. Durum entries were categorized as new agronomic bases and disease resistant lines whereas *T. dicoccum* and *Triticale* entries were grouped as disease resistant.

The nursery was conducted in augmented design with two bread wheat checks Sonalika and HD2967 alongwith durum check HI 8713 which were accommodated once in a block of 20 entries. An infector row was also included for observing disease incidence. The data were recorded on phenological traits. The data from all 33 locations were pooled for analysis and mean values (Table 6) were considered for identification of promising genotypes.

Performance of entries for yield component traits

Based on pooled mean values of the data from all the cooperating centres, promising entries for various traits were identified (Table.1). Trait-wise analysis indicated that genotypes HI 1620, DWAP 1531, AKAW 4901, AKAW 4927, HI 1609, WH 1310 and HI 8777(d) showed better performances for more than three traits as compared to the respective best checks (Table.2).

Table 1: Superior genetic stocks for yield component traits in NGSN during 2018-19

Traits	Range	Mean	Criteria	Promising Entries	Best check
Days to heading	79-93	87	<85	TL 3006(79), PBW 757 (80), TL 3007, DWAP 1531(81), HTW 9, HIKK 06, FLW 22, HIKK 09, DHTW 60 (82), HIKK 05, DBW 107, AKAW 4927, MP 3336, NIAW 1994 (83), AKAW 4901, GRU 2010-18/7, HI 1620, MP 3382 (84)	Sonalika (87)
Days to maturity	128-135	132	<130	PBW 757 (128), FLW 22, HTW 9 (129), DBW 107, DWAP 1531, HIKK 06, HIKK 05, TL 3006(T), DHTW 60, HI 1620, AKAW 4901, WH 730, HIKK 09 (130)	Sonalika (132)
Tillers /m	60-127	91	>100	AKAW 3717 (127), DHTW 60 (110), GJW 463, WH 1080 (106), HTW 9, HIKK 09 (105), TL 3007(104), KBRL 79-2, WH 1127 (103), KRL 283 (102), DDK 1051(101)	HD 2967 (89)
Grains /spike	41-59	52	>57	AKAW 4901, GRU 2010-18/7, HD 3171(59), MP 3382, KBRL 82-2, HD 3043 (58)	HD 2967 (57)
1000-gr weight (g)	33-49	41	>43	HI 8751(49), AKAW 4927, HI 8737(48), HI 8708(47), HI 8777(46), DWAP 1531, K 1317, HI 1609, DDK 1051, PDW 344, MACS 5044, MACS 3949(45), DBW 187, HI 8759(44)	HI8713 (43)
Spike length(cm)	7-15	10	>11	BRW 3723 (15), GRU 2010-18/7 (13), AKAW 4927, DWAP 1531, UASD DT -6, AKAW 4901 (12)	HD 2967 (10)

T-Triticale, d-durum; Value in parenthesis indicates the values of the traits

Table.2: Promising entries for multiple traits in NGSN

Genotype	Heading	Maturity	Pl height (cm)	Tillers/ meter	Grain / spike	1000-gr wt (g)	Spike lgth (cm)
AKAW 4901	84	130	94	96	59	39	12
HI 1620	84	130	97	95	57	43	11
AKAW 4927	83	131	94	64	57	48	12
HI 1609	86	132	99	90	50	45	10
WH 1310	87	132	99	99	54	42	11
DWAP 1531	81	130	100	60	54	45	12
HI 8777(d)	86	132	83	90	47	46	7
Sonalika (C)	87	132	87	85	55	38	10
HD 2967 (C)	90	134	96	89	57	38	10
HI 8713(d) (C)	90	134	91	80	55	43	9

Disease resistance

Response of genotypes was also recorded at multi-locations under natural conditions against rust diseases. Based on highest reactions and ACI, genotypes exhibiting resistant response were identified (Table.3).

Table. 3: Genotypes showing resistance to diseases in NGSN under field conditions

Disease	Resistant genotypes
Yellow rust	FLW16, PBW 725, PDW 344(d), TL 3006(T)
Brown rust	DBW 187, PBW 760, WH 1127, HI 8708(d), HI 8737(d), HI 8751 (d), HI 8759(d), HI 8765 (d), HI 8777(d), MACS 3949(d), PDW 344(d), TL 3006(T), TL 3007(T)
Black rust	HW 5207, AKAW 4927, DBW 39, DBW 93, DBW 107, KBRL 79-2, KBRL 82-2, PBW 703, PBW 760, WH 1216

d- durum wheat; T- Triticale

Utilization of genotypes

The utilization report from 27 centres indicated 21.1% utilization (Table 4) and all the bread wheat and triticale entries were utilized by either of the centres for different purposes. Bread wheat entries showed 22.7% utilization and maximum utilization was observed from disease resistant lines followed by new agronomic bases and registered genetic stocks. Durum entries showed overall 12.8% utilization whereas dicoccum and triticale entries showed 16.7% and 11.1% utilization, respectively. HS 626, DBW 187, DBW 179, HS 627, WH 1310, DBW 88, HD 3086, HTW 9 and WH 1127 were the most utilized entries. Maximum utilization was done by Durgapura (54) followed by Powarkheda (37), Ayodhya (35), Malan (21) and Almora (20) centres.

Table. 4: Utilization of genotypes in NGSN during 2018-19

Category	Entries	Utilization	
		Frequency	%
T. aestivum			
Disease resistance	9	90	37.0
New agronomic bases	32	200	23.1
Elite lines	4	16	14.8
Genetic stocks	22	104	17.5
Sub total	67	410	22.7
T. durum			
Disease resistance	3	9	11.1
New agronomic bases	4	16	14.8
Genetic stocks	2	6	11.1
Sub total	9	31	12.8
Dicoccum			
Disease resistance	2	9	16.7
Triticale			
Disease resistance	2	6	11.1
Total	80	456	21.1

Short Duration Screening Nursery

The 32nd Short Duration Screening Nursery(SDSN) was planted during second fortnight of December, 2018 to identify early maturing genotypes along with high yield and tolerance to high temperature during grain filling period under late sown conditions. The nursery consisting of 44 genotypes contributed by various centres along with six checks (Sonalika, DBW 71, DBW 14, WR 544, HD 2932 and NIAW 34) was supplied to different locations in all the five zone across the country in augumented design. Each entry was sown in a plot size of two rows of 2.5 m length spaced 18 cm apart.

Data was reported by 17 centres (Karnal, Pantnagar, Hisar, Ranchi, Coochbehar, Shillongani, Kalyani, Faizabad, Sabour, Jabalpur, Sanosara, Bilaspur, Powarkheda, Pune, Khudwani, Malan and Bajaura). Data was recorded for germination percentage, tillering capacity, days to heading, days to maturity, grain number/ spike, 1000 grains weight (g), and yield/plot(g). The data was pooled for each zone on various traits in order to identify promising lines. Based on the pooled analysis for mean yield and earliness, the following promising entries showing better performance over the best check were identified for each zone.

SN	Genotype	Yield	Heading	Maturity	Grains/spike	1000 gr. wt.
		Mean	Mean	Mean	Mean	Mean
	NWPZ (Karnal, Pantnagar, Hisar)					
1	DWAP 1822	587	84	118	36	37
2	RWP 2016-29	570	86	118	38	35
3	GW 2017-845	541	80	118	39	43
4	LBP 2017-26	510	82	117	33	36
5	GW 2016-752	504	79	118	35	41
6	GW 2017-840	500	80	118	32	39
Checks	DBW 71 (C)	483	80	118	39	37.9
	WR 544 (C)	383	77	116	36	34.4
	NEPZ (Ranchi, Coochbehar, Shillongani, Kalyani, Faizabad, Sabour)					
1	GW 2017-845	413	68	104	49	41
2	LBP 2017-2	373	67	107	47	36
3	RWP 2013-20	345	68	108	44	38
4	GW 2016-752	336	65	105	45	42
Checks	Sonalika(C)	247	67	106	43	38
	DBW 14 (C)	288	67	106	41	39
	CZ (Jabalpur, Sanosara, Bilaspur, Powarkheda)					
1	GW 2017-845	572	59	113	41	44
2	AKAW 5104	552	62	113	46	44
5	GW 2016-752	507	56	110	38	46
6	HI 1618	498	62	114	45	42
7	RWP 2014-19	498	61	113	40	43
Checks	Sonalika(C)	385	60	113	39	44
	WR544(C)	438	56	110	44	43
	HD 2932(C)	496	65	115	45	41
	PZ (Pune)					
1	GW 2017-841	368	55	87	35	39
5	LBP 2017-26	334	51	87	32	42
6	GW 2017-845	326	50	84	30	40
7	GW 2016-752	322	49	84	32	44
Checks	HD 2932 (C)	298	56	89	42	37
	WR 544 (C)	310	49	86	41	39
	NHZ (Khudwani, Malan and Bajaura)					
1	HI 1618	348	128	174	48	37
2	WS 15-7	336	132	174	42	36
3	LBP 2017-2	329.	125	170	51	36
4	GW 2016-752	323	131	174	42	36
Checks	Sonalika (C)	279	129	174	41	36
	WR544 (C)	262	127	163	44	34

Drought Tolerance Screening Nursery (DTSN)

The 31st Drought Tolerance Screening Nursery (DTSN) comprising 25 wheat genotypes including 6 checks (C306, MP3288, DBW110, K3717, DBW93 and NI5439) was conducted at 15 centres to identify wheat genotypes having tolerance to drought stress. The nursery was sown in 5x5 simple lattice design (5 blocks X 5 plots) both under drought and irrigated conditions on the same date with plot size of 3 rows of 3.0 m length spaced 23 cm apart. Except pre-sowing irrigation, no irrigation was given under drought treatment, while recommended numbers of irrigations were provided under irrigated treatment. Data from Sagar centre was received late, hence not included in analysis. Data from Kanpur centre were found erratic, hence excluded from analysis. Akola centre did not found suitable as it received 309.6 mm rain during the growing season, hence, excluded from the analysis. Data from rest of the 12 centres (namely Dharwad, Parbhani, Niphad, Pune, Bardoli, Indore, Jabalpur, Junagadh, Vijapur, Ranchi, Hisar and Karnal) were pooled and analyzed for DSI.

Weather conditions during the crop season (2018-19)

In current crop season (2018-19), varying amount rainfall received during vegetative phase was recorded at some centres i.e. Dharwad (72.8 mm), Niphad (14.8 mm), Pune (54.4 mm), Kanpur (41.7 mm), Ranchi (15.5 mm), Hisar (13.5 mm) and Karnal (10.6 mm). Rest of centre did not receive any rainfall during vegetative phase. During reproductive phase, Jabalpur received 28.9 mm, Junagadh 10.8 mm, Vijapur 5.0 mm, Kanpur 6.3 mm, Ranchi 53.3 mm, Hisar 14.8 mm and Karnal 61.9 mm rainfall, while other centres received no rainfall during the reproductive stage. Temperature has significant impact on grain setting and yield. In PZ, mean temperature ranged from 3.0 to 37.7 ^{0}C during vegetative phase and from 3.0 to 39.8 ^{0}C during reproductive phase. In CZ, mean temperature ranged from 1.6 to 36.0 ^{0}C during vegetative phase and from 2.2 to 41.6^{0}C during reproductive phase. As compared to PZ and CZ, lower mean temperature was recorded in NEPZ (0.1 to 28.4 ^{0}C) and NWPZ (-0.3 to 30.8 ^{0}C) during vegetative phase. However, not much difference was recorded during reproductive phase in the mean temperature across the zones. Maximum temperature (41.6 ^{0}C) was recorded at Indore centre.

Impact of drought stress

Impact of drought stress was adjudged by taking into account Drought Sensitivity Index (DSI). DSI was calculated using the formula as given below:

DSI=(1-YD/Yi)/(1-XD/Xi)

Where, YD and Yi are the grain yield for each genotype under Drought stress and Irrigated conditions respectively. XD and Xi are the mean of genotypes grain yield under drought stress and irrigated conditions respectively

In order to analyze the impact of drought across the locations, pooled means of genotypes were used to calculate DSI and percent yield reduction under drought condition over irrigated condition. On the basis of pooled analysis, DSI was calculated for selection of genotypes suitable under rainfed conditions. For reference, DSI less than 1 is considered. List of promising genotypes suitable for rainfed condition is given in table 1. Centre-wise DSI along with pooled DSI and percent reduction (Percent reduction in grain yield under drought condition over irrigated condition) is given in table 2.

Table 1: List of wheat genotypes identified as less drought sensitive index (DSI<1.0) in DTSN during 2018-19 (pooled across the locations)

SN	Genotypes	DSI	% yield reduction	SN	Genotypes	DSI	% yield reduction
1	HD 3237	0.865	29.79	8	RIL-S1-126	0.983	33.87
2	DBW 166	0.866	29.82	9	RIL-S1-38	0.984	33.91
3	HI 1620	0.875	30.13	10	DBW 252	0.986	33.95
4	HI 1628	0.900	31.01	11	NIAW 3170	0.996	34.31
5	MP 1331	0.915	31.52	12	NI 5439(C)	0.789	27.18
6	M 516	0.934	32.17	13	DBW110 (C)	0.951	32.76
7	WH 1235	0.959	33.03				

Table 2: Drought Sensitivity Index (DSI) of DTSN genotypes across locations and pooled analysis during 2018-19.

Genotypes	Drought Sensitivity Index (DSI)												Pooled analysis	
	Dharwad	Parbhani	Niphad	Pune	Bardoli	Indore	Jabalpur	Junagadh	Vijapur	Ranchi	Hisar	Karnal	DSI	% yield reduction
BRW 3806	0.85	1.06	0.96	0.93	1.03	-0.29	1.76	1.16	1.07	1.37	1.11	1.04	1.03	35.6
DBW 136	2.26	0.59	4.83	1.02	0.82	1.70	-0.64	1.08	1.00	1.69	0.91	1.04	1.02	35.2
DBW 166	1.29	1.02	-2.21	1.06	1.86	-0.17	0.37	0.82	0.98	0.37	1.03	-0.38	0.87	29.8
DBW 252	1.84	1.21	0.81	1.20	0.52	1.17	-0.21	0.90	1.22	0.63	0.74	-0.27	0.99	34.0
GW 477	-0.36	0.93	-5.09	1.03	1.90	1.15	2.68	1.00	1.20	2.35	1.14	1.34	1.26	43.5
HD 3237	2.21	0.86	4.23	0.98	0.85	0.72	-1.93	0.79	1.02	2.19	0.52	0.66	0.87	29.8
HI 1620	0.58	0.35	3.39	0.58	1.05	0.60	0.98	0.99	0.93	0.43	0.67	3.78	0.88	30.1
HI 1628	2.06	1.14	3.02	0.63	0.77	0.89	1.41	0.84	0.83	0.75	0.52	0.66	0.90	31.0
JWS 810	1.09	0.96	1.29	1.22	1.75	1.66	1.77	1.10	0.85	0.20	0.85	0.50	1.03	35.3
M 516	1.23	0.90	-0.56	1.36	0.72	1.06	0.39	1.11	1.13	0.73	0.67	-1.82	0.93	32.2
MACS 6695	-1.40	0.74	-13.96	0.92	1.65	2.22	0.94	1.23	1.14	1.37	0.87	-0.84	1.07	37.0
MACS 6696	0.25	0.87	1.29	0.81	1.38	0.53	2.20	0.70	1.07	-0.33	1.19	1.54	1.03	35.3
MP 1331	0.95	1.00	1.30	1.36	0.77	0.69	1.01	1.05	0.89	0.76	1.02	-1.65	0.92	31.5
NIAW 3170	1.25	1.14	0.13	0.93	0.88	1.45	0.61	1.03	0.92	1.24	1.12	1.52	1.00	34.3
NIAW 3212	0.92	0.96	1.60	1.06	1.49	1.91	0.72	1.08	0.91	0.16	0.97	7.07	1.11	38.1
RIL-S1-126	-2.78	0.96	1.84	0.81	0.36	1.36	1.54	1.11	0.92	1.29	1.17	-3.77	0.98	33.9
RIL-S1-38	0.69	0.99	3.73	0.61	1.23	-0.66	2.45	0.94	0.70	1.07	1.07	-1.10	0.98	33.9
RW 5	0.17	1.12	-1.52	1.20	1.24	-0.21	0.55	0.95	1.03	0.55	1.41	2.06	1.02	35.0
WH 1235	1.78	1.22	-2.19	0.98	0.75	1.64	1.79	0.97	1.04	0.92	0.75	-3.18	0.96	33.0
MP-3288(C)	0.52	1.09	-1.11	0.93	1.31	1.39	1.29	0.63	1.01	0.44	1.17	4.21	1.04	36.0
C 306(C)	2.31	1.22	2.20	1.12	0.86	2.40	0.33	1.29	0.92	0.60	1.38	6.35	1.25	43.1
NI 5439(C)	0.97	0.94	1.43	0.88	0.88	0.34	0.59	0.85	0.78	1.11	0.82	-0.17	0.79	27.2
K 3717(C)	0.78	0.94	1.79	1.12	0.76	1.92	1.73	0.88	1.03	1.23	0.79	0.16	1.03	35.5
DBW110 (C)	-0.57	0.88	-1.54	0.86	0.96	-0.08	0.16	1.25	1.07	1.60	1.19	2.32	0.95	32.8
DBW 93(C)	-0.07	1.38	0.34	1.26	1.61	1.53	1.86	1.11	1.16	0.68	1.29	-0.18	1.24	42.8

Salinity-Alkalinity Tolerance Screening Nursery 2018-19

The major edaphic problem for wheat cultivation in India is salinity and as it significantly affects the overall productivity and production. In India about 6.73 million hectares of cropped land is affected by salinity and sodicity. Major salt affected areas fall in the plains of UP (1.3 mha.), Gujarat (1.2 mha), West Bengal (0.85 mha, Rajasthan (0.73 mha), Punjab (0.7 mha) and Haryana (0.53 mha). A large portion of salt-affected land in India is cultivated by small and marginal farmers with limited resources to practice soil amelioration package, thereby limiting the crop output. Use of salt tolerant varieties would significantly improve the productivity of wheat in such areas.

With an aim to identify suitable wheat lines that can perform better under saline and alkaline soils the Salinity-Alkalinity Tolerance Screening Nursery was constituted. During the crop season 2018-19 this nursery was proposed at 9 locations in 5 states viz., Haryana (CSSRI-Karnal, CCSHAU-Hisar,), Uttar Pradesh (Faizabad, Dilipnagar, Lucknow, Pratapgarh), Gujarat (CSSRI-Bharuch) Rajasthan (Pali) and Punjab (Muktsar).

The nursery comprising 26 test entries obtained from different wheat breeding centres of the country was evaluated along with two checks viz., KRL19 and KRL210 were evaluated in an augmented block design having 2 blocks with plots of 5m length having 3 rows spaced 20cm apart. Each block comprised 15 treatments (13 test entries + two checks) interspersed within each block). The data from all locations except Hissar (High yield) was considered for reporting.

Out of 26 test entries, 5 entries were found to be promising on the basis of mean yield along with resistance to all the three rusts (stem leaf and yellow rust) as evident from IPPSN 2018-19. However, most of the entries were found to be susceptible to rusts in IPPSN. These 5 entries viz., KRL1741, WH1249, WH1250, KRL1733 and K1702 might be considered for testing in Salinity-Alkalinity Trial to be conducted during 2019-20.

Table: Promising entries of Salinity Alkalinity Tolerance Screening Nursery-2018-19

Entry	Mean Yield (g)	Rk	Gr	Stem Rust		Leaf Rust South		Leaf Rust North		Stripe rust	
				HS	ACI	HS	ACI	HS	ACI	HS	ACI
KRL 1741	1159.2	4	1	20MS	6.4	10MR	1.1	10MS	3.0	40S	18.9
WH 1249	1114.4	8	1	60S*	14.6	20S	8.0	20S	7.5	5S	1.5
WH 1250	1031.0	16	1	40S*	9.8	20S	7.0	10S	3.5	10S	3.4
KRL 1733	1027.3	17	1	40MS	7.5	40S	12.0	20S	9.3	40S	10.5
K-1702	1023.9	18	1	60S*	19.4	20MS	11.5	40S	11.7	20S	11.0
Checks											
KRL 19 (C)	954.2										
KRL 210()	1048.6										
CD at 10%	244.1										

International Nurseries and Trials

The ICAR-Indian Institute of Wheat and Barley Research, Karnal being a nodal centre for exchange of germplasm, annually procures wheat lines from CIMMYT, Mexico in the form of international trials and nurseries to further enrich the ongoing breeding programmes at various centres in our country. These trials and nurseries are evaluated at various locations spread across zones in India. Also, one set of this material is planted at Karnal to facilitate in-situ selections and also disease screening particularly yellow rust. The details of the material collected and its evaluation are described below.

Nurseries/ trials received during 2018-19

From CIMMYT, Mexico, sets of seven trials and seven nurseries comprising a total of 1539 lines (1312 bread wheat and 227 lines of durum wheat) were received and evaluated at various wheat breeding centres (Table 1). Duly filled-in data booklets were received from all the indented centres except SKAUST- Srinagar, Mahabaleshwar and some trails and nurseries from Delhi centre.

Table 1: International germplasm shared with centres during 2018-19

SN	Trial/Nursery	Entries	Rep	Set	Co-operating centres
Bread wheat					
1	26th SAWYT	50	2	15	Delhi, Karnal, Ludhiana, Hisar, Durgapura, Pantnagar, Faizabad, Varanasi, Ranchi, Bilaspur, Indore, Powarkheda, Vijapur, Niphad, Dharwad
2	39th ESWYT	50	2	12	Delhi, Karnal, Ludhiana, Hisar, Indore, Pantnagar, Powarkheda, Niphad, Pune, Dharwad, Coochbehar, SKAUST- Srinagar
3	26th HRWYT	50	2	4	Delhi, Karnal, SKAUST- Srinagar, Wellington
4	17th HTWYT	50	2	18	Delhi, Karnal, Ludhiana, Pantnagar, Durgapura, Hisar, Varanasi, Faizabad, Indore, Jabalpur, Vijapur, Powarkheda, Junagadh, Bilaspur, Pune, Niphad, Dharwad, Wellington,
5	6th WYCYT	32	2	5	Karnal, Pantnagar, Ludhiana, SKAUST-Srinagar, Dharwad
6	1st CWYT	50	2	2	Ludhiana, Dharwad
7	8th SATYN	33	2	2	Karnal, Ludhiana, Dharwad
8	29th HRWSN	139	-	3	Karnal, Wellington, SKAUST- Srinagar
9	51st IBWSN	300	-	15	Delhi, Karnal, Hisar, Ludhiana, Durgapura, Palampur, Indore, Pantnagar, Faizabad, Varanasi, IARI (Pusa), Coochbehar, Jammu, Wellington, SKAUST- Srinagar
10	36th SAWSN	300	-	14	Delhi, Karnal, Hisar, Ludhiana, Durgapura, Faizabad, Ranchi, IARI (Pusa), Jabalpur, Powarkheda, Junagadh, Bilaspur, Niphad, Dharwad, SKAUST- Srinagar
11	13th STEMRRSN	168	-	3	Karnal, Mahabaleshwar, Wellington
12	10th HLBSN	52	-	5	Karnal, IARI (Pusa), Faizabad, Varanasi, Coochbehar
13	20th KBSN	38	-	3	Karnal, Hisar, Ludhiana
Durum wheat					
14	50th IDYN	50	2	4	Junagadh, Niphad, Pune, Dharwad
15	50th IDSN	177	-	2	Pune, Niphad

Based on field screening for multiple diseases under different agro-climatic conditions, promising lines were identified for various zones as well as across zones (Table 2).

Table 2: Promising lines identified for higher grain yield and resistance in various yield trials

Trial	Zone	Entries with higher grain (q/ha) yield with disease resistant	Disease score
Bread wheat			
39th ESWYT	NWPZ	118 (72), 142 (68) Best check: HD 3086 (66)	Yr=0-20MS
26th HRWYT	NWPZ	235 (65), 222 (64), 215 (62), 218 (61) Best check: DBW 88 (49)	Yr=5-20S
17th HTWYT	NEPZ	25 (40), 42 (39), 43 (39), 48 (37), 49 (38), 50 (37) Best check: HD 2967 (34)	LB=12-36
	PZ	6 (59), 44 (57), 7 (56), 8 (56), 27 (56), 11 (55) Best check: MACS 6222 (64)	Yr=0-20S
26th SAWYT	PZ	320 (57), 306 (55), 335 (55) Best check: NIAW 1994 (45)	-
8th SATYN	NWPZ	9411 (84), 9424 (79), 9432 (78), 9427 (77), 9409 (76), 9422 (75), 9426 (74), 9417 (73) Best check: HD 2967 (72)	Yr=0-20S
1st CWYT	NWPZ	606 (82), 603 (76), 616 (74), 649 (74), 625 (73) Best check: HD 3086 (72)	Yr=0, Br=0
	CZ	630 (66), 627 (57) Best check: UAS 304 (61)	Sr=0, Lr=0
Durum wheat			
50th IDYN	CZ	711 (79), 743 (75), 744 (86) Best check: HI 8737 (68)	0-20MS

The promising lines received from CIMMYT trials/ nurseries, that exhibited higher grain weight coupled with desired level of disease resistance were identified for various zones as well as for across the zones of the country and are presented in Table 3.

Promising lines were thus identified from various trials/nurseries for yield per se, 1000-grain weight and possessing disease resistance (rusts and spot blotch) will be included in Elite International Germplasm Screening Nursery (EIGN) that would be constituted for the ensuing wheat season for further evaluation and making site specific selections by the co-operators.

One set of each of CIMMYT nursery/ trial that was planted at IIWBR, Karnal for comprehensive evaluation, seed multiplication also facilitated in-situ selection by large number of wheat breeders/pathologists, who participated and made selections during wheat field day organized on March 29th, 2019 at Karnal. The indented seed in limited quantity will supplied as per their requirement before the ensuing crop season for utilization at respective locations/ centres in the country.

Table 3: Promising lines identified for 1000-gr. wt. (value in parenthesis) and disease resistance in different nurseries

Trial / nursery	Zone	1000-grain weight (g)	Disease reaction
Bread wheat			
51st IBWSN	NHZ	1055 (42), 1094 (42), 1095 (42), 1117 (42),1135 (42), 1136 (42), 1242 (42), 1242 (42) **Best check:** HD 2967 (40)	tMS-10MR
	NWPZ	1066 (48), 1091 (47), 1117 (47) **Best check:** Raj 4238 (48)	0-20S
	NEPZ	1070 (52), 1290 (51) **Best check:** HD 2967 (43)	LB 24-45
	CZ	1002 (51), 1012 (51), 1031 (51), 1054 (51), 1163 (51), 1218 (51), 1228 (51), 1247 (51), 1248 (51), 1279 (51), 1243 (48) **Best check:** JW 3382 (43)	-
	PZ	1274 (60),1005 (58), 1118 (58), 1246 (58) **Best check:** Kalyansona (43)	0-5MR
29th HRWSN	NWPZ	2028 (51), 2112 (47), 2119 (47), 2120 (47) **Best check:** DBW 90 (40)	tR-20MS
	NEPZ	2006 (46), 2124 (45)	-
36th SAWSN	NWPZ	3061 (49), 3005 (48), 3002 (47), 3014 (47), 3096 (47), 3111 (47), 3130 (47) **Best check:** WH 1142 (44) Raj 4238 (42)	0-20MS
	NEPZ	3034 (44), 3040(44), 3061 (44), 3062 (44), 3099 (44), 3170 (44), 3212 (44), 3230 (44), 3284 (44) **Best check:** HD 2967 (44)	LB 12-36
	CZ	3062 (57), 3089 (56), 3095 (55), 3102 (55), 3001 (50) **Best check:** JW 3383 (45)	-
	PZ	3031 (49), 3212 (49), 3034 (48), 3202 (48) **Best check:** NIAW 34 (42)	0-20MS
13th STEMRRSN	NWPZ	6046 (48), 6098 (48), 6109 (48), 6110 (48), 6135 (46) **Best check:** WH 1105 (38)	10S-20MR
	NEPZ	6152 (47), 6059 (46)	-
	PZ	6109 (58), 6059 (56), 6115 (56), 6123 (56), 6135 (56), 6138 (56)	SR 0-5MR
10th HLBSN	NWPZ	7 (41), 36 (41)	LB 03-34
20th KBSN	NWPZ	21 (45), 22 (43), 32 (43) **Best check:** HD 2967 (35) PBW 725 (35)	Yr 0-10MR KB 6-7%
Durum wheat			
50th IDSN	PZ	7136 (50), 7033 (47), 7101 (46), 7107 (46)	-

National Durum Screening Nursery

The 5th National Durum Screening Nursery (NDSN) comprising 55 lines including 16 lines selected from 49th IDYN, 13 lines from 49th IDSN, 12 lines from 41st IDYT and 7 lines contributed by Vijapur centre. These lines along with three check varieties (HI 8498, PDW 291 and HI 8737) were shared with 13 centres of the NWPZ, PZ and CZ. The NDSN was evaluated in an augmented design with two rows' plot of 2.5m length. Data sheets were received from all the centres.

Yield contributing traits: Promising entries for grain yield per plot, earliness, tillers per m., grains per spike and 1000 grains weight were identified zone wise as well as on mean basis across the zone and are presented in Table 1.

Table 1: Promising entries identified for yield and yield attributes in NDSN

Zones	Entry name	Best Check
Grain yield/plot (g)		
National (>660g)	49th IDYN 750 (738), GW 2017-859 (707), 49th IDSN 7066 (683), 49th IDYN 739 (675), 49th IDYN 737 (670), 49th IDSN 7082 (665), GW 2017-864 (663)	PDW 291 (561g)
NWPZ (≥ 670 g)	49th IDYN 750 (777), GW 2017-862 (727), 49th IDYN 737 (709),49th IDSN 7046 (680), 49th IDSN 7034 (673)	PDW 291 (570g)
CZ (≥ 800g)	49th IDYN 750 (882), 49th IDYN 747 (845), 49th IDSN 7029 (818),49th IDYN 718 (803), 49th IDYN 719 (801)	PDW 291 (604g)
PZ (≥ 650g)	49th IDSN 7082 (745), GW 2017-859 (734), 49th IDYN 739 (695), GW 2017-855 (680), 49th IDSN 7037 (666), GW 2017-853 (654)	PDW 291 (500g)
Days to heading		
National (< 72 days)	GW 2017-855(70), GW 2017-852 (72)	HI 8737 (78 days)
NWPZ (<90 days)	GW 2017-855 (88)	HI 8737 (99 days)
CZ (<65 days)	GW 2017-855 (65)	HI 8737 (71 days)
PZ (<60 days)	GW 2017-855 (59)	HI 8737 (62 days)
No. of tillers/m (no.)		
National (≥105)	49th IDYN 718 (110), 41st IDYT 9 (107), 49th IDSN 7066(105)	PDW 291 (105)
NWPZ (≥115)	49th IDYN 706 (117), 49th IDYN726 (117), 49th IDYN 733 (115)	PDW 291 (107)
CZ (≥115)	None of the entry is superior to check	PDW 291 (116)
PZ (≥103)	49th IDSN 7066 (106), 49th IDYN 718 (104)	PDW 291 (103)
Grains per spike		
Across the zones (≥ 60)	49th IDSN 7080 (65.4), GW 2017-859 (61.3), 49th IDYN731 (60.2)	HI 8498 (51.75)
NWPZ (≥ 60)	49th IDSN 7080 (66.3), 49th IDYN 737 (64.9), 49th IDYN 739 (62.3)	HI 8498 (51.1)
CZ(≥ 65)	49th IDSN 7080 (71), 49th IDYN 750 (69.4), 49th IDYN 731 (68.6), GW 2017-859 (67.8), 49th IDSN 7081(66.8), 49th IDYN 711 (65)	HI 8498 (55.8)
PZ (≥ 55)	49th IDSN 7080 (71), 49th IDYN 750 (69.4), 49th IDYN 731 (68.6), GW 2017-859 (67.8), 49th IDSN 7081 (66.8), 49th IDYN 711(65)	HI 8498 (51.5)
1000 grains weight (g)		
National (≥ 55 g)	GW 2017-852 (60.1), GW 2017-853 (59.4), GW 2017-854 (56.3)	HI 8498 (55.4g)
NWPZ (≥ 57)	GW 2017-853 (57.5)	PDW 291 (56.7 g)
CZ (≥ 57)	GW 2017-852 (65.7), GW 2017-853 (61.8), GW 2017-854 (61.2), GW 2017-851 (61.1), 41st IDYT 4 (58.6), GW 2017-860 (57.7)	HI 8498 (57.2g)
PZ(≥ 55)	GW 2017-852 (60.2), 41st IDYT 4 (59.4), GW 2017-853 (58.4)	HI 8498 (54.6g)

Value of particular genotype is given in parenthesis

Disease response: Disease response of lines against black rust was also recorded under field condition at Indore and Vijapur. The promising genotypes showing resistances under field condition in these locations are listed in Table 2.

Table 2: Entries showing resistance to Diseases in NDSN

Disease	Entry name
Black rust (Free)	41st IDYT 3, 41st IDYT 10, GW 2017-852, GW 2017-863, GW 2017-865

Utilization report: The feedback reports of NDSN indicate that the nursery is very useful and the wheat researchers across the country are getting desired material and making selections. Dharwad centre utilized the highest number of entries with 51% for yield, spike length, tillers/m and 1000 grains weight. The Vijapur and Junagadh were the other centres with more than 40% utilization as in Table 3. Entry number 49th IDYN 750 was selected by 6 centers, while entry numbers GW 2017-857 and GW 2017-859 were selected by 5 centers.

Table 3: Centre-wise selections from NDSN

Centre	No. of selections	% Utilization	Traits Selected/Utilization
Udaipur	14	25	Hybridization and yield traits
Akola	3	5.5	Yield traits
Junagadh	23	42	Yield traits
Powarkheda	3	5.5	Hybridization
Vijapur	27	49	Selection for further use in hybrdization
Dharwad	28	51	Yield, Spike length, Tillers/m, TGW
Niphad	15	27	Selection for further use in hybridization
Indore	7	13	Hybridization

Quality Component and Wheat Biofortification Nursery

The fifth Quality Component and Wheat Biofortification Nursery (QCWBN) comprising 45 genotypes and seven check varieties (UP2672, MACS6222, HD2967, WB2, HD3086, GW322 and HS490) laid out in augmented block design was conducted at 13 locations. Data was not received from Powarkheda centre.

North Western Plains Zone

HD3304 (79.4q/ha) was the highest yielder and numerically superior to the best zonal check HD3086 (78.6q/ha). HD3304 (79.4q/ha), QLD102 (77.4q/ha), QLD110 (76.4q/ha), SBP-MABB-5 (76.4q/ha), QLD112 (75.4q/ha), QBP-18-8 (75.3q/ha), UP2996 (74.0q/ha), HPW-459 (73.9q/ha), QBP-18-10 (73.7q/ha), BWL-7809 (72.6q/ha), QLD108 (72.2q/ha), QLD107 (71.7q/ha), MP-3532 (71.4q/ha), QBP-18-11 (71.3q/ha), and Raj-4541 (70.4q/ha) formed the first non-significant group.

North Eastern Plains Zone

VA-2016-17 (52.3q/ha), HD3215 (49.6q/ha), SBP-MABB-1 (49.6q/ha), QBP-18-9 (49.2q/ha), SBP-MABB-5 (47.0q/ha), BNSR-2 (46.9q/ha), VA-2016-37 (46.1q/ha), HPW-459 (45.1q/ha), KA-1805 (45.1q/ha) were numerically superior to the best zonal check HD2967 (44.4q/ha). BWL-7809 (43.0q/ha), SBP-MABB-4 (42.7q/ha), BNSR-1 (42.4q/ha), MP-3532 (41.7q/ha), Raj-4541 (41.6q/ha), NIAW-3284 (40.9q/ha), QLD107 (40.5q/ha) along with the numerically superior genotypes formed the first non-significant group.

Central Zone

GW2017-825 (59.1q/ha) was the top yielder followed by MP-3532 (53.2q/ha), QLD110 (52.1q/ha), VA-2016-37 (51.2q/ha), QBP-18-7 (51.0q/ha), SBP-MABB-5 (50.2q/ha), HD3215 (50.1q/ha), DBP-17-02(d) (49.9q/ha), QLD102 (49.7q/ha), QBP-18-9 (49.3q/ha), VA-2016-17 (49.1q/ha), Raj-4541 (48.6q/ha), KA-1805 (48.2q/ha) were significantly superior to the best zonal check GW322 (41.8q/ha).

Peninsular Zone

UP2996 (43.9q/ha), QLD98 (43.2q/ha), Raj-4541 (42.1q/ha), KA-1805 (41.7q/ha), QLD101 (41.7q/ha), GW2017-825 (40.7q/ha), MP-3532 (40.6q/ha), QBP-18-10 (40.2q/ha), QBP-18-9 (39.4q/ha), SBP-MABB-1 (39.4q/ha), DBP-17-02(d) (39.2q/ha), SBP-MABB-4 (38.9q/ha), DR-18-07 (38.4q/ha) were numerically superior to the best zonal check GW322 (38.1q/ha) and formed the first non-significant group.

Grain iron and zinc concentration

BWL-7800 (49.3ppm) contains the highest grain Fe concentration followed by BNSR-1 (47.6ppm), HD3310 (47.1ppm), and UP2994 (47.1ppm) were significantly superior to the best check WB2 (43.9ppm). BWL-7805 (46.7ppm) was the highest grain Zn containing genotype followed by BWL-7800 (46.1ppm), Raj-4541 (45.5ppm), UP2994 (44.4ppm), QLD109 (43.6ppm), GW2014-596 (43.4ppm), GW2017-825 (42.9ppm), HD3310 (42.8ppm) were significantly superior to the best check UP2672 (39.3ppm).

Quality Analysis

Seven genotypes RAJ-4541 (82.5 Kg/hl), QLD109 (80.8 Kg/hl), QBP-18-8 (80.6 Kg/hl), QBP-18-10 (80.4 Kg/hl), KA-1805 (80.4 Kg/hl), UP2994 (80.2 Kg/hl), and VA-2016-37 (79.8 Kg/hl) were superior to the best check MACS6222 (79.7 Kg/hl) for hectoliter weight. GW2017-596 (14.6%), UP2994 (13.8%) were superior over the best check WB2 (13.5%) for grain protein content. HD3304 (75.1ml), HD3241 (74.8ml), HD3215 (73.0ml) were superior to the best check WB2 (72.3ml) for sedimentation value. QLD112 (15.0) was the only soft grain genotype superior to the best soft grain check HS490 (30).

Table 1: Zonal and national yield of quality component and wheat biofortification nursery

SN	Genotype	NWPZ	Rk	G	NEPZ	Rk	G	CZ	Rk	G	PZ	Rk	G	National	Rk	G
1.	DR-16-05	38.6	44	0	27.9	32	0	37.9	27	0	23.5	42	0	32.8	43	0
2.	VA-2016-17	59.8	29	0	52.3	1	1	49.1	11	0	30.3	30	0	50.5	12	1
3.	VA-2016-37	59.8	28	0	46.1	7	1	51.2	4	0	32.9	17	0	49.6	16	1
4.	HD3215	58.1	35	0	49.6	2	1	50.1	7	0	32.8	19	0	49.7	15	1
5.	JWS855	42.7	42	0	26.1	35	0	29.2	42	0	27.6	33	0	33.0	42	0
6.	DBP-17-05(d)	58.2	34	0	12.7	44	0	36.7	31	0	12.9	45	0	33.6	40	0
7.	QLD102	77.4	2	1	37.5	20	0	49.7	9	0	29.0	32	0	52.7	5	1
8.	BNSR-1	68.1	20	0	42.4	12	1	45.3	17	0	32.5	21	0	50.5	11	1
9.	BWL-7809	72.6	10	1	43.0	10	1	45.8	16	0	32.3	23	0	52.3	7	1
10.	BNSR-2	57.2	37	0	46.9	6	1	35.3	34	0	32.8	18	0	46.0	28	0
11.	SBP-MABB-1	57.0	38	0	49.6	3	1	43.2	20	0	39.4	10	1	49.3	19	0
12.	MP-3532	71.4	13	1	41.7	13	1	53.2	2	1	40.6	7	1	54.4	2	1
13.	QBP-18- 8	75.3	6	1	32.1	27	0	47.6	14	0	27.4	36	0	49.8	14	1
14.	Raj- 4541	70.4	15	1	41.6	14	1	48.6	12	0	42.1	3	1	53.5	3	1
15.	BWL-7803	69.4	16	0	38.7	17	0	35.3	33	0	30.8	29	0	47.8	23	0
16.	SBP-MABB-5	76.4	4	1	47.0	5	1	50.2	6	0	31.4	26	0	55.4	1	1
17.	QLD112	75.4	5	1	29.9	31	0	37.0	29	0	32.6	20	0	48.2	22	0
18.	DR-18-07	39.4	43	0	11.8	45	0	25.7	45	0	38.4	13	1	29.2	44	0
19.	HPW-459	73.9	8	1	45.1	8	1	44.3	19	0	22.7	43	0	51.3	10	1
20.	NIAW-3284	54.0	39	0	40.9	15	1	47.5	15	0	34.6	14	0	45.7	29	0
21.	QLD109	60.6	27	0	33.9	24	0	34.8	35	0	31.1	28	0	43.3	34	0
22.	DR-17-10	33.5	45	0	13.9	43	0	31.8	38	0	26.1	38	0	26.5	45	0
23.	GW2017-825	58.6	31	0	36.7	21	0	59.1	1	1	40.7	6	1	49.4	17	0
24.	KA-1805	64.6	24	0	45.1	9	1	48.2	13	0	41.7	4	1	52.1	8	1
25.	HD3310	65.2	22	0	35.9	22	0	41.0	22	0	32.2	24	0	46.8	26	0
26.	UP2996	74.0	7	1	37.9	18	0	40.4	23	0	43.9	1	1	52.6	6	1
27.	SBP- MABB-4	63.7	25	0	42.7	11	1	36.7	30	0	38.9	12	1	48.6	21	0
28.	QLD107	71.7	12	1	40.5	16	1	37.5	28	0	29.8	31	0	49.4	18	0
29.	QBP-18- 9	64.6	23	0	49.2	4	1	49.3	10	0	39.4	9	1	53.0	4	1
30.	DBP-17-02(d)	59.7	30	0	31.6	29	0	49.9	8	0	39.2	11	1	46.5	27	0
31.	QBP-18- 7	58.3	32	0	32.4	26	0	51.0	5	0	27.5	34	0	44.3	33	0
32.	HD3241	68.6	18	0	31.9	28	0	38.8	24	0	34.4	15	0	46.9	24	0
33.	SBP- MABB-6	62.0	26	0	33.6	25	0	29.4	41	0	31.3	27	0	42.7	35	0
34.	QBP-18-10	73.7	9	1	37.7	19	0	38.7	26	0	40.2	8	1	51.4	9	1
35.	QLD101	68.6	17	0	34.9	23	0	38.7	25	0	41.7	5	1	49.1	20	0
36.	QLD98	57.6	36	0	27.7	33	0	44.6	18	0	43.2	2	1	44.5	32	0
37.	QLD111	58.2	33	0	16.5	41	0	28.6	43	0	25.7	39	0	35.5	39	0
38.	HD3304	79.4	1	1	25.6	36	0	33.2	36	0	27.5	35	0	46.9	25	0
39.	BWL - 7805	65.6	21	0	23.9	38	0	31.5	39	0	32.4	22	0	42.0	36	0
40.	GW2014-596	48.7	41	0	23.4	39	0	42.6	21	0	26.6	37	0	36.7	38	0
41.	QLD110	76.4	3	1	24.9	37	0	52.1	3	0	31.8	25	0	49.8	13	1
42.	QLD108	72.2	11	1	26.7	34	0	32.0	37	0	33.1	16	0	45.4	30	0
43.	BWL-7800	68.3	19	0	15.7	42	0	31.1	40	0	25.4	40	0	39.4	37	0
44.	UP2994	50.9	40	0	20.8	40	0	26.9	44	0	24.3	41	0	33.5	41	0
45.	QBP-18-11	71.3	14	1	31.2	30	0	35.8	32	0	22.5	44	0	45.0	31	0
46.	UP2672(C)	53.9			36.0			39.5			32.3			42.5		
47.	MACS6222(C)	67.0			31.1			39.0			33.3			46.3		
48.	HD2967(C)	64.2			44.4			39.8			31.0			48.3		
49.	WB2(C)	71.1			33.3			39.9			30.9			47.8		
50.	HD3086(C)	78.6			34.3			33.9			31.4			49.8		
51.	GW322(C)	58.1			33.1			41.8			38.1			44.7		
52.	HS490(C)	52.9			33.1			33.2			33.7			40.4		
	CD at 10%	9.4			13.5			6.3			9.2			6.0		

Grain yield data from Karnal, Ludhiana, Delhi, Pantnagar, Kanpur, Varanasi, Sabour, Jabalpur, Vijapur, Pune and Dharwad centres.

Hand threshed grain samples from Karnal, Delhi, Ludhiana, Varanasi, Kanpur, and Jabalpur were analysed for grain Fe and Zn concentration through XRF machine

Table 2: Grain iron and zinc data of quality component and wheat biofortification nursery

SN	Genotype	Fe (ppm)			Zn (ppm)		
		National	Rk	G	National	Rk	G
1.	DR-16-05	41.3	32	0	37.7	24	0
2.	VA-2016-17	42.3	24	0	37.9	21	0
3.	VA-2016-37	41.7	28	0	37	31	0
4.	HD3215	43.5	11	0	35.2	39	0
5.	JWS855	43.6	9	0	41.9	9	0
6.	DBP-17-05(d)	41.6	29	0	40.4	11	0
7.	QLD102	41.4	31	0	34.8	40	0
8.	BNSR-1	47.6	2	1	38.2	20	0
9.	BWL-7809	40.9	34	0	37.2	30	0
10.	BNSR-2	42.3	23	0	38.7	18	0
11.	SBP-MABB-1	39.8	39	0	39.4	16	0
12.	MP-3532	37.9	42	0	37.2	29	0
13.	QBP-18- 8	42.9	16	0	38.6	19	0
14.	Raj- 4541	41.8	27	0	45.5	3	1
15.	BWL-7803	44.4	7	0	38.9	17	0
16.	SBP-MABB-5	41.5	30	0	31	45	0
17.	QLD112	40.3	37	0	37.5	27	0
18.	DR-18-07	37.2	44	0	36.4	36	0
19.	HPW-459	40.6	35	0	40.2	13	0
20.	NIAW-3284	43	15	0	36.8	33	0
21.	QLD109	43.6	10	0	43.6	5	0
22.	DR-17-10	36.8	45	0	39.6	15	0
23.	GW2017-825	42.5	20	0	42.9	7	0
24.	KA-1805	40.5	36	0	37.6	26	0
25.	HD3310	47.1	3	1	42.8	8	0
26.	UP2996	43.5	12	0	40.4	12	0
27.	SBP- MABB-4	39.2	40	0	34.2	43	0
28.	QLD107	42.1	26	0	36.8	34	0
29.	QBP-18- 9	43.2	14	0	36.8	32	0
30.	DBP-17-02(d)	38.5	41	0	40.2	14	0
31.	QBP-18- 7	45.1	5	0	37.7	25	0
32.	HD3241	42.6	19	0	37.7	23	0
33.	SBP- MABB-6	37.2	43	0	33.9	44	0
34.	QBP-18-10	42.8	17	0	41	10	0
35.	QLD101	44.0	8	0	37.4	28	0
36.	QLD98	42.4	21	0	34.8	41	0
37.	QLD111	42.1	25	0	36.4	35	0
38.	HD3304	43.3	13	0	37.8	22	0
39.	BWL - 7805	42.4	22	0	46.7	1	1
40.	GW2014-596	42.8	18	0	43.4	6	0
41.	QLD110	41.1	33	0	34.7	42	0
42.	QLD108	44.5	6	0	35.3	38	0
43.	BWL-7800	49.3	1	1	46.1	2	1
44.	UP2994	47.1	4	1	44.4	4	1
45.	QBP-18-11	40.2	38	0	36.1	37	0
46.	UP2672(C)	38.9			39.3		
47.	MACS6222(C)	41.3			35.9		
48.	HD2967(C)	40.4			32.7		
49.	WB2(C)	43.9			37.6		
50.	HD3086(C)	42.4			33.2		
51.	GW322(C)	39.4			36.4		
52.	HS490(C)	39.5			35.4		
	CD at 10%	2.5			2.6		

Evaluation and Utilization of Elite International Germplasm Nurseries

The Elite International Germplasm Nursery (EIGN) was constituted by selecting promising entries from International nurseries and trials of bread wheat evaluated during 2017-18. The EIGN consisted of 108 genotypes and four checks (HD 3086, HD 2967, WR 544 and HI 1544) and shared with 27 centres. These lines were selected based on the superior yield performance and resistant disease reactions during last year's evaluation conducted at various locations. The 108 genotypes were evaluated in augmented design with two rows plot of 2.5m length and spacing 30cm. Data was received from all the centres and pooled data were analysed to find out the promising genotypes for each zone vis-à-vis across the zone.

Grain yield per plot (g): Regarding yield per se, the highest yield per plot (639g) was recorded in entry name 38th ESWYT 149 followed by 38th ESWYT 104(630), 16th HTWYT 2 (594), 16th HTWYT 49 (584), and 38th ESWYT 148 (582). The entry 38th ESWYT 104 performed well in NWPZ, NEPZ and CZ, whereas entry name 38th ESWYT149 performed well in NWPZ, CZ and PZ. Similarly, entry name 38th ESWYT 138 performed well in NWPZ, CZ and NHZ, whereas 25th SAWYT 336 and 25th SAWYT 337 performed well in PZ, CZ and NHZ (Table 1).

Table 1: Promising entries for grain yield (plot yield in g) in various zones and across the zone

Zone	Entry name	Best check
Across the zone (27 locations) (>575g)	38th ESWYT 149 (639), 38th ESWYT 104(630), 16th HTWYT 2 (594), 16th HTWYT 49 (584), 38th ESWYT 148 (582), 25th SAWYT 336 (579), 38th ESWYT 138 (575)	HD 3086 (522)
NWPZ (5 locations) (>760g)	38th ESWYT 104(1062), 38th ESWYT 149 (958), 35th SAWSN 3264(867), 16th HTWYT 49 (839), 25th HRWYT 241 (792), 38th ESWYT 138 (774), 18th DSBWON 196 (764), 50th IBWSN 1269 (761)	HD 3086 (757)
NEPZ (8 locations) (>440 g)	38th ESWYT 104 (540), 16th HTWYT 2 (479), 38th ESWYT 135 (474), 19th KBSN 29 (463), 28th HRWSN 2147 (454), 38th ESWYT 148 (451), 28th HRWSN 2124 (447), 38th ESWYT 114 (441)	HD 3086 (436)
CZ (8 locations) (>660g)	38th ESWYT 149 (725), 16th HTWYT 39 (720), 16th HTWYT 49 (709), 16th HTWYT 22 (708), 25th SAWYT 336 (698), 18th DSBWYT 5 (694), 25th SAWYT 340 (691), 38th ESWYT 104 (687), 38th ESWYT 148 (685), 25th SAWYT 337 (683), 18th HTSBWON 161 (674), 38th ESWYT 138 (668), 25th SAWYT 315 (665), 50th IBWSN 1095 (662), 35th SAWSN 3217 (661)	HI1544 (635)
PZ (4 locations) (>625g)	16th HTWYT 308 (730), 7th SATYN 9416 (697), 25th SAWYT 337 (680), 16th HTWYT 22 (663), 16th HTWYT 27 (661), 19th KBSN 19 (659), 18th HTWSBYT 28 (654), 18th DSBWYT 30 (652), 7th SATYN 9426 (649), 25th SAWYT 319 (636), 7th SATYN 9425 (634), 38th ESWYT 149 (632), 19th KBSN 29 (630), 25th SAWYT 336 (628), 25th SAWYT 324 (625)	HI 1544 (621)
NHZ (2 locations) (>450g)	18th DSBWON 196 (530), 18th HTSBWON 102 (523), 6th HTWYT 2 (490), 16th HTWYT 26 (488), 16th HTWYT 41 (488), 16th HTWYT 50 (488), 25th SAWYT 336 (487), 25th HRWYT 238 (484), 38th ESWYT 138 (479), 9th HLBSN 39 (473), 35th SAWSN 3221 (468), 25th SAWYT 337 (459), 25th HRWYT 241 (458), 25th SAWYT 324 (456), 16th HTWYT 47 (455)	HD 2967 (448)

Value in parenthesis indicate plot yield in gram

Disease resistance: Response of lines against yellow rust (Karnal, Malan, Durgapura, Jammu and Almora), brown rust (Vijapur, Niphad, Pantnagar, Junagadh and Dharwad) and leaf blight (Faizabad, Sabour, Kalyani, Shillongani and Pusa) was also recorded under field conditions. Entry namely 16th HTWYT 49 was found to be the highest yielder across the zones as well as having resistance against yellow rust and brown rusts. Entries namely 38th ESWYT 104, 16th HTWYT 49 and 25th SAWYT 336 were found to be higher yielding and having resistance to brown rust.

16th HTWYT 47 and 16th HTWYT 49 were found to be having resistance against both yellow and brown rusts and 50th IBWSN 1095 was having resistance against brown rust and leaf blight (Table 2).

Table 2: Lines showing resistance to diseases in EIGN

Disease	Entry name
Yellow rust (0,Tr, Tms)	50th IBWSN 1216, 50th IBWSN 1269, 16th HTWYT 47, 16th HTWYT 49, 25th HRWYT 238, 18th ESBWYT 49, 18th HTSBWON 85, 18th HTSBWON 161, 18th DSBWON 50
Brown rust (0, Tr, Tms)	38th ESWYT 104, 50th IBWSN 1095, 16th HTWYT 41, 16th HTWYT 47, 16th HTWYT 49, 16th HTWYT 50, 16th HTWYT 308, 25th SAWYT 336, 35th SAWSN 3255, 28th HRWSN 2120, 28th HRWSN 2124, 28th HRWSN 2144, 28th HRWSN 2147, 28th HRWSN 2851, 28th SRRSN 6023, 28th SRRSN 6069, 9th HLBSN 39, 9th HLBSN 48, 19th KBSN 19, 19th KBSN 37, 18th ESBWYT 26, 18th HTSBWON 83
Leaf blight (≤ 35)	50th IBWSN 1095, 9th HLBSN 22

The entries 35th SAWSN 3258, 50th IBWSN 1283, 28th HRWSN 2124, 16th HTWYT 27, 28th HRWSN 2120 and 38th ESWYT 149 (Table 3) showed comparatively higher thousand grains weight (>45g/1000 grains) as compared to the best check variety HI 1544 (41.2g). Similarly, entry 28th STEMRRSN 6132, 18th DSBWYT 14 and 18th DSBWON 76 were having comparatively short plant height.

Table 3: Trait-wise promising entries from EIGN 2018-19

Entry number	Original entry name	Range	Mean
Plant height (cm)			
59	28th STEMRRSN 6132	59-107.6	85
89	18th DSBWYT 14	60-112	84
106	18th DSBWON 76	63.67-125	85
	HI 1544	55-115	88.5
1000 grains weight (g)			
49	35th SAWSN 3258	33-57	47.18
14	50th IBWSN 1283	34-55	46.24
52	28th HRWSN 2124	29-56	45.69
20	16th HTWYT 27	30-57	45.57
51	28th HRWSN 2120	34-56	45.49
9	38th ESWYT 149	32-54	45.48
	HI 1544 (C)	28-54	41.27

Note: None of the entry was found earlier in heading than check WR 544 (72 days)

The feedback report of EIGN indicates that breeders across the country selected the genotypes from this nursery for various purposes. A total of 384 selections were made by the cooperating centres during 2018-19 (Table 4). The entry 19th KBSN 29 was selected by 8 centres, while entry name 38th ESWYT 129, 16th HTWYT 2, 16th HTWYT 9, 25th SAWYT 324, 25th SAWYT 336 and 9th HLBSN 49 were selected by 7 Centres.

Table 4: Centre-wise selections made from EIGN

Centre	Selections	Traits selected
Faizabad	24	Hybridization, germplasm enrichment
Sabour	21	1000-grains weight, yield attributing traits
Powarkheda	13	Hybridization
Malan	33	Disease resistance and agronomic attributes
Junagarh	22	Earliness, 1000 grains weight, dwarfness
Kalyani	26	Further evaluation
Vijapur	22	Yield traits, hybridization
Bilaspur	33	Further evaluation
Lok Bharti	5	Hybridization
Durgapura	12	Hybridization
Pune	6	Further evaluation
Udaipur	8	Hybridization
Almora	27	Hybridization
Jabalpur	11	Further evaluation
Dharwad	48	Hybridization
Hisar	31	1000 grains weight, earliness, grains per spike
Pantnagar	13	Disease resistance and yield traits
Niphad	29	Further evaluation
Total	384	

Segregating Stock Nursery (SSN)

22nd Segregating Stock Nursery (SSN) is constituted with the objective to share promising segregating material with upcoming wheat breeding centres in AICRP on Wheat and Barley to facilitate them for evaluation and selection of superior material as per the breeding objectives and cultural conditions prevailing under agro-climatic conditions in different zones.

During 2018-19 the 22nd SSN was constituted with 160 segregating populations (F2/F3) that including material from different programmes of IIWBR, Karnal i.e. rice-wheat programme, warmer area programme, leaf blight programme, physiology, durum wheat programme and winter spring programme of VPKAS Almora.

The data of selection of plants in different cross combinations was reported from fourteen centres viz., Malan, Khudwani, Shilongani, Coochbehar, Kalyani, Faizabad, Sabour, Udaipur, Sanosara, Gwalior, Kota, Bilaspur, Akola and Prabhani.

All supplied 160 entries were utilized by one or other centre. The utilization report indicated that the nursery could achieve 33.93% utilization across the centres (Table 2). The maximum utilization percentage of crosses was reported by Sabour (94.37%) followed by Bilaspur (58.13%) and Malan (58.13%).

The data for number of plants selected from SSN lines showed that a total 4676 plants were selected across locations and maximum selection of plants was done by Sabour (1351) followed by Malan (1350), Coochbehar (490), Faizabad (429), Bilaspur (276), Sanosara (272). Crosses contributed by the Rice wheat programme had maximum utilization percent (44.8%) followed by the warmer area programme (40.28%).

Table 1: Utilization pattern of segregating populations in 22nd SSN

Programme	Segregating Populations	Frequency of Utilization	Utilization (%)	Plants Selected
Rice-Wheat	25	157	44.8	971 (20.8%)
Warmer Area	25	141	40.28	815 (17.4%)
Physiology	25	104	29.71	665 (14.2%)
Winter x Spring	55	255	33.11	1646 (35.2%)
Leaf Blight	20	65	23.21	366 (7.83)
Durum Breeding	10	28	20.0	213 (4.5%)
Total	**160**	**750**	**33.4**	**4676**

Table 2: **Centre-Wise Utilization of segregating stocks in 22nd SSN**

SN	Centre	Plants Selected	Crosses Utilized	Utilization (%)	Selection Criteria
NHZ					
1	Malan	1350	93	58.13	Yield components, disease resistance morphological traits and seed traits
2	Khudwani	46	10	6.25	Yield Components and physiological traits
NEPZ					
3	Shilongani	33	14	8.75	Yield Components, maturity, Seed traits
4	Coochbehar	490	120	75.00	Yield components, disease resistance and morphological traits
5	Kalyani	254	43	26.88	Yield components, disease resistance and morphological traits
6	Faizabad	429	42	26.25	Yield components, disease resistance morphological traits and seed traits
7	Sabour	1351	151	94.37	Yield components, disease resistance morphological traits and seed traits
CZ					
8	Udiapur	33	11	6.88	Physiological and seed traits
9	Sanosara	272	87	54.38	Yield components, Physiological and seed traits
10	Gwalior	66	28	17.5	Yield components, disease resistance morphological traits and seed traits
11	Kota	13	12	7.5	Yield components, disease resistance and morphological traits
12	Bilaspur	276	93	58.13	Yield components, morphological traits and seed traits
PZ					
13	Akola	13	6	3.75	Yield Components, maturity, Seed traits
14	Parbhani	50	50	31.25	Yield components, disease resistance morphological traits and seed traits
Total		**4676**		**33.93**	

Variety Wise Seed Production of Wheat Varieties 2018-19.

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
1. DBW 173	2018	37.00	IIWBR Karnal	37.00	335.00	298.00	1.50	16.60	15.10
2. HI 1612	2018	1.00	IARI Pusa	1.00	29.00	28.00	0.50	0.00	-0.50
3. BRW 3708 (Sabour Samriddhi)	2017	50.00	BAU Sabour	50.00	64.23	14.23	2.00	9.25	7.25
4. HI 8759	2017	323.20	BISA Jabalpur	100.00	360.00	260.00	4.00	0.00	-4.00
			IARI Indore	223.20	289.50	66.30	8.00	14.50	6.50
			Total	323.20	649.50	326.30	12.00	14.50	2.50
5. HPBW 01	2017	152.60	PAU Ludhiana	152.60	153.00	0.40	6.00	8.00	2.00
6. K 1317	2017	2.00	CSAUAT Kanpur	2.00	66.57	64.57	0.50	2.00	1.50
7. PBW 723	2017	1569.40	BISA Ludhiana	550.00	105.00	-445.00	22.00	0.00	-22.00
			IIWBR Karnal	0.00	280.00	280.00	0.00	4.80	4.80
			PAU Ludhiana	1019.40	1019.40	0.00	41.00	41.75	0.75
			Total	1569.40	1404.40	-165.00	63.00	46.55	-16.45
8. PBW 761 (Unnat PBW 550)	2017	120.00	PAU Ludhiana	120.00	150.00	30.00	5.00	7.00	2.00
9. WB 2	2017	192.40	IIWBR Karnal	137.40	138.00	0.60	5.50	3.25	-2.25
			BISA Ludhiana	50.00	50.00	0.00	2.00	1.10	-0.90
			SKUA&T Jammu	5.00	5.00	0.00	0.50	0.00	-0.50
			Total	192.40	193.00	0.60	8.00	14.55	6.55
10. AKAW 4210-6 (PDKV Sardar)	2016	2.00	PDKV, Akola	2.00	25.00	23.00	0.50	0.57	0.07
11. GW 451	2016	10.00	SDAU Vijapur	10.00	18.80	8.80	0.50	21.00	20.50
12. HD 3118 (Pusa Vatsala)	2016	2.90	IARI Pusa	2.90	146.88	143.98	0.50	7.14	6.64
13. HDCSW 18	2016	59.00	IARI New Delhi	59.00	59.00	0.00	2.50	5.55	3.05
14. HPW 360	2016	40.00	HPKVV Palampur	40.00	45.00	5.00	1.50	1.60	0.10
15. HS 562	2016	60.00	IARI Karnal/Shimla	60.00	60.00	0.00	2.50	0.30	-2.20
16. NIAW 1994 (Phule Samadhan)	2016	26.00	MPKV Niphad	26.00	436.20	410.20	1.00	11.80	10.80
17. UP 2784	2016	50.00	GBPUAT Pantnagar	50.00	50.00	0.00	2.00	6.00	4.00
18. VL 953	2016	26.00	VPKAS Almora	26.00	27.00	1.00	1.00	3.00	2.00
19. PBW 750	2016	42.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
20. DBW 110	2015	137.00	BISA Jabalpur	137.00	150.00	13.00	5.50	0.60	-4.90
			IIWBR Karnal	0.00	40.00	40.00	0.00	3.50	3.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
			Total	137.00	190.00	53.00	5.50	4.10	-1.40
21. DBW 93	2015	50.00	IIWBR Karnal	50.00	6.00	-44.00	2.00	1.00	-1.00
22. HI 8737 (Pusa Anmol)	2015	356.80	IARI Indore	356.80	360.00	3.20	12.00	27.00	15.00
23. HS 542 (Pusa Kiran)	2015	50.00	IARI Karnal/Shimla	50.00	50.00	0.00	2.00	0.15	-1.85
24. HW 1098 (Nilgiri Khapli)	2015	0.50	IARI Wellington	0.50	20.00	19.50	0.50	2.00	1.50
25. PBW 658	2015	18.20	PAU Ludhiana	18.20	21.00	2.80	1.00	1.00	0.00
26. PBW 677	2015	128.00	PAU Ludhiana	128.00	128.00	0.00	5.00	7.50	2.50
27. PBW 725	2015	746.20	PAU Ludhiana	746.20	748.00	1.80	30.00	30.00	0.00
28. WH 1142	2015	34.80	CCS HAU Hisar	34.80	88.60	53.80	1.50	3.70	2.20
29. DBW 88	2014	60.40	IIWBR Karnal	35.40	44.00	8.60	2.50	2.85	0.35
			SVBPUA&T Meerut	25.00	25.00	0.00	0.00	1.20	1.20
			Total	60.40	69.00	8.60	2.50	4.05	1.55
30. DBW 90	2014	48.60	IIWBR Karnal	18.60	26.00	7.40	2.00	2.00	0.00
			SVBPUA&T Meerut	30.00	34.80	4.80	0.00	0.00	0.00
			Total	48.60	60.80	12.20	2.00	2.00	0.00
31. HD 2967	2014	2972.88	IIWBR Karnal	1064.00	1370.00	306.00	40.00	3.25	-36.75
			BISA Ludhiana	600.00	775.00	175.00	24.00	20.60	-3.40
			IARI Karnal	557.40	560.00	2.60	22.30	13.50	-8.80
			IARI Pusa	250.00	537.08	287.08	10.00	12.40	2.40
			RPCAU, Pusa	150.00	200.00	50.00	6.00	21.55	15.55
			BISA Pusa	184.38	423.00	238.62	11.00	16.20	5.20
			IARI New Delhi	117.10	125.00	7.90	4.50	32.10	27.60
			IISS Mau	50.00	70.00	20.00	2.00	0.00	-2.00
			Total	2972.88	4060.08	1087.20	119.80	119.60	-0.20
32. HD 3086 (Pusa Gautami)	2014	1936.30	IARI Karnal	698.00	710.00	12.00	28.00	13.80	-14.20
			IARI New Delhi	1238.30	1250.00	11.70	50.00	36.50	-13.50
			Total	1936.30	1960.00	23.70	78.00	50.30	-27.70
33. K 0607	2014	20.00	CSAUAT Kanpur	20.00	49.48	29.48	1.00	1.85	0.85
34. K 1006	2014	20.00	CSAUAT Kanpur	20.00	65.87	45.87	1.00	2.28	1.28
35. MACS 6478	2014	12.00	ARI Pune	12.00	60.00	48.00	0.50	4.00	3.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
36. NW 5054	2014	30.00	NDUA&T Faizabad	30.00	55.44	25.44	1.00	1.00	0.00
37. WH 1124	2014	57.50	CCS HAU Hisar	57.50	139.10	81.60	2.50	3.00	0.50
38. DBW 71	2013	20.00	IIWBR Karnal	20.00	28.00	8.00	1.00	1.30	0.30
39. HD 3059 (Pusa Pachhati)	2013	209.40	IARI New Delhi	209.40	78.00	-131.4	8.00	9.70	1.70
40. HI 8713 (Pusa Mangal)	2013	462.20	IARI Indore	430.00	366.00	-64.00	17.00	26.00	9.00
			MAF (AU) Kota	32.20	154.00	121.8	0.00	14.60	14.60
			Total	462.20	520.00	57.80	17.00	40.60	23.60
41. HPW 349	2013	76.00	HPKVV Palampur	46.00	190.00	144.0	2.00	3.95	1.95
			SKUA&T Jammu	30.00	30.00	0.00	1.00	0.00	-1.00
			Total	76.00	220.00	144.00	3.00	3.95	0.95
42. K 0402 (Mahi)	2013	50.00	CSAUAT Kanpur	50.00	75.22	25.22	2.00	2.51	0.51
43. MP(JW) 3336	2013	377.00	JNKVV Jabalpur	377.00	0.00	-377.0	15.00	0.00	-15.00
44. PBW 660	2013	17.00	PAU Ludhiana	17.00	17.00	0.00	0.50	1.50	1.00
45. Raj 4238	2013	955.00	MAF (AU) Kota	405.00	420.00	15.00	16.00	17.20	1.20
			SKNAU, Durgapura	550.00	775.00	225.0	22.00	14.50	-7.50
			Total	955.00	1195.00	240.0	38.00	31.70	-6.30
46. UAS 304	2013	20.60	UAS Dharwad	20.60	25.00	4.40	1.00	1.60	0.60
47. WH 1105	2013	352.60	CCS HAU Hisar	322.60	593.40	270.8	13.00	19.00	6.00
			SKUA&T Jammu	30.00	30.00	0.00	1.00	0.00	-1.00
			Total	352.60	623.40	270.8	14.00	19.00	5.00
48. AKAW 4627	2012	4.00	PDKV, Akola	4.00	100.00	96.00	0.50	0.28	-0.22
49. HD 3043	2012	64.80	IARI New Delhi	64.80	42.00	-22.80	2.50	7.55	5.05
50. KRL 210	2012	28.60	CSSRI Karnal	28.60	30.00	1.40	1.00	2.00	1.00
51. KRL 213	2012	60.00	CSSRI Karnal	60.00	60.00	0.00	2.50	2.50	0.00
52. MP(JW) 3288	2012	250.00	JNKVV Jabalpur	250.00	1398.84	1148.84	10.00	25.37	15.37
53. MP(RVW) 4106	2012	260.00	RVSKVV Gwalior	260.00	859.00	599.0	11.00	0.00	-11.00
54. PBW 644	2012	11.00	PAU Ludhiana	11.00	12.00	1.00	0.50	1.50	1.00
55. UAS 428	2012	8.00	UAS Dharwad	8.00	17.40	9.40	0.50	1.55	1.05
56. DPW 621-50	2011	73.80	GBPUAT Pantnagar	8.80	40.00	31.20	0.00	0.80	0.80
			PAU Ludhiana	65.00	28.00	-37.00	2.50	4.00	1.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
			Total	73.80	68.00	-5.80	2.50	4.80	2.30
57. HD 2985 (Pusa Basant)	2011	133.00	IARI Pusa	50.00	117.62	67.62	2.00	7.99	5.99
58. HD 2987	2011	163.00	IARI Indore	70.00	108.50	38.50	3.00	26.00	23.00
59. HI 1563 (Pusa Prachi)	2011	224.00	IARI Pusa	50.00	124.26	74.26	2.00	8.07	6.07
			RPCAU, Pusa	174.00	182.50	8.50	7.00	7.50	0.50
			Total	224.00	306.76	82.76	9.00	15.57	6.57
60. HS 507 (Pusa Suketi)	2011	30.00	IARI Karnal/Shimla	30.00	30.00	0.00	1.00	0.25	-0.75
61. MP(JW) 1201	2011	250.00	JNKVV Jabalpur	250.00	65.91	-184.09	10.00	4.50	-5.50
62. NIAW 1415 (Netravati)	2011	19.20	MPKV Niphad	19.20	27.70	8.50	1.00	7.20	6.20
63. Raj 4079	2011	321.60	MAF (AU) Kota	101.60	370.50	268.90	4.00	16.75	12.75
			SKNAU, Durgapura	220.00	490.00	270.00	9.00	13.00	4.00
			Total	321.60	860.50	538.90	13.00	29.75	16.75
64. WH 1080	2011	68.00	CCS HAU Hisar	68.00	98.00	30.00	2.50	3.50	1.00
65. DBW 39	2010	120.00	IISS Mau	100.00	57.00	-43.00	4.00	0.00	-4.00
			RPCAU, Pusa	20.00	31.00	11.00	1.00	12.45	11.45
			CSAUAT Kanpur	0.00	43.22	43.22	0.00	0.00	0.00
			Total	120.00	131.22	11.22	5.00	12.45	7.45
66. MACS 6222	2010	80.00	ARI Pune	80.00	150.00	70.00	3.00	5.50	2.50
67. MP(JW) 1202	2010	170.00	JNKVV Jabalpur	170.00	176.71	6.71	7.00	7.25	0.25
68. MP(JW) 3211	2010	160.00	IGKV Raipur	160.00	306.72	146.72	6.50	24.80	18.30
69. MPO(JW) 1215	2010	140.00	JNKVV Jabalpur	140.00	23.37	-116.63	5.50	1.75	-3.75
70. UP 2628	2010	70.00	GBPUAT Pantnagar	70.00	70.00	0.00	3.00	0.90	-2.10
71. VL 907	2010	40.00	VPKAS Almora	40.00	41.00	1.00	1.50	2.20	0.70
72. WH 1025	2010	10.00	CCS HAU Hisar	10.00	15.00	5.00	0.50	2.50	2.00
73. CBW 38	2009	50.40	GBPUAT Pantnagar	30.00	30.00	0.00	0.00	0.80	0.80
			IISS Mau	20.40	25.00	4.60	2.00	0.00	-2.00
			Total	50.40	55.00	4.60	2.00	0.80	-1.20
74. CG 5016 (Ratan)	2009	135.00	IGKV Raipur	135.00	180.30	45.30	5.00	5.80	0.80
75. MP(JW) 1203	2009	70.00	JNKVV Jabalpur	70.00	98.64	28.64	3.00	3.40	0.40
76. MP(JW) 3173	2009	10.00	JNKVV Jabalpur	10.00	48.36	38.36	0.50	3.00	2.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
77. PBW 590	2009	26.00	PAU Ludhiana	26.00	40.00	14.00	1.00	2.00	1.00
78. Raj 4120	2009	64.40	SKNAU, Durgapura	64.40	67.00	2.60	2.50	7.20	4.70
79. HD 2894 (Pusa Wheat 109)	2008	11.20	GBPUAT Pantnagar	11.20	25.00	13.80	0.50	1.20	0.70
80. HD 2932 (Pusa Wheat 111)	2008	70.60	IARI Indore	70.60	207.00	136.40	2.00	23.00	21.00
81. HI 1544 (Purna)	2008	398.80	BISA Jabalpur	100.00	380.00	280.00	4.00	0.00	-4.00
			IARI Indore	298.80	506.50	207.70	12.00	32.00	20.00
			Total	398.80	886.50	487.70	16.00	32.00	16.00
82. HI 8663 (Posan)	2008	112.60	IARI Indore	75.00	202.00	127.00	3.00	24.00	21.00
83. PBW 550	2008	131.50	NDUA&T Faizabad	55.00	59.44	4.44	0.00	1.10	1.10
			PAU Ludhiana	76.50	110.00	33.50	2.50	5.00	2.50
			Total	131.50	169.44	37.94	2.50	6.10	3.60
84. UAS 415	2008	3.20	UAS Dharwad	3.20	13.00	9.80	0.50	1.30	0.80
85. VL 892	2008	4.00	VPKAS Almora	4.00	21.00	17.00	0.50	1.00	0.50
86. WH 1021	2008	10.00	CCS HAU Hisar	5.00	14.50	9.50	0.00	0.80	0.80
			SKUA&T Jammu	5.00	8.00	3.00	0.50	0.00	-0.50
			Total	10.00	22.50	12.50	0.50	0.80	0.30
87. DBW 17	2007	138.98	IIWBR Karnal	39.60	60.00	20.40	1.00	2.20	1.20
			GBPUAT Pantnagar	35.00	35.00	0.00	0.00	0.40	0.40
			NDUA&T Faizabad	34.38	6.86	-27.52	1.50	0.00	-1.50
			SVBPUA&T Meerut	30.00	29.70	-0.30	0.00	0.00	0.00
			Total	138.98	131.56	-7.42	2.50	2.20	-0.30
88. GW 366	2007	445.00	JAU Junagarh	235.00	308.40	73.40	9.00	9.20	0.20
			JNKVV Jabalpur	210.00	339.15	129.15	0.00	18.20	18.20
			Total	445.00	647.55	202.55	9.00	27.40	18.40
89. K 0307 (Shatabdi)	2007	17.34	CSAUAT Kanpur	17.34	53.41	36.07	0.50	1.05	0.55
90. MP(JW) 1142 (Snehil)	2007	20.00	JNKVV Jabalpur	20.00	20.10	0.10	1.00	1.70	0.70
91. UP 2572	2007	7.00	GBPUAT Pantnagar	7.00	25.00	18.00	0.50	1.20	0.70
92. HI 1531 (Harshita)	2006	43.00	IARI Indore	43.00	108.00	65.00	2.00	15.00	13.00
93. NIAW 917 (Tapovan)	2006	3.00	MPKV Niphad	3.00	18.30	15.30	0.50	3.73	3.23
94. PBW 509	2006	2.60	PAU Ludhiana	2.60	8.00	5.40	0.50	1.00	0.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
95. PBW 533	2006	6.00	PAU Ludhiana	6.00	9.00	3.00	0.50	0.50	0.00
96. HD 2851 (Pusa Vishesh)	2005	223.20	IARI Karnal	223.20	240.00	16.80	9.00	13.10	4.10
97. MP(JW) 3020	2005	25.00	JNKVV Jabalpur	25.00	25.20	0.20	1.00	2.00	1.00
98. WR 544 (Pusa Gold)	2005	26.74	RPCAU, Pusa	26.74	0.00	-26.74	1.00	0.00	-1.00
99. Raj 6560	2005	2.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
100. K 9423 (Unnat Halna)	2005	5.20	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
101. PBW 502	2004	145.20	MAF (AU) Kota	85.20	136.00	50.80	0.00	8.20	8.20
			PAU Ludhiana	60.00	88.00	28.00	2.50	3.00	0.50
			Total	145.20	224.00	78.80	2.50	11.20	8.70
102. Raj 4037	2004	180.20	MAF (AU) Kota	30.00	30.00	0.00	0.00	9.36	9.36
			SKNAU, Durgapura	150.20	122.50	-27.70	7.00	5.00	-2.00
			Total	180.20	152.50	-27.70	7.00	14.36	7.36
103. HI 1500 (Amrita)	2003	5.00	IARI Indore	5.00	0.00	-5.00	0.50	0.00	-0.50
104. HI 1479 (Swarna)	2003	5.00	MAF (AU) Kota	0.00	0.00	0.00	0.00	1.20	1.20
105. GW 322	2002	386.60	BISA Jabalpur	286.60	375.00	88.40	11.00	7.90	-3.10
106. NIAW 301 (Trimbak)	2002	4.40	MPKV Niphad	4.40	98.20	93.80	0.50	7.28	6.78
107. WH 711	2002	163.20	CCS HAU Hisar	163.20	264.40	101.20	6.50	9.00	2.50
108. HD 2733 (VSM)	2001	94.00	BISA Pusa	44.00	165.00	121.00	5.50	13.30	8.80
			IARI Pusa	50.00	358.96	308.96	2.00	10.27	8.27
			Total	94.00	523.96	429.96	7.50	23.57	17.07
109. K 7903 (Halana)	2001	27.60	CSAUAT Kanpur	27.60	0.00	-27.60	1.00	0.12	-0.88
110. HI 1418	2000	18.00	IARI Indore	18.00	0.00	-18.00	1.00	0.00	-1.00
111. PBW 443	2000	4.40	PAU Ludhiana	4.40	1.00	-3.40	0.50	0.50	0.00
112. HI 8498 (Malav Shakti)	1999	45.60	IARI Indore	45.60	78.00	32.40	2.00	6.80	4.80
113. HUW 468	1999	12.34	BHU Varanasi	12.34	13.50	1.16	0.50	1.20	0.70
114. UP 2425	1999	8.00	GBPUAT Pantnagar	8.00	8.00	0.00	0.50	1.20	0.70
115. GW 273	1998	87.00	JNKVV Jabalpur	87.00	476.70	389.70	3.50	0.00	-3.50
116. HW 2004 (Amar)	1997	5.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
117. PBW 373	1997	74.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
118. K 9107 (Deva)	1996	20.19	CSAUAT Kanpur	20.19	30.73	10.54	1.00	1.00	0.00

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
119. PBW 343	1996	261.84	CSAUAT Kanpur	12.34	73.35	61.01	0.50	2.00	1.90
			GBPUAT Pantnagar	189.50	250.00	60.50	0.00	0.40	0.40
			PAU Ludhiana	60.00	28.00	-32.00	2.50	2.50	0.00
			Total	261.84	351.35	89.51	3.00	4.90	7.90
120. Raj 3765	1996	131.40	MAF (AU) Kota	29.40	156.00	126.60	1.00	8.80	7.80
			SKNAU, Durgapura	102.00	120.00	18.00	4.00	4.90	0.90
			Total	131.40	276.00	144.60	5.00	13.70	8.70
121. UP 2338	1995	11.60	GBPUAT Pantnagar	11.60	12.00	0.40	0.50	0.90	0.40
122. DWR 162	1993	26.60	UAS Dharwad	26.60	31.00	4.40	1.00	1.50	0.50
123. GW 173	1993	32.80	MAF (AU) Kota	32.80	40.00	7.20	0.00	6.75	6.75
124. WH 542	1992	4.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
125. GW 496	1990	206.00	SDAU Vijapur	206.00	298.00	92.00	8.00	41.55	33.55
126. HDR 77	1990	12.03	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
127. PBW 226	1989	65.00	GBPUAT Pantnagar	65.00	100.00	35.00	2.50	2.20	-0.30
128. Raj 3077	1989	180.80	MAF (AU) Kota	73.80	210.50	136.70	3.00	11.00	8.00
			SKNAU, Durgapura	107.00	115.00	8.00	4.00	4.00	0.00
			Total	180.80	325.50	144.70	7.00	15.00	8.00
129. PBW 154	1988	116.00	GBPUAT Pantnagar	116.00	150.00	34.00	4.50	2.50	-2.00
130. HUW 234	1986	38.54	BHU Varanasi	38.54	44.10	5.56	1.50	2.80	1.30
131. WH 283	1985	26.20	CCS HAU Hisar	26.20	61.00	34.80	1.00	1.50	0.50
132. DL153-2 (Kundan)	1985	2.80	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
133. HD 2285 (Gobind)	1984	4.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
134. HD 2329	1985	24.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
135. Raj 1482	1983	172.60	MAF (AU) Kota	72.60	82.00	9.40	3.00	7.70	4.70
			SKNAU, Durgapura	100.00	100.00	0.00	4.00	2.30	-1.70
			Total	172.60	182.00	9.40	7.00	10.00	3.00
136. HI 617 (Sujata)	1982	60.00	IGKV Raipur	60.00	62.30	2.30	2.50	3.20	0.70
137. Lok 1	1982	600.00	Lokbharti Sanosara	600.00	730.00	130.00	24.00	29.00	5.00
138. HD 2189	1980	78.50	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
139. UP 262	1978	11.30	GBPUAT Pantnagar	11.30	25.00	13.70	0.50	0.90	0.40

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
140. WH 147	1978	97.60	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
141. C 306	1969	65.00	CCS HAU Hisar	20.00	106.80	86.80	1.00	2.50	1.50
			MAF (AU) Kota	45.00	57.00	12.00	2.00	9.30	7.30
			Total	65.00	163.80	98.80	3.00	11.80	8.80
Grand Total		**20321.78**		**19650.85**	**28361.72**	**8710.87**	**766.30**	**1153.67**	**388.77**

Appendix - I

Breeder and Nucleus Seed Production

Variety Wise Seed Production of Wheat Varieties 2018-19.

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
1. DBW 173	2018	37.00	IIWBR Karnal	37.00	335.00	298.00	1.50	16.60	15.10
2. HI 1612	2018	1.00	IARI Pusa	1.00	29.00	28.00	0.50	0.00	-0.50
3. BRW 3708 (Sabour Samriddhi)	2017	50.00	BAU Sabour	50.00	64.23	14.23	2.00	9.25	7.25
4. HI 8759	2017	323.20	BISA Jabalpur	100.00	360.00	260.00	4.00	0.00	-4.00
			IARI Indore	223.20	289.50	66.30	8.00	14.50	6.50
			Total	323.20	649.50	326.30	12.00	14.50	2.50
5. HPBW 01	2017	152.60	PAU Ludhiana	152.60	153.00	0.40	6.00	8.00	2.00
6. K 1317	2017	2.00	CSAUAT Kanpur	2.00	66.57	64.57	0.50	2.00	1.50
7. PBW 723	2017	1569.40	BISA Ludhiana	550.00	105.00	-445.00	22.00	0.00	-22.00
			IIWBR Karnal	0.00	280.00	280.00	0.00	4.80	4.80
			PAU Ludhiana	1019.40	1019.40	0.00	41.00	41.75	0.75
			Total	1569.40	1404.40	-165.00	63.00	46.55	-16.45
8. PBW 761 (Unnat PBW 550)	2017	120.00	PAU Ludhiana	120.00	150.00	30.00	5.00	7.00	2.00
9. WB 2	2017	192.40	IIWBR Karnal	137.40	138.00	0.60	5.50	3.25	-2.25
			BISA Ludhiana	50.00	50.00	0.00	2.00	1.10	-0.90
			SKUA&T Jammu	5.00	5.00	0.00	0.50	0.00	-0.50
			Total	192.40	193.00	0.60	8.00	14.55	6.55
10. AKAW 4210-6 (PDKV Sardar)	2016	2.00	PDKV, Akola	2.00	25.00	23.00	0.50	0.57	0.07
11. GW 451	2016	10.00	SDAU Vijapur	10.00	18.80	8.80	0.50	21.00	20.50
12. HD 3118 (Pusa Vatsala)	2016	2.90	IARI Pusa	2.90	146.88	143.98	0.50	7.14	6.64
13. HDCSW 18	2016	59.00	IARI New Delhi	59.00	59.00	0.00	2.50	5.55	3.05
14. HPW 360	2016	40.00	HPKVV Palampur	40.00	45.00	5.00	1.50	1.60	0.10
15. HS 562	2016	60.00	IARI Karnal/Shimla	60.00	60.00	0.00	2.50	0.30	-2.20
16. NIAW 1994 (Phule Samadhan)	2016	26.00	MPKV Niphad	26.00	436.20	410.20	1.00	11.80	10.80
17. UP 2784	2016	50.00	GBPUAT Pantnagar	50.00	50.00	0.00	2.00	6.00	4.00
18. VL 953	2016	26.00	VPKAS Almora	26.00	27.00	1.00	1.00	3.00	2.00
19. PBW 750	2016	42.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
20. DBW 110	2015	137.00	BISA Jabalpur	137.00	150.00	13.00	5.50	0.60	-4.90
			IIWBR Karnal	0.00	40.00	40.00	0.00	3.50	3.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
			Total	137.00	190.00	53.00	5.50	4.10	-1.40
21. DBW 93	2015	50.00	IIWBR Karnal	50.00	6.00	-44.00	2.00	1.00	-1.00
22. HI 8737 (Pusa Anmol)	2015	356.80	IARI Indore	356.80	360.00	3.20	12.00	27.00	15.00
23. HS 542 (Pusa Kiran)	2015	50.00	IARI Karnal/Shimla	50.00	50.00	0.00	2.00	0.15	-1.85
24. HW 1098 (Nilgiri Khapli)	2015	0.50	IARI Wellington	0.50	20.00	19.50	0.50	2.00	1.50
25. PBW 658	2015	18.20	PAU Ludhiana	18.20	21.00	2.80	1.00	1.00	0.00
26. PBW 677	2015	128.00	PAU Ludhiana	128.00	128.00	0.00	5.00	7.50	2.50
27. PBW 725	2015	746.20	PAU Ludhiana	746.20	748.00	1.80	30.00	30.00	0.00
28. WH 1142	2015	34.80	CCS HAU Hisar	34.80	88.60	53.80	1.50	3.70	2.20
29. DBW 88	2014	60.40	IIWBR Karnal	35.40	44.00	8.60	2.50	2.85	0.35
			SVBPUA&T Meerut	25.00	25.00	0.00	0.00	1.20	1.20
			Total	60.40	69.00	8.60	2.50	4.05	1.55
30. DBW 90	2014	48.60	IIWBR Karnal	18.60	26.00	7.40	2.00	2.00	0.00
			SVBPUA&T Meerut	30.00	34.80	4.80	0.00	0.00	0.00
			Total	48.60	60.80	12.20	2.00	2.00	0.00
31. HD 2967	2014	2972.88	IIWBR Karnal	1064.00	1370.00	306.00	40.00	3.25	-36.75
			BISA Ludhiana	600.00	775.00	175.00	24.00	20.60	-3.40
			IARI Karnal	557.40	560.00	2.60	22.30	13.50	-8.80
			IARI Pusa	250.00	537.08	287.08	10.00	12.40	2.40
			RPCAU, Pusa	150.00	200.00	50.00	6.00	21.55	15.55
			BISA Pusa	184.38	423.00	238.62	11.00	16.20	5.20
			IARI New Delhi	117.10	125.00	7.90	4.50	32.10	27.60
			IISS Mau	50.00	70.00	20.00	2.00	0.00	-2.00
			Total	2972.88	4060.08	1087.20	119.80	119.60	-0.20
32. HD 3086 (Pusa Gautami)	2014	1936.30	IARI Karnal	698.00	710.00	12.00	28.00	13.80	-14.20
			IARI New Delhi	1238.30	1250.00	11.70	50.00	36.50	-13.50
			Total	1936.30	1960.00	23.70	78.00	50.30	-27.70
33. K 0607	2014	20.00	CSAUAT Kanpur	20.00	49.48	29.48	1.00	1.85	0.85
34. K 1006	2014	20.00	CSAUAT Kanpur	20.00	65.87	45.87	1.00	2.28	1.28
35. MACS 6478	2014	12.00	ARI Pune	12.00	60.00	48.00	0.50	4.00	3.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
36. NW 5054	2014	30.00	NDUA&T Faizabad	30.00	55.44	25.44	1.00	1.00	0.00
37. WH 1124	2014	57.50	CCS HAU Hisar	57.50	139.10	81.60	2.50	3.00	0.50
38. DBW 71	2013	20.00	IIWBR Karnal	20.00	28.00	8.00	1.00	1.30	0.30
39. HD 3059 (Pusa Pachhati)	2013	209.40	IARI New Delhi	209.40	78.00	-131.4	8.00	9.70	1.70
40. HI 8713 (Pusa Mangal)	2013	462.20	IARI Indore	430.00	366.00	-64.00	17.00	26.00	9.00
			MAF (AU) Kota	32.20	154.00	121.8	0.00	14.60	14.60
			Total	462.20	520.00	57.80	17.00	40.60	23.60
41. HPW 349	2013	76.00	HPKVV Palampur	46.00	190.00	144.0	2.00	3.95	1.95
			SKUA&T Jammu	30.00	30.00	0.00	1.00	0.00	-1.00
			Total	76.00	220.00	144.00	3.00	3.95	0.95
42. K 0402 (Mahi)	2013	50.00	CSAUAT Kanpur	50.00	75.22	25.22	2.00	2.51	0.51
43. MP(JW) 3336	2013	377.00	JNKVV Jabalpur	377.00	0.00	-377.0	15.00	0.00	-15.00
44. PBW 660	2013	17.00	PAU Ludhiana	17.00	17.00	0.00	0.50	1.50	1.00
45. Raj 4238	2013	955.00	MAF (AU) Kota	405.00	420.00	15.00	16.00	17.20	1.20
			SKNAU, Durgapura	550.00	775.00	225.0	22.00	14.50	-7.50
			Total	955.00	1195.00	240.0	38.00	31.70	-6.30
46. UAS 304	2013	20.60	UAS Dharwad	20.60	25.00	4.40	1.00	1.60	0.60
47. WH 1105	2013	352.60	CCS HAU Hisar	322.60	593.40	270.8	13.00	19.00	6.00
			SKUA&T Jammu	30.00	30.00	0.00	1.00	0.00	-1.00
			Total	352.60	623.40	270.8	14.00	19.00	5.00
48. AKAW 4627	2012	4.00	PDKV, Akola	4.00	100.00	96.00	0.50	0.28	-0.22
49. HD 3043	2012	64.80	IARI New Delhi	64.80	42.00	-22.80	2.50	7.55	5.05
50. KRL 210	2012	28.60	CSSRI Karnal	28.60	30.00	1.40	1.00	2.00	1.00
51. KRL 213	2012	60.00	CSSRI Karnal	60.00	60.00	0.00	2.50	2.50	0.00
52. MP(JW) 3288	2012	250.00	JNKVV Jabalpur	250.00	1398.84	1148.84	10.00	25.37	15.37
53. MP(RVW) 4106	2012	260.00	RVSKVV Gwalior	260.00	859.00	599.0	11.00	0.00	-11.00
54. PBW 644	2012	11.00	PAU Ludhiana	11.00	12.00	1.00	0.50	1.50	1.00
55. UAS 428	2012	8.00	UAS Dharwad	8.00	17.40	9.40	0.50	1.55	1.05
56. DPW 621-50	2011	73.80	GBPUAT Pantnagar	8.80	40.00	31.20	0.00	0.80	0.80
			PAU Ludhiana	65.00	28.00	-37.00	2.50	4.00	1.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
			Total	73.80	68.00	-5.80	2.50	4.80	2.30
57. HD 2985 (Pusa Basant)	2011	133.00	IARI Pusa	50.00	117.62	67.62	2.00	7.99	5.99
58. HD 2987	2011	163.00	IARI Indore	70.00	108.50	38.50	3.00	26.00	23.00
59. HI 1563 (Pusa Prachi)	2011	224.00	IARI Pusa	50.00	124.26	74.26	2.00	8.07	6.07
			RPCAU, Pusa	174.00	182.50	8.50	7.00	7.50	0.50
			Total	224.00	306.76	82.76	9.00	15.57	6.57
60. HS 507 (Pusa Suketi)	2011	30.00	IARI Karnal/Shimla	30.00	30.00	0.00	1.00	0.25	-0.75
61. MP(JW) 1201	2011	250.00	JNKVV Jabalpur	250.00	65.91	-184.09	10.00	4.50	-5.50
62. NIAW 1415 (Netravati)	2011	19.20	MPKV Niphad	19.20	27.70	8.50	1.00	7.20	6.20
63. Raj 4079	2011	321.60	MAF (AU) Kota	101.60	370.50	268.90	4.00	16.75	12.75
			SKNAU, Durgapura	220.00	490.00	270.00	9.00	13.00	4.00
			Total	321.60	860.50	538.90	13.00	29.75	16.75
64. WH 1080	2011	68.00	CCS HAU Hisar	68.00	98.00	30.00	2.50	3.50	1.00
65. DBW 39	2010	120.00	IISS Mau	100.00	57.00	-43.00	4.00	0.00	-4.00
			RPCAU, Pusa	20.00	31.00	11.00	1.00	12.45	11.45
			CSAUAT Kanpur	0.00	43.22	43.22	0.00	0.00	0.00
			Total	120.00	131.22	11.22	5.00	12.45	7.45
66. MACS 6222	2010	80.00	ARI Pune	80.00	150.00	70.00	3.00	5.50	2.50
67. MP(JW) 1202	2010	170.00	JNKVV Jabalpur	170.00	176.71	6.71	7.00	7.25	0.25
68. MP(JW) 3211	2010	160.00	IGKV Raipur	160.00	306.72	146.72	6.50	24.80	18.30
69. MPO(JW) 1215	2010	140.00	JNKVV Jabalpur	140.00	23.37	-116.63	5.50	1.75	-3.75
70. UP 2628	2010	70.00	GBPUAT Pantnagar	70.00	70.00	0.00	3.00	0.90	-2.10
71. VL 907	2010	40.00	VPKAS Almora	40.00	41.00	1.00	1.50	2.20	0.70
72. WH 1025	2010	10.00	CCS HAU Hisar	10.00	15.00	5.00	0.50	2.50	2.00
73. CBW 38	2009	50.40	GBPUAT Pantnagar	30.00	30.00	0.00	0.00	0.80	0.80
			IISS Mau	20.40	25.00	4.60	2.00	0.00	-2.00
			Total	50.40	55.00	4.60	2.00	0.80	-1.20
74. CG 5016 (Ratan)	2009	135.00	IGKV Raipur	135.00	180.30	45.30	5.00	5.80	0.80
75. MP(JW) 1203	2009	70.00	JNKVV Jabalpur	70.00	98.64	28.64	3.00	3.40	0.40
76. MP(JW) 3173	2009	10.00	JNKVV Jabalpur	10.00	48.36	38.36	0.50	3.00	2.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
77. PBW 590	2009	26.00	PAU Ludhiana	26.00	40.00	14.00	1.00	2.00	1.00
78. Raj 4120	2009	64.40	SKNAU, Durgapura	64.40	67.00	2.60	2.50	7.20	4.70
79. HD 2894 (Pusa Wheat 109)	2008	11.20	GBPUAT Pantnagar	11.20	25.00	13.80	0.50	1.20	0.70
80. HD 2932 (Pusa Wheat 111)	2008	70.60	IARI Indore	70.60	207.00	136.40	2.00	23.00	21.00
81. HI 1544 (Purna)	2008	398.80	BISA Jabalpur	100.00	380.00	280.00	4.00	0.00	-4.00
			IARI Indore	298.80	506.50	207.70	12.00	32.00	20.00
			Total	398.80	886.50	487.70	16.00	32.00	16.00
82. HI 8663 (Posan)	2008	112.60	IARI Indore	75.00	202.00	127.00	3.00	24.00	21.00
83. PBW 550	2008	131.50	NDUA&T Faizabad	55.00	59.44	4.44	0.00	1.10	1.10
			PAU Ludhiana	76.50	110.00	33.50	2.50	5.00	2.50
			Total	131.50	169.44	37.94	2.50	6.10	3.60
84. UAS 415	2008	3.20	UAS Dharwad	3.20	13.00	9.80	0.50	1.30	0.80
85. VL 892	2008	4.00	VPKAS Almora	4.00	21.00	17.00	0.50	1.00	0.50
86. WH 1021	2008	10.00	CCS HAU Hisar	5.00	14.50	9.50	0.00	0.80	0.80
			SKUA&T Jammu	5.00	8.00	3.00	0.50	0.00	-0.50
			Total	10.00	22.50	12.50	0.50	0.80	0.30
87. DBW 17	2007	138.98	IIWBR Karnal	39.60	60.00	20.40	1.00	2.20	1.20
			GBPUAT Pantnagar	35.00	35.00	0.00	0.00	0.40	0.40
			NDUA&T Faizabad	34.38	6.86	-27.52	1.50	0.00	-1.50
			SVBPUA&T Meerut	30.00	29.70	-0.30	0.00	0.00	0.00
			Total	138.98	131.56	-7.42	2.50	2.20	-0.30
88. GW 366	2007	445.00	JAU Junagarh	235.00	308.40	73.40	9.00	9.20	0.20
			JNKVV Jabalpur	210.00	339.15	129.15	0.00	18.20	18.20
			Total	445.00	647.55	202.55	9.00	27.40	18.40
89. K 0307 (Shatabdi)	2007	17.34	CSAUAT Kanpur	17.34	53.41	36.07	0.50	1.05	0.55
90. MP(JW) 1142 (Snehil)	2007	20.00	JNKVV Jabalpur	20.00	20.10	0.10	1.00	1.70	0.70
91. UP 2572	2007	7.00	GBPUAT Pantnagar	7.00	25.00	18.00	0.50	1.20	0.70
92. HI 1531 (Harshita)	2006	43.00	IARI Indore	43.00	108.00	65.00	2.00	15.00	13.00
93. NIAW 917 (Tapovan)	2006	3.00	MPKV Niphad	3.00	18.30	15.30	0.50	3.73	3.23
94. PBW 509	2006	2.60	PAU Ludhiana	2.60	8.00	5.40	0.50	1.00	0.50

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
95. PBW 533	2006	6.00	PAU Ludhiana	6.00	9.00	3.00	0.50	0.50	0.00
96. HD 2851 (Pusa Vishesh)	2005	223.20	IARI Karnal	223.20	240.00	16.80	9.00	13.10	4.10
97. MP(JW) 3020	2005	25.00	JNKVV Jabalpur	25.00	25.20	0.20	1.00	2.00	1.00
98. WR 544 (Pusa Gold)	2005	26.74	RPCAU, Pusa	26.74	0.00	-26.74	1.00	0.00	-1.00
99. Raj 6560	2005	2.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
100. K 9423 (Unnat Halna)	2005	5.20	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
101. PBW 502	2004	145.20	MAF (AU) Kota	85.20	136.00	50.80	0.00	8.20	8.20
			PAU Ludhiana	60.00	88.00	28.00	2.50	3.00	0.50
			Total	145.20	224.00	78.80	2.50	11.20	8.70
102. Raj 4037	2004	180.20	MAF (AU) Kota	30.00	30.00	0.00	0.00	9.36	9.36
			SKNAU, Durgapura	150.20	122.50	-27.70	7.00	5.00	-2.00
			Total	180.20	152.50	-27.70	7.00	14.36	7.36
103. HI 1500 (Amrita)	2003	5.00	IARI Indore	5.00	0.00	-5.00	0.50	0.00	-0.50
104. HI 1479 (Swarna)	2003	5.00	MAF (AU) Kota	0.00	0.00	0.00	0.00	1.20	1.20
105. GW 322	2002	386.60	BISA Jabalpur	286.60	375.00	88.40	11.00	7.90	-3.10
106. NIAW 301 (Trimbak)	2002	4.40	MPKV Niphad	4.40	98.20	93.80	0.50	7.28	6.78
107. WH 711	2002	163.20	CCS HAU Hisar	163.20	264.40	101.20	6.50	9.00	2.50
108. HD 2733 (VSM)	2001	94.00	BISA Pusa	44.00	165.00	121.00	5.50	13.30	8.80
			IARI Pusa	50.00	358.96	308.96	2.00	10.27	8.27
			Total	94.00	523.96	429.96	7.50	23.57	17.07
109. K 7903 (Halana)	2001	27.60	CSAUAT Kanpur	27.60	0.00	-27.60	1.00	0.12	-0.88
110. HI 1418	2000	18.00	IARI Indore	18.00	0.00	-18.00	1.00	0.00	-1.00
111. PBW 443	2000	4.40	PAU Ludhiana	4.40	1.00	-3.40	0.50	0.50	0.00
112. HI 8498 (Malav Shakti)	1999	45.60	IARI Indore	45.60	78.00	32.40	2.00	6.80	4.80
113. HUW 468	1999	12.34	BHU Varanasi	12.34	13.50	1.16	0.50	1.20	0.70
114. UP 2425	1999	8.00	GBPUAT Pantnagar	8.00	8.00	0.00	0.50	1.20	0.70
115. GW 273	1998	87.00	JNKVV Jabalpur	87.00	476.70	389.70	3.50	0.00	-3.50
116. HW 2004 (Amar)	1997	5.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
117. PBW 373	1997	74.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
118. K 9107 (Deva)	1996	20.19	CSAUAT Kanpur	20.19	30.73	10.54	1.00	1.00	0.00

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
119. PBW 343	1996	261.84	CSAUAT Kanpur	12.34	73.35	61.01	0.50	2.00	1.90
			GBPUAT Pantnagar	189.50	250.00	60.50	0.00	0.40	0.40
			PAU Ludhiana	60.00	28.00	-32.00	2.50	2.50	0.00
			Total	261.84	351.35	89.51	3.00	4.90	7.90
120. Raj 3765	1996	131.40	MAF (AU) Kota	29.40	156.00	126.60	1.00	8.80	7.80
			SKNAU, Durgapura	102.00	120.00	18.00	4.00	4.90	0.90
			Total	131.40	276.00	144.60	5.00	13.70	8.70
121. UP 2338	1995	11.60	GBPUAT Pantnagar	11.60	12.00	0.40	0.50	0.90	0.40
122. DWR 162	1993	26.60	UAS Dharwad	26.60	31.00	4.40	1.00	1.50	0.50
123. GW 173	1993	32.80	MAF (AU) Kota	32.80	40.00	7.20	0.00	6.75	6.75
124. WH 542	1992	4.00	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
125. GW 496	1990	206.00	SDAU Vijapur	206.00	298.00	92.00	8.00	41.55	33.55
126. HDR 77	1990	12.03	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
127. PBW 226	1989	65.00	GBPUAT Pantnagar	65.00	100.00	35.00	2.50	2.20	-0.30
128. Raj 3077	1989	180.80	MAF (AU) Kota	73.80	210.50	136.70	3.00	11.00	8.00
			SKNAU, Durgapura	107.00	115.00	8.00	4.00	4.00	0.00
			Total	180.80	325.50	144.70	7.00	15.00	8.00
129. PBW 154	1988	116.00	GBPUAT Pantnagar	116.00	150.00	34.00	4.50	2.50	-2.00
130. HUW 234	1986	38.54	BHU Varanasi	38.54	44.10	5.56	1.50	2.80	1.30
131. WH 283	1985	26.20	CCS HAU Hisar	26.20	61.00	34.80	1.00	1.50	0.50
132. DL153-2 (Kundan)	1985	2.80	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
133. HD 2285 (Gobind)	1984	4.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
134. HD 2329	1985	24.40	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
135. Raj 1482	1983	172.60	MAF (AU) Kota	72.60	82.00	9.40	3.00	7.70	4.70
			SKNAU, Durgapura	100.00	100.00	0.00	4.00	2.30	-1.70
			Total	172.60	182.00	9.40	7.00	10.00	3.00
136. HI 617 (Sujata)	1982	60.00	IGKV Raipur	60.00	62.30	2.30	2.50	3.20	0.70
137. Lok 1	1982	600.00	Lokbharti Sanosara	600.00	730.00	130.00	24.00	29.00	5.00
138. HD 2189	1980	78.50	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
139. UP 262	1978	11.30	GBPUAT Pantnagar	11.30	25.00	13.70	0.50	0.90	0.40

Variety	Year of release	DAC Indent	Centre	Breeder seed			Nucleus seed		
				Allocation	Production	Surplus /deficit	Allocation	Production	Surplus /deficit
140. WH 147	1978	97.60	Not Allocated	0.00	0.00	0.00	0.00	0.00	0.00
141. C 306	1969	65.00	CCS HAU Hisar	20.00	106.80	86.80	1.00	2.50	1.50
			MAF (AU) Kota	45.00	57.00	12.00	2.00	9.30	7.30
			Total	65.00	163.80	98.80	3.00	11.80	8.80
Grand Total		**20321.78**		**19650.85**	**28361.72**	**8710.87**	**766.30**	**1153.67**	**388.77**

Appendix - II

Trials not reported

1802-NIVT-1B-IR-TS-TAS-NAT-ZONE,2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NEPZ		
			W.B.		
			Shillongani		
			Yield	RK	G
1	HD 3326	N-202	51.7	6	1
2	HUW 834	N-203	28.8	30	0
3	K 1803	N-204	30.7	24	0
4	DBW 286	N-205	23.5	36	0
5	DBW 287	N-206	25.6	35	0
6	UP 3029	N-207	39.7	15	0
7	Raj 4540	N-208	52.9	4	1
8	NW 7064	N-210	46.8	10	1
9	UP 3031	N-211	50.2	7	1
10	PBW 807	N-212	27.6	32	0
11	BRW 3829	N-213	39.1	17	0
12	NWS 2106	N-214	29.8	25	0
13	WH 1259	N-215	44.9	12	1
14	HUW 835	N-216	29.8	27	0
15	Raj 4541	N-217	39.0	18	0
16	PBW 808	N-218	42.0	13	0
17	DBW 305	N-219	25.9	34	0
18	HD 3327	N-220	46.1	11	1
19	BRW 3838	N-221	29.4	28	0
20	HD 3328	N-222	32.1	22	0
21	NW 7057	N-223	58.7	2	1
22	DBW 288	N-224	38.4	19	0
23	NW 7075	N-226	28.5	31	0
24	K 1804	N-228	47.7	9	1
25	WH 1260	N-229	28.9	29	0
26	HD 3325	N-230	55.5	3	1
27	UP 3030	N-231	26.0	33	0
28	DBW 285	N-232	32.7	21	0
29	K 1805	N-233	40.1	14	0
30	HD 3324	N-234	31.0	23	0
31	KRL 429	N-235	39.7	16	0
32	KRL 423	N-236	51.9	5	1
33	HD 2967 (C)	N-201	34.4	20	0
34	DBW 88 (C)	N-209	29.8	25	0
35	HD 3086 (C)	N-225	61.7	1	1
36	K 1006 (C)	N-227	49.3	8	1
G.M.			38.6		
S.E.(M)			8.170		
C.D. (10%)			19.5		
C.V.			29.9		
D.O.S.(dd.mm.yy)			24.11.18		

1803-NIVT-2-IR-TS-TAS-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	PZ		
			Maharashtra		
			Parbhani		
			Yield	RK	G
1	MP 3522	N-301	23.1	36	0
2	NIAW 3592	N-302	39.2	23	0
3	DBW 289	N-303	56.2	1	1
4	NIAW 3584	N-304	39.7	22	0
5	WH 1262	N-305	40.9	18	1
6	HI 1636	N-306	41.6	17	1
7	HI 1637	N-307	35.4	29	0
8	HI 1638	N-308	32.9	30	0
9	TAW 155	N-309	30.5	32	0
10	HI 1640	N-310	45.8	11	1
11	HI 1639	N-311	39.7	21	0
12	HW 1904	N-312	46.7	9	1
13	MP 3521	N-313	51.0	4	1
14	RVW 4265	N-314	25.7	35	0
15	MP 1359	N-315	38.2	28	0
16	MP 1361	N-316	42.6	14	1
17	UAS 3006	N-318	49.7	7	1
18	MP 1360	N-319	45.6	12	1
19	MACS 6742	N-320	50.5	5	1
20	MACS 6745	N-321	28.1	34	0
21	NW S2118	N-322	38.4	26	0
22	CG 1031	N-323	38.8	24	0
23	RVW 4266	N-324	45.0	13	1
24	TAW 153	N-325	54.9	2	1
25	PBW 810	N-326	41.9	15	1
26	UP 3032	N-327	41.7	16	1
27	Raj 4542	N-328	28.5	33	0
28	UAS 3005	N-329	52.8	3	1
29	NW S2108	N-330	38.5	25	0
30	GW 513	N-331	50.4	6	1
31	GW 514	N-332	46.4	10	1
32	MAC S6747	N-333	40.1	19	0
33	GW 322 (C)	N-317	39.8	20	0
34	MACS 6222 (C)	N-334	31.7	31	0
35	MACS 6478 (C)	N-335	48.5	8	1
36	HI 1544 (C)	N-336	38.3	27	0
G.M.			41.1		
S.E.(M)			6.601		
C.D. (10%)			15.8		
C.V.			22.7		
D.O.S.(dd.mm.yy)			10.11.18		

1804-NIVT-3A-IR-LS-TAS-NAT-ZONE,2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	NEPZ		
			Bihar		
			RPCAU-Pusa		
			Yield	RK	G
1	UP 3033	N-401	26.6	20	0
2	WH 1264	N-402	28.9	14	0
3	PBW 811	N-403	24.9	23	0
4	UP 3035	N-404	24.3	24	0
5	WH 1263	N-405	26.0	22	0
6	PBW 814	N-406	30.7	8	0
7	JKW 267	N-407	21.4	31	0
8	HD 3329	N-409	30.7	8	0
9	HD 3330	N-410	28.9	14	0
10	JAUW 673	N-411	22.0	30	0
11	HD 3334	N-413	28.4	17	0
12	Raj 4544	N-414	30.1	11	0
13	DBW 292	N-415	31.3	7	0
14	K 1808	N-416	23.7	26	0
15	UP 3034	N-417	21.4	31	0
16	JKW 261	N-418	18.5	36	0
17	WH 1266	N-419	21.4	31	0
18	DBW 291	N-420	35.9	5	0
19	JKW 268	N-422	19.1	35	0
20	DBW 294	N-423	30.1	11	0
21	HD 3332	N-424	26.6	20	0
22	NW 7062	N-425	23.7	26	0
23	HD 3333	N-426	28.4	17	0
24	DBW 290	N-427	36.5	3	0
25	WH 1265	N-428	27.8	19	0
26	PBW 812	N-429	33.0	6	0
27	PBW 813	N-430	48.0	1	1
28	DBW 293	N-431	23.7	26	0
29	HD 3331	N-432	36.5	3	0
30	NW 7053	N-433	19.7	34	0
31	Raj 4543	N-435	29.5	13	0
32	K 1807	N-436	37.6	2	0
33	DBW 173(C)	N-408	28.9	14	0
34	HD 3059 (C)	N-412	24.3	24	0
35	DBW 107(C)	N-421	30.7	10	0
36	HI 1563 (C)	N-434	23.1	29	0
G.M.			27.8		
S.E.(M)			1.795		
C.D. (10%)			4.3		
C.V.			9.1		
D.O.S.(dd.mm.yy)			20.12.18		

1808-NIVT-5B-RI-TS-TDM-NAT-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	CZ					
			Gujarat					
			Junagarh			Arnej		
			Yield	RK	G	Yield	RK	G
1	MACS 6736	N-801	24.2	4	1	18.7	7	1
2	MACS 4087(d)	N-802	18.7	15	0	17.8	10	1
3	MPO 1357(d)	N-803	17.2	19	0	12.5	17	0
4	GW 520	N-804	19.0	14	0	10.5	21	0
5	GW 1353(d)	N-805	21.3	11	0	17.9	9	1
6	UAS 472(d)	N-806	11.9	25	0	10.7	20	0
7	HI 1645	N-809	22.6	9	1	12.1	18	0
8	UAS 3009	N-811	15.9	20	0	14.5	15	0
9	UAS 3010	N-812	23.4	5	1	18.3	8	1
10	CG 1033	N-814	21.9	10	0	19.4	5	1
11	HI 1643	N-815	26.1	2	1	19.0	6	1
12	HI 1644	N-816	25.6	3	1	16.2	13	0
13	NIAW 3643	N-817	22.8	8	1	20.6	2	1
14	NIAW 3624	N-818	20.4	13	0	16.7	11	0
15	HI 8823(d)	N-819	15.9	21	0	14.2	16	0
16	HI 8824(d)	N-820	12.8	24	0	11.7	19	0
17	DBW 300	N-821	23.1	6	1	8.9	23	0
18	DDW 52(d)	N-822	14.0	22	0	7.0	24	0
19	MP 3512	N-823	26.4	1	1	15.9	14	0
20	MP 1356	N-824	18.1	16	0	21.6	1	1
21	MP 1358	N-825	23.1	7	1	19.5	4	1
22	HI 1605 (C)	N-807	20.9	12	0	19.9	3	1
23	HI 8627(d) (C)	N-808	13.0	23	0	8.9	22	0
24	UAS 446(d) (C)	N-810	17.4	18	0	4.4	25	0
25	DBW 110 (C)	N-813	17.5	17	0	16.3	12	0
G.M.			19.7			14.9		
S.E.(M)			1.574			1.683		
C.D. (10%)			3.9			4.2		
C.V.			11.3			15.9		
D.O.S.(dd.mm.yy)			09.11.18			25.10.18		

1814-AVT-RI-LS-TAS-NHZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	UTK Ranichauri		
			Yield	Rk	G
1	HPW 468	NHLSZ 1803	12.4	6	0
2	HS 673	NHLSZ 1804	11.5	8	0
3	VL 3020	NHLSZ 1805	13.3	5	0
4	UP 3041	NHLSZ 1806	10.9	9	0
5	HPW 467	NHLSZ 1807	13.6	4	0
6	HS 674	NHLSZ 1808	14.1	3	0
7	VL 3019	NHLSZ 1809	11.7	7	0
8	VL 3021	NHLSZ 1810	14.3	2	1
9	VL 892 (C)	NHLSZ 1801	10.8	10	0
10	HS 490 (C)	NHLSZ 1802	15.8	1	1
G.M.			12.8		
S.E.(M)			0.696		
C.D. (10%)			1.7		
C.V .			13.3		
D.O.S.(dd.mm.yy)			05.12.18		

1821-AVT-IR-TS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	Haryana Bawal			U.P. KVK-Rampur		
			Yield	Rk	G	Yield	Rk	G
1	DBW 221*	NW-TS-105	43.9	3	1	52.5	4	1
2	DBW 222*	NW-TS-106	45.5	2	1	60.0	1	1
3	NW 7049	NW-TS-110	39.4	9	0	46.3	11	0
4	PBW 820[M]	NW-TS-104	36.8	12	0	51.3	5	1
5	PBW 821[M]	NW-TS-108	46.1	1	1	50.0	7	0
6	DPW 621-50 (C)	NW-TS-111	38.6	10	0	48.8	10	0
7	DBW 88 (C)	NW-TS-112	42.3	6	0	50.0	7	0
8	HD 2967 (C)	NW-TS-109	38.4	11	0	50.0	7	0
9	HD 3086 (C)	NW-TS-103	41.6	7	0	57.5	2	1
10	PBW 550 (C)	NW-TS-107	43.4	4	1	45.0	12	0
11	WH 1105 (C)	NW-TS-101	39.9	8	0	56.3	3	1
12	HD 3226(I) (C)	NW-TS-102	43.3	5	1	51.3	5	1
G.M.			41.6			51.6		
S.E.(M)			1.582			4.052		
C.D. (10%)			3.8			9.7		
C.V.			7.6			15.7		
D.O.S.(dd.mm.yy)			10.11.18			13.11.18		

1822-AVT-IR-LS-TAS-NWPZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	U.P. KVK-Rampur			U.P. Pilibhit		
			Yield	Rk	G	Yield	Rk	G
1	PBW 771*	NW-LS-206	52.2	2	1	49.2	1	1
2	DBW 173 (C)	NW-LS-202	52.1	3	1	35.6	6	0
3	HD 3059 (C)	NW-LS-204	54.4	1	1	40.2	4	1
4	WH 1021 (C)	NW-LS-203	48.6	5	1	38.5	5	0
5	WH 1124 (C)	NW-LS-205	48.6	6	1	44.0	2	1
6	PBW 752(I) (C)	NW-LS-201	49.8	4	1	43.5	3	1
G.M.			50.9			41.8		
S.E.(M)			4.059			3.617		
C.D. (10%)			10.1			9.0		
C.V.			15.9			17.3		
D.O.S.(dd.mm.yy)			19.12.18			17.12.18		

1831-AVT-IR-TS-TAS-NEPZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	U.P.			W.B					
			Allahabad			Coochbehar			Majhian		
			Yield	Rk	G	Yield	Rk	G	Yield	Rk	G
1	HD 3249*#Q	NE-IR-101	37.0	3	1	38.7	1	1	25.0	10	0
2	PBW 781	NE-IR-103	31.4	11	0	38.1	2	1	27.3	7	0
3	DBW 257	NE-IR-104	36.3	4	1	25.9	9	0	26.4	8	0
4	HD 3277	NE-IR-106	32.5	7	0	21.3	11	0	31.6	2	1
5	RAJ 4529	NE-IR-107	32.3	8	0	23.4	10	0	19.4	11	0
6	WH 1239	NE-IR-109	31.5	10	0	33.2	6	0	31.1	3	1
7	DBW 187(I) (C)	NE-IR-108	39.5	1	1	36.8	3	1	25.3	9	0
8	HD 2733 (C)	NE-IR-102	39.4	2	1	33.1	7	0	30.4	5	1
9	DBW 39 (C)	NE-IR-105	35.8	5	1	29.7	8	0	30.8	4	1
10	K 0307 (C)	NE-IR-110	35.3	6	1	35.3	5	1	29.8	6	1
11	HD 2967 (C)	NE-IR-111	31.8	9	0	35.5	4	1	34.1	1	1
G.M.			34.8			31.9			28.3		
S.E.(M)			2.053			2.293			1.803		
C.D. (10%)			4.9			5.5			4.3		
C.V.			11.8			14.4			12.7		
D.O.S.(dd.mm.yy)			25.11.18			16.11.18			19.11.18		

1841 - AVT-IR-TS-TAD-CZ, 2018-19

LOCATIONWISE MEAN YIELD (q/ha)

S.N.	Variety	Code	M.P.						Chhattisgarh		
			Sagar			KVK-Ujjain			IGKV-Raipur		
			Yield	Rk	G	Yld	Rk	G	Yield	Rk	G
1	NIDW 1158 (d)	CZ-TS-102	50.0	7	0	38.2	8	0	48.1	7	0
2	HI 8811 (d)	CZ-TS-103	46.0	12	0	33.3	12	0	42.0	13	0
3	HD 3343M	CZ-TS-104	57.0	2	1	32.9	13	0	45.1	10	0
4	HI 8812 (d)	CZ-TS-108	59.3	1	1	35.4	10	0	47.1	8	0
5	GW 1348 (d)	CZ-TS-109	50.0	7	0	39.0	6	0	51.4	1	1
6	DDW 49 (d)	CZ-TS-110	53.0	5	1	47.2	2	1	45.7	9	0
7	PBW 822B	CZ-TS-111	52.0	6	0	47.1	3	1	49.2	4	1
8	HD 3345B	CZ-TS-112	44.8	13	0	34.6	11	0	48.4	6	1
9	DDW 48 (d)	CZ-TS-113	47.8	10	0	36.4	9	0	48.6	5	1
10	HI 8713(d) (C)	CZ-TS-101	55.0	4	1	38.4	7	0	44.8	11	0
11	GW 322 (C)	CZ-TS-105	57.0	2	1	49.7	1	1	49.9	2	1
12	HI 1544 (C)	CZ-TS-106	49.5	9	0	44.4	4	1	49.3	3	1
13	HI 8737(d) (C)	CZ-TS-107	47.8	10	0	42.5	5	1	43.2	12	0
G.M.			51.5			39.9			47.1		
S.E.(M)			2.683			3.390			1.267		
C.D. (10%)			6.4			8.1			3.0		
C.V.			10.4			17.0			5.4		
D.O.S.(dd.mm.yy)			25.11.18			20.11.18			25.11.18		

1843- AVT-RI-TS-TAD-CZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Gujarat		
			Junagarh		
			Yield	Rk	G
1	UAS 466(d)*	CZ-RI-303	16.7	4	0
2	DBW 277	CZ-RI-305	18.0	2	0
3	DDW 47(d)*[Q]	CZ-RI-306	16.4	5	0
4	HI 8627(d) (C)	CZ-RI-301	13.8	6	0
5	DBW 110 (C)	CZ-RI-302	17.8	3	0
6	MP 3288 (C)	CZ-RI-304	21.3	1	1
G.M.			17.3		
S.E.(M)			0.730		
C.D. (10%)			1.8		
C.V.			8.4		
D.O.S.(dd.mm.yy)			09.11.18		

1851-AVT-IR-TS-TAD-PZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

SN	Variety	Code	Maharashtra			Karnataka		
			Pravaranagar			Mandya		
			Yield	Rk	G	Yield	Rk	G
1	PBW 823[B]	PZ-TS-101	13.2	11	0	33.3	11	0
2	DDW 49 (d)	PZ-TS-103	25.3	3	1	34.2	10	0
3	UAS 3001	PZ-TS-104	16.1	10	0	43.3	3	0
4	DDW 48 (d)	PZ-TS-108	25.8	2	1	38.7	6	0
5	HD 3343[M]	PZ-TS-110	22.6	6	0	45.9	2	0
6	WHD 963 (d)	PZ-TS-111	25.0	4	1	36.7	9	0
7	UAS 428 (d) (C)	PZ-TS-102	21.5	7	0	37.1	8	0
8	MACS 3949 (d) (C)	PZ-TS-105	23.2	5	0	42.4	4	0
9	MACS 6222 (C)	PZ-TS-106	26.0	1	1	40.5	5	0
10	GW 322 (C)	PZ-TS-107	20.6	9	0	53.6	1	1
11	MACS 6478 (C)	PZ-TS-109	21.0	8	0	38.1	7	0
G.M.			21.8			40.3		
S.E.(M)			0.869			2.527		
C.D. (10%)			2.1			6.1		
C.V.			8.0			12.5		
D.O.S.(dd.mm.yy)			15.11.18			19.11.18		

1852-AVT-IR-LS-TAS-PZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Maharashtra			Karnataka		
			Pravaranagar			Bailahongal		
			Yield	Rk	G	Yield	Rk	G
1	HI 8807(d)	PZ-LS-201	21.9	2	0	29.3	7	0
2	HI 1633	PZ-LS-202	28.6	1	1	34.9	3	1
3	UAS 3002	PZ-LS-203	18.7	4	0	31.0	6	0
4	GW 509	PZ-LS-206	20.9	3	0	35.1	2	1
5	Raj 4083 (C)	PZ-LS-204	15.9	7	0	31.6	5	0
6	HD 2932 (C)	PZ-LS-205	16.3	6	0	36.8	1	1
7	HD 3090 (C)	PZ-LS-207	18.5	5	0	33.5	4	1
G.M.			20.1			33.2		
S.E.(M)			1.161			1.870		
C.D. (10%)			2.8			4.6		
C.V.			11.5			11.3		
D.O.S.(dd.mm.yy)			01.12.18			24.12.18		

1853-AVT-RI-TS-TAD-PZ, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Maharashtra					
			Nasik			Karjat		
			Yield	Rk	G	Yield	Rk	G
1	NIAW 3170*	PZ-RI-301	29.8	1	1	10.8	8	0
2	GW 1346(d)*	PZ-RI-302	19.7	10	0	14.9	1	1
3	MACS 4058(d)*	PZ-RI-303	17.3	12	0	10.5	10	0
4	HI 8805(d)*	PZ-RI-305	21.4	7	0	9.2	12	0
5	MACS 6695*	PZ-RI-307	25.0	6	0	11.7	6	0
6	MACS 6696*	PZ-RI-310	25.6	5	0	11.1	7	0
7	HI 8802(d)*	PZ-RI-312	20.8	8	0	14.3	3	0
8	NIDW 1149(d)	PZ-RI-311	25.8	4	0	10.1	11	0
9	DBW 93 (C)	PZ-RI-304	27.2	2	1	10.6	9	0
10	AKDW 2997-16(d)(C)	PZ-RI-306	20.5	9	0	14.6	2	0
11	UAS 446(d) (C)	PZ-RI-308	19.0	11	0	12.5	5	0
12	HI 1605 (C)	PZ-RI-309	26.7	3	0	13.7	4	0
G.M.			23.2			12.0		
S.E.(M)			1.132			0.061		
C.D. (10%)			2.7			0.1		
C.V.			9.7			1.0		
D.O.S.(dd.mm.yy)			10.11.18			14.11.18		

1861-SPL-AST-IR-TS-TAS-ALL ZONES, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Rajasthan CAZRI-Pali			Gujarat KVK-Devataj		
			Yield	Rk	G	Yield	Rk	G
1	WH 1223	AST-101	44.3	2	1	35.8	4	0
2	WH 1228	AST-106	37.8	5	1	38.2	3	0
3	NW 7062	AST-107	34.9	7	0	35.4	5	0
4	NW 7060	AST-104	44.0	3	1	48.4	1	1
5	KRL 19 (C)	AST-102	40.8	4	1	31.4	7	0
6	KRL 210 (C)	AST-105	35.1	6	0	43.6	2	0
7	Kharchia 65(C)	AST-103	47.9	1	1	34.7	6	0
G.M.			40.7			38.2		
S.E.(M)			4.446			1.823		
C.D. (10%)			10.7			4.4		
C.V.			26.8			11.7		
D.O.S.(dd.mm.yy)			14.11.18			26.11.18		

1862-SPL-IR-TS-DIC-ALL-ZONE, 2018-19
LOCATIONWISE MEAN YIELD (q/ha)

S.N	Variety	Code	Tamil Nadu Wellington		
			Yield	Rk	G
1	MACS 5052	DIC-102	31.9	4	0
2	MACS 5053	DIC-106	27.8	7	0
3	DDK 1056	DIC-104	37.6	2	0
4	DDK 1057	DIC-107	30.7	5	0
5	DDK 1029 (C)	DIC-101	29.1	6	0
6	HW 1098 (C)	DIC-105	34.9	3	0
7	MACS 6222(aest)(C)	DIC-103	43.3	1	1
G.M.			33.6		
S.E.(M)			2.290		
C.D. (10%)			5.6		
C.V	.		13.6		
D.O.S.(dd.mm.yy)			25.11.18		

1863-SPL-VLS-TAS-NWPZ/NEPZ-ZONE, 2018-19

S.N	Variety	Code	Bihar RPCAU-Pusa		
			Yield	Rk	G
1	HD 3298	VLS-103	5.3	8	0
2	HD 3271	VLS-104	13.8	1	1
3	HI 1621	VLS-107	10.3	3	0
4	PBW 797	VLS-108	8.1	6	0
5	PBW 757 (C)	VLS-101	7.0	7	0
6	WR 544 (C)	VLS-102	10.0	4	0
7	DBW 14 (C)	VLS-105	11.2	2	0
8	DBW 71 (C)	VLS-106	9.7	5	0
G.M.			9.4		
S.E.(M)			0.641		
C.D. (10%)			1.6		
C.V.			13.6		
D.O.S.(dd.mm.yy)			05.01.19		

1864-SPL-HYPT-IR-TS-TAS-NWPZ, 2018-19

S.N	Variety	Code	Haryana Hisar		
			Yield	Rk	G
1	HD 3317	HYPT-101	47.9	15	0
2	WH 1254	HYPT-102	58.9	10	0
3	DBW 301	HYPT-103	67.3	3	1
4	WH 1270	HYPT-104	64.1	6	0
5	PBW 824	HYPT-106	71.2	1	1
6	UP 3043	HYPT-107	60.8	8	0
7	DBW 187	HYPT-108	57.5	11	0
8	DBW 303	HYPT-110	68.8	2	1
9	DBW 304	HYPT-111	63.2	7	0
10	UP 3042	HYPT-112	53.5	14	0
11	DBW 302	HYPT-113	55.7	13	0
12	PBW 825	HYPT-114	66.0	4	0
13	HD 3347	HYPT-115	59.7	9	0
14	HD 2967 (C)	HYPT-105	57.2	12	0
15	HD 3086 (C)	HYPT-109	65.6	5	0
G.M.			61.2		
S.E.(M)			1.899		
C.D. (10%)			4.5		
C.V.			6.2		
D.O.S.(dd.mm.yy)			05.11.18		

Appendix - III

Zonal Monitoring Reports

Zonal Monitoring Report, 2018-19
Northern Hills Zone

Team-I

Period	Team	Centres visited
24th - 26thApril 2019	Dr K. Venkatesh, ICAR-IIWBR, Karnal; Dr Lakshmi Kant, Dr K K Mishra, ICAR-VPKAS, Almora; Dr Gurdev Singh, CSK HPKV, HAREC Bajaura, Dr Vijay Rana, CSK HPKV, RWRC, Malan	Ranichauri, Majhera, Hawalbagh

Breeding trials allocated & monitored:

Centre	Trial	Remark
Ranichauri	AVT-TS-RF	Very Good
	IVT-TS-RF	Good
	IVT/AVT-LS-RI	Medium
Majehra	AVT-TS-RF	Very Good
	IVT/AVT-LS-RI	Very Good
Hawalbagh	IVT-TS-RF	Very Good*
	IVT/AVT-LS-RI	Very Good*
	AVT-TS-RF	Good*
	AVT-TS-IR	Very Good*

***** Damaged by heavy hailstorm. Damage varies from entry to entry. Drooping ear entries were showing comparatively less damage in both wheat and barley**.**

Trials not conducted/rejected by monitoring team: 3rd Replication of AVT-TS-RF Grain rejected at Ranichaur

Entries recommended for purification

Trial	Entry	Remarks
AVT-TS-RF	NHTSZ 1801	Few tall plants
IVT-TS-RF	NHIVT 1801	Few waxy ear plants

Entries recommended to be dropped from further testing: Nil

Entries exhibiting higher diseases/insect infestation:

Entry	Disease response (High Yellow rust at Ranichauri only) Scores of following entries were higher
NHTSZ 1801, 1802, 1803	40S
NHTSZ 1804, 1805	30S
NHIVT 1801	30S
NHIVT 1804 1805	40S
NHIVT 1806	60S
NHIVT 1809, 1815, 1816	20S
NHLSZ 1801,1807	40S
NHLSZ 1805, 1809	20S

Report on Agronomical Trials:

Trial	Centre	Remark
SPL-7- Validation of nutrient Expert in wheat	Hawalbagh	Conducted properly, treatment effects were visible

Report on Pathological Nurseries:

Centre	Nursery	Remark
Hawalbagh		
	Wheat	
	LSSN	Conducted properly and disease pressure was very good.
	PMSN	Conducted properly and disease pressure was moderate.
	MDSN	Conducted properly and disease pressure was good for rust and low for blight and moderate for powdery mildew.
	EPPSN	Conducted properly and disease pressure was good.
	SAARC	Conducted properly and disease pressure was moderate.
	HBSN	Conducted properly and disease pressure was good.
	WDMN (Trap) Conducted properly and disease pressure was moderate.	

Report on Physiology Trials MLHT-1 & 2: Nil

Special comments, if any: The terrace width at centers like Ranichauri, are around 3.5 to 3.0 Metres. For such centres the plot size may be reduced to 3.0 X 1.20 M. A single replication at Ranichuari not accommodated in single terrace. Therefore, use of Alpha lattice design will be more useful here.

Team-II

Period	Team	Centres visited
April 8-13, 2019	Dr. Dharam Pal, ICAR-IARI Regional Station, Tutikandi; Dr JP Jaiswal, GB Pant University, Pantnagar; Dr. Chuni Lal, ICAR-IIWBR, Karnal; Dr. OP Gangwar, ICAR-IIWBR, Regional Station, Flowerdale, Shimla	Tutikandi, Shimla, RSS Berthin, KVK Una, RSS Akrot, RWRC Malan, HAREC, Bajaura

Breeding trials allocated & monitored:

Centre	Trial	Remark*
Shimla	IVT-RF-TS, AVT-RF-TS, AVT-IR-TS, IVT/AVT-RI-LS	Very Good
Berthin	AVT-RF-TS	
Una	IVT/AVT-RI-LS	
Akrot	AVT-RF-TS	
Malan	IVT-RF-TS, AVT-RF-TS, AVT-IR-TS, IVT/AVT-RI-LS	
Bajaura	IVT-RF-TS, AVT-RF-TS, AVT-IR-TS, IVT/AVT-RI-LS	

*****Evaluated trials as very good, good and average based on conduction

Trials not conducted / rejected by monitoring team: Nil

Entries showing promising performance in breeding trials:

Trial	Entry	Remarks
IVT-RF-TS	NHIVT1804, NHIVT1810, NHIVT1812, NHIVT1803	Good plant type, high tillering, uniformity
AVT-RF-TS	NHTSZ1803, NHTSZ1804	Good plant type, high tillering, uniformity
AVT-IR-TS	NHTSZ1805, NHTSZ1804	Good plant type, high tillering, uniformity
IVT/AVT-RI-LS	NHLSZ1807, NHLSZ1802, NHLSZ1801	Good plant type, high tillering, uniformity

Entries recommended for purification:

Trial	Entry	Remarks
IVT-RF-TS	NHIVT1801	Few off types were observed for plant height

Entries recommended to be dropped from further testing: Nil

Entries exhibiting higher diseases incidence / insect infestation:

Trial	Entry	Yellow rust
IVT-RF-TS	NHIVT1802, NHIVT1806	20S
AVT-RF-TS	NHTSZ1804	10S
AVT-IR-TS	NHTSZ1804	10S
IVT/AVT-RI-LS	NHLSZ1805, NHLSZ1808	10S

Report on Agronomical Trials:

Centre	Trial	Remark
Malan	SPL2, SPL3, SPL6, SPL7	Nicely conducted and responses were visible except in SPL3.
Bajaura*	SPL2, SPL3, SPL6, SPL7	Nicely conducted and responses were visible except in SPL3.

*The agronomical trials were observed as excellent.

Report on Pathological Nurseries:

Centre	Nursery	Remark
CSKHPKV, HAREC, Bajaura	PPSN	Wheat plant pathological nurseries were conducted satisfactorily. Infector was planted as border rows as well as after every twenty entries. Yellow rust had just started appearing on wheat infector plants and the test entries of AVT and NIVT were free from disease.
CSKHPKV, RWRC, Malan	PPSN	PPSN was conducted satisfactorily. Infector was planted as border rows as well as after every twenty entries. Yellow rust severity on infector was ranged from 40S to 80S. The team recorded and rectified score of rusts in AVT and NIVT) entries. Yellow rust severity in some of the entries of AVT (SPL-AST-102, SPL-AST-103) and NIVT (N-320, N-321, N-432, N-502, N508, N-509, N-511, N-516, NHIVT-1806) was ≥ 40S.

Team-I

Period of visit: March 6-8, 2019

Team	Centres Visited
Dr. VS Sohu, PAU, Ludhiana; Dr. SC Tripathi, ICAR-IIWBR, Karnal; Dr. PL Kashyap, ICAR-IIWBR, Karnal; Dr. Hoshiyar Singh, SKNAU-RRS, Durgapura	New Delhi, Shikohpur, Bawal, Alwar, Bharatpur, Durgapura, Tabiji, Diggi

Breeding trials allocated & monitored:

Location	Trial	Observations
New Delhi	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS, NIVT-1A, NIVT-1B, NIVT-3A, NIVT-5A, SPL-VLS-TAS, SPL-HYPT	Trial conduct was very good
Shikohpur	AVT-IR-TS-TAS, AVT-IR-LS-TAS	Trial conduct was good
Bawal	AVT-IR-TS-TAS	Trial conduct was good
	AVT-IR-LS-TAS	Good, seemed to be planted bit early
	AVT-RI-TS-TAS	Good, but slight gaps
Alwar	AVT-IR-TS-TAS	Grazed
	AVT-IR-LS-TAS	Trial conduct was good, patches in R1
Bharatpur	AVT-RI-TS-TAS	Trial conduct was good
Durgapura	AVT-IR-TS-TAS	Trial conduct was very good
	AVT-IR-LS-TAS	Good, seemed to be planted bit early
	NIVT-1A, NIVT-1B	Trial conduct was good
	NIVT-3A	Good, seemed to be planted bit early
Tabiji	AVT-IR-TS-TAS	Trial conduct was good
	AVT-IR-LS-TAS	Good, low biomass due to sandy soil
Diggi	AVT-RI-TS-TAS	Trial conduct was good
	NIVT-5A	Poor, patchy, grazed

Trials not conducted / rejected by monitoring team:

Location	Trial	Remarks (reason for rejection)
Alwar	AVT-IR-TS-TAS	Inappropriate crop stand due to grazing
Diggi	NIVT-5A	Poor crop stand

Entries showing promising performance in breeding trials:

Trials	Entries
AVT-IR-TS-TAS	NW-TS-101, -104, -105, -106, -108
AVT-IR-LS-TAS	NW-LS-201, -204, -206
AVT-RI-TS-TAS	NW-RI-302, -304
NIVT-1A	N-103, -108, -111, -112, -127
NIVT-1B	N-205, -211, -212, -215, -218, -219, -223, -229
NIVT-3A	N- 403, -409, -415, -416, -417, -429, -433
NIVT-5A	N-702, -703, -707, -708, -715, -719

Entries recommended for purification:

Trial	Entry
AVT-IR-TS-TAS	NW-TS-109, -110
AVT-IR-LS-TAS	NW-LS-203
AVT-RI-TS-TAS	NW-RI-309
NIVT-1A	N-114, -115, -130
NIVT-1B	N-205, -212, -220, -222
NIVT-3A	N- 411
NIVT-5A	N-708, -712, -714, -717, -719, -725
SPL-HYPT	SPL-HYPT-13

Entries recommended to be dropped from further testing:

Trial	Entry
NIVT-1B	N-202, -213
NIVT-5A	N-724

Entries exhibiting higher disease/insect infestation: In general, the stripe rust development in varietal trials was very good and that of leaf rust was very low at major wheat breeding centres visited.

Trial	***Entries with stripe rust ≥10S***
AVT-IR-TS-TAS	NW-TS-107, -109, -111, -112
AVT-IR-LS-TAS	NW-LS-203
NIVT-1A	N-101,-105,-106,-107,-110,-112, -113,-122,-130*,-134,-136
NIVT-1B	N-201, -209, -210, -213, -216, -226, -227, -228, -231, -235
NIVT-3A	N-404,-412,-422,-434,-435,-436
SPL-VLS	SPL-VLS-102, -104, -105
SPL-HYPT	SPL-HYPT-5

Report on Agronomical Trials: All the Agronomic trials allotted to New Delhi and Durgapura centre were conducted and found in good condition.

Centre	**Trial**	**Remarks**
New Delhi	IR-TAS-DOS,RIR-TS-TAS	Very Good
Durgapura	IR-TAS-DOS,RIR-TS-TAS, SPL-6	Very Good

Report on Pathological nurseries

Centre	**Trial**	**Remarks**
New Delhi	All allotted nurseries	Very good incidence of rust under artificially inoculated condition

Report on Physiology Trials MLHT-1 & 2

Centre	**Trial**	**Remarks**
Durgapura	MLHT – 1 & 2	Very good

Special comments, if any: The risk of crop damage by wild animals should be taken into consideration when selecting field/site for planting the varietal trials, especially at Alwar, Tabiji, Diggi where damage by blue bulls (and peacocks) is a perpetual problem. Leaf rust development was low at all centres. Overall the crop performance was good and crop lodging was negligible.

Team-II

Period of visit: March 15-17, 2019

Team	**Centres Visited**
Dr. BS Tyagi, IIWBR, Karnal; Dr. Pradeep Shekhawat, Durgapura; Dr. Hari Krishna, IARI, New Delhi; Dr. RS Chhokar, IIWBR, Karnal	Karnal, Rauni, Bhatinda, Muktsar, Sriganganagar, Rohtak

Dr Vikram Singh from Hisar could not move with the team due to his transfer.

Breeding trials allocated & monitored:

Centre	**Trial**	**Remark***
Karnal	AVT-IR-TS-TAS; AVT-IR-LS-TAS; AVT-RI-TS-TAS; SPL-HYPT-NWPZ; SPL-VLS-TAS-NWPZ; NIVT-1A; NIVT-1B; NIVT 3A; NIVT-5A;	Very good, Lodging in few genotypes, good disease
Hisar	AVT-IR-TS-TAS; AVT-IR-LS-TAS; AVT-RI-TS-TAS; SPL-HYPT-NWPZ; SPL-VLS-TAS-NWPZ; NIVT-1A; NIVT-1B; NIVT- 3A; NIVT-5A;	Very good except some lodging in irrigated trials
Rauni	AVT-IR-TS-TAS	Very good trial
Bhatinda	AVT-IR-TS-TAS; AVT-IR-LS-TAS;	Good
Ratta, Muktsar	Special trial SAL/ALK	Very good site for this trial
Rohtak	AVT-IR-TS-TAS; AVT-IR-LS-TAS;	Very good
Sriganganagar	AVT-IR-TS-TAS; AVT-IR-LS-TAS; AVT-RI-TS-TAS	Very good

Evaluated trials as very good, good and average based on conduction

At RRS, PAU, Rattakhera, Muktsar, there were very high EC (10) and pH (9.5). This was the true location for salinity/ alkalinity trial. The replication-1 was under stress but replications 2, 3 and 4 were good. At Bhatinda, in AVT-IR-LS-TAS trial, three side plots were under stress and accordingly they have been suggested some plan to harvest.

Trials not conducted / rejected by monitoring team: Nil

Entries showing promising performance in breeding trials: Based on maturity, stand, tillering and disease.

Centre	Trial	Entry
Karnal	AVT-IR-TS-TAS	NW-TS-103, 105, 107, 108,
	AVT-IR-LS-TAS	NW-LS-205, 206,
	AVT-RI-TS-TAS	NW-RI-301, 309, 310,
	SPL-HYPT-NWPZ	SPL-HYPT-6, 8, 9
	NIVT-1A	N-107, 109, 117, 122, 126, 132, 136,
	NIVT-1B	N-204, 208, 209, 219, 225, 228, 231,
	NIVT 3A	N-403, 405, 415, 416, 420, 426, 430,
	NIVT-5A	N-702, 704, 708, 710, 712, 718, 719,
	SPL-VLS- NWPZ	VLS-102
Hisar	AVT-IR-TS-TAS	NW-TS-101, 106, 107,109,
	AVT-IR-LS-TAS	NW-LS-203, 205, 206
	AVT-RI-TS-TAS	NW-RI-301, 303, 305
	SPL-HYPT-NWPZ	SPL-HYPT-8, 9
	NIVT-1A	N-107, 109, 117, 122, 125, 126, 132, 136,
	NIVT-1B	N-204, 208, 219, 219, 225, 228,
	NIVT 3A	N-403, 415, 420, 421, 430,
	NIVT-5A	N-702, 703, 704, 718, 719,
	SPL-VLS- NWPZ	VLS-102, 105
Rauni	AVT-IR-TS-TAS	NW-TS-103, 105, 108,
Rohtak	AVT-IR-TS-TAS	NW-TS-103, 106, 107, 108
	AVT-IR-LS-TAS	NW-LS-201, 203, 206,
Bhatinda	AVT-IR-TS-TAS	NW-TS-106, 107, 108
	AVT-IR-LS-TAS	NW-LS- 205, 206,
Muktsar	Special trial SAL/ALK	SPL-AST-101, 103, 105
Sriganganagar	AVT-IR-TS-TAS	NW-TS-101, 106, 107,
	AVT-IR-LS-TAS	NW-LS-203, 205, 206
	AVT-RI-TS-TAS	NW-RI-301, 304, 306,

Entries recommended for purification:

Trial	Entry	Remark
AVT-IR-TS-TAS	NW-TS-102, 111, 112,	High mixture, segregation
AVT-RI-TS-TAS;	NW-RI-302, 304, 305, 307, 310,	Height/ maturity variation
SPL-HYPT-NWPZ	SPL-HYPT-1, 2, 4, 7, 11, 12, 13, 15,	
NIVT-1A	N-105, 108, 114, 116, 118, 120, 123, 133,	Height/ maturity variation
NIVT-1B	N-201, 205, 208, 210, 212, 214, 220, 222, 232	Height/ maturity variation
NIVT-3A	N-404, 406, 410, 424, 231,	Height/ maturity variation
NIVT-5A	N-706, 709, 714,	Ear shape/ maturity variation
SPL-VLS-TAS-NWPZ	SPL-VLS-103	Height/ear shape/ maturity variation

Entries recommended to be dropped from further testing:

Trial	Entry	Remark
AVT-IR-TS-TAS	NW-TS-109, 110,	Height/ear shape/ maturity variation
NIVT-1A	N-101, 104, 111, 113, 130,	Maturity/ height, plant type segregation
NIVT-1B	N-202, 203, 230, 234,	Height/ear shape/ maturity variation
NIVT-3A	N-408, 432,	Mixture/ ear shape/ maturity variation
NIVT-5A	N-724	Very mixture / segregation for height/ maturity

Report on Agronomical Trials:

Centre	Trial	Remarks
Sriganganagar	IR-TAS-DOS and RIR-TS-TAS	Satisfactory. In TS, first date was better and NW-DOS-406 was looking better. RI, the response was up to 3 irrigations. NW-RIR-501was looking better under no irrigation.
Hisar	IR-TAS-DOS, RIR-TS-TAS, SPL-1, SPL-6, SPL -7	Satisfactory. In TS, the performance of first date was better and NW-DOS-406 and 407 were looking better. In RI trial, the response was up to 2 irrigations and NW-RIR-502 and 505 were looking good across irrigation levels.

Entries exhibiting higher diseases incidence / insect infestation: Nil

Report on Pathological Nurseries:

Centre	Nursery	Remark
Karnal, Hisar	Good yellow rust at Karnal.	At Hisar Brown rust was at lower side.

Special comments, if any: Sowing by machine is necessary for better results. Too many entries were showing Asynchrony class. Mixtures were noted in some entries including checks. The seeds of checks be taken only if pure.

Team-III

Period of visit: March 14-16, 2019

Name of team members:

Name	Centres Visited
Dr. JP Jaiswal, GBPUA&T, Pantnagar; Dr. GS Mavi, PAU, Ludhiana; Dr. Gopalareddy K, ICAR-IIWBR, Karnal; Dr. Vaibhav K Singh, ICAR-IARI, New Delhi; Dr. RP Meena, ICAR-IIWBR, Karnal	Nagina, Kashipur, Pantnagar, Rampur, Bareilly, Sahajahanpur, Ujhani, Bulandshahr

Breeding trials allocated & monitored:

Location	Trial	Observations
Nagina	AVT-IR-TS-TAS, AVT-IR-LS-TAS, SPL-VLS-TAS	Very good
Kashipur	AVT-IR-TS-TAS, AVT-IR-LS-TAS	Very good
Rampur	AVT-IR-TS-TAS, AVT-IR-LS-TAS, SPL-VLS-TAS	Good except VLS
Pantnagar	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS NIVT-1A, NIVT-1B, NIVT-3A, NIVT-5A, SPL-VLS-TAS, SPL-HYPT	Very good /good
Bareilly	AVT-IR-TS-TAS, AVT-IR-LS-TAS	Good, but weedy
Sahajahanpur	AVT-IR-LS-TAS, AVT-IR-LS-TAS	Good/ Very good
Ujhani		
Bulandshahr	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS, NIVT-1A, SPL-VLS-TAS	Very good

Trials rejected by monitoring team:

Location	Trial	Remarks (reason for rejection)
Rampur	SPL-VLS-TAS	Very poor plant stand
Bareilly	AVT-IR-TS-TAS, AVT-IR-LS-TAS	Date of sowing was not matching

Entries showing promising performance in breeding trials:

Trials	Entries
AVT-IR-TS-TAS	NW-TS-103, -106, -111, -112
AVT-IR-LS-TAS	NW-LS-204, -205, -206
AVT-RI-TS-TAS	NW-RI-302, -304, -305, -307, -310
NIVT-1A	N-103, -105, -117, -122, -125, -136
NIVT-1B	N-201, -206, -225, -232, -233
NIVT-3A	N- 403, -405, -412, -416, -421, -429, -431
NIVT-5A	N-702, -704, -705, -717
SPL-VLS-TAS	SPL-VLS-101, -107
SPL-HYPT	SPL-HYPT-5, -6, -7, -8, -15

Entries recommended for purification:

Trial	Entry
AVT-IR-TS-TAS	NW-TS-105
AVT-RI-TS-TAS	NW-RI-303, -309
NIVT-1A	N-104, -111, -118, -131
NIVT-1B	N-202, -203, -205, -207, -210, -211, -212, -222, -223, -227, -230, -235
NIVT-3A	N- 409, -431,
NIVT-5A	N-706, -719, -724
SPL-HYPT	SPL-HYPT-1, -3, -4, -11, -12, -13, -14

Entries recommended to be dropped from further testing:

Trial	Entry
NIVT-1A	N-114

Entries exhibiting higher disease/insect infestation: In general, the stripe and leaf rust development in varietal trials was very good at Pantnagar centre and in other centres either poorly developed or not at all developed.

Trial	Entries with stripe rust ≥20S	Entries with leaf rust ≥20S
AVT-IR-TS-TAS	NW-TS-107, 109, 111, 112	NW-TS-103, 105
AVT-IR-LS-TAS	NW-LS-203	-
AVT-RI-TS-TAS	NW-RI-302, -305, -307	-
NIVT-1A	-	N-116
NIVT-1B	-	N-228
NIVT-3A	N-412, -434	-
NIVT-5A	-	N-703
SPL-HYPT	SPL-HYPT-5	SPL-HYPT-15

Report on Agronomical Trials: All the Agronomic trials allotted to Pantnagar centre were in good condition.

Centre	Trial	Remarks
Pantnagar	IR-TAS-DOS, RIR-TS-TAS, SPL -1, 6, and 7	Satisfactory. In RIR-TS-TAS NW-RIR-503 seems to be performed well and having waxy characteristics. In IR-TAS-DOS NW-DOS-405 and -412 appeared better

Report on Pathological nurseries

Centre	Trial	Remarks
Pantnagar	All allotted nurseries	Very good incidence of rust under artificially inoculated condition

Report on Physiology Trials MLHT-1 & 2

Centre	Trial	Remarks
Pantnagar	MLHT-1 & 2	Trial conducted properly

Special comments, if any: The advanced varietal trials (AVTs) should, depending on number of test entries, preferably be planted in at least two tiers per replication such that the replication or block is as compact as possible. Evaluation of entries in a single tier may vitiate results due to soil heterogeneity. Yellow and leaf rust development was low at all centers except Pantnagar centre. Overall the crop performance was good at farmers' fields and crop lodging was negligible.

Team-IV

Period of visit- 22-03-2019 to 26-03-2019

Name of team members:

Team	Centres Visited
Dr. Hanif Khan, ICAR-IIWBR, Karnal; Dr. Raj Kumar, ICAR-IIWBR, Karnal;Dr. M K Pandey, SKUAST-J, Jammu; Dr. H R Saharan, PAU, Ludhiana	PAU Ludhiana, BISA Ladowal, PAU- RRS Faridkot, PAU-RRS Kapurthala, PAU-RRS Balachaur, PAU-RRS Gurdaspur, SKAUST-J Chatha (Jammu), KVK-Kathua

Breeding trials allocated & monitored:

Centre	Trial	Remark
Ludhiana	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS, NIVT-1A, NIVT-1B, NIVT-3A, NIVT-5A, SPL-HYPT, SPL-Very Late Sown	Satisfactorily
Ladowal	SPL-HYPT	Satisfactorily, but growth regulators and FYM were not applied
Faridkot	AVT-IR-TS-TAS, AVT-IR-LS-TAS	Satisfactorily
Kapurthala	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS	Satisfactorily
Balachuar	AVT-RI-TS-TAS, NIVT-5A	Satisfactorily
Gurdaspur	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS, NIVT-1A, NIVT-1B, NIVT-3A, NIVT-5A, SPL-HYPT	Satisfactorily but growth regulators and FYM were not applied
Jammu	AVT-IR-TS-TAS, AVT-IR-LS-TAS, AVT-RI-TS-TAS, NIVT-1A, NIVT-3A, NIVT-5A	Satisfactorily

Entries recommended for purification:

Trial	Entry	Remarks
AVT-IR-TS-TAS	NW-TS-104 and NW-TS-110	Off-types/mixtures were found & need purification
AVT-RI-TS-TAS	NW-RI-303, NW-RI-306, NW-RI-309	
AVT-IR-LS-TAS	NW-LS-202, NW-LS 203	
NIVT-1A	N-103, N-111, N-114, N-116, N-117, N-122, N-130	
NIVT-1B	N-202, N-212, N-216, N-219, N-220, , N-222, N-225, N-230, N-231	
NIVT-3A	N-408, N-409, N410, N-418, N-419, N-424, N432N-433	
NIVT-5A	N-701, N-703, N-704, N-708, N-709, N-712, N-713, N-714, N-716, N-717, N719, N-720, N-723,N-724, N-725	
SPL-HYPT	SPL-HYPT- 01, SPL-HYPT- 13, SPL-HYPT-14	

Entries recommended to be dropped from further testing:

Trial	Entry	Remarks
NIVT-1A	N-114	Segregation for height, maturity and spike characters
NIVT-1B	N-202, N-203 N-212	High variation for ear characteristics

Entries found promising:

Trial	Entry
NIVT-1A	N-120, N-126, N-132
NIVT 1B	N-207, N218,
NIVT-3A	N-420, N-422, N-423, N-430
NIVT-5A	N-704, N-707, N-710,
AVI-IR-TS-TAS	NW-TS-102, NW-TS-106
AVI-IR-LS-TAS	NW-LS-201, NW-LS-205, NW-LS-206
AVI-RI-TS-TAS	NW-RI-301, NW-RI-310
SPL-HYPT	HYPT-08

Entries exhibiting higher yellow rust incidence (≥60S) at one or more locations

Trial	Entry
NIVT-1A	N-104 (60S), N-105 (60S), N-107 (60S), N-134 (60S), N-136 (60S)
NIVT 1B	N-201 (60S), N-213 (60S)
NIVT-3A	N-409 (60S), N-426 (60S), N-434 (60S)
NIVT-5A	N-713 (60S), N-722 (60S), N-725 (60S)
AVI-IR-TS-TAS	NW-TS-105(60S), NW-TS-107(60S), NW-TS-109(60S), NW-TS-111(60S), NW-TS-112(60S),
AVI-IR-LS-TAS	NW-LS-203 (60S)
AVI-RI-TS-TAS	NW-RI-302 (60S), NW-RI-304 (60S),
SPL-HYPT	HYPT-05 (60S)

Report on Agronomical Trials: All agronomical trials were conducted satisfactorily

Report on Pathological Nurseries:

Centre	Nursery	Remark
Ludhiana	PPSN, IPPSN	High rust development in the infector rows, satisfactorily conducted
Gurdaspur	PPSN, IPPSN	High rust development in the infector rows, satisfactorily conducted
Jammu	PPSN, IPPSN	High rust development in the infector rows, satisfactorily conducted

Report on Physiology Trials: MLHT-1 and MLHT-2 are being conducted satisfactorily at PAU, Ludhiana.

Report on Seed production: Breeder and nucleus seed were monitored at BISA Ludhiana, PAU Faridkot, SKUAST Jammu & Kathua were found genetically pure. However, nucleus seed progenies of PBW 723 raised at PAU Ludhiana were sown late on 21st Dec. 2018.

Team – I

Period: March 08 to 11, 2019

Team	Centres Visited
Dr. V K Mishra*, BHU, Varanasi; Dr. Dhiman Mukherjee, BCKV, Kalyani; Dr. C S Azad, BAU, Sabour; Dr. Charan Singh, ICAR-IIWBR, Karnal; Dr. P K Bordoloi, RARS, Shillongani	Kalyani, Burdwan, Manikchak, Majhian (South Dinajpur), Coochbehar, Shillongani

*Did not join the monitoring programme.

Breeding trials allocated & monitored:

Centre	Trial		Remarks
Kalyani	AVT-IR-TS-TAS, AVT-RI-TS-TAS, NIVT 1A, NIVT 1B, NIVT 3A, NIVT 5A		Good
Burdwan	AVT-IR-TS-TAS, AVT-RI-TS-TAS, NIVT-1B		
Manikchak	NIVT 1A		
Majhian	AVT-IR-TS-TAS		
Coochbehar	AVT-IR-TS-TAS, AVT-RI-TS-TAS, NIVT 1A, NIVT 1B, NIVT 3A, NIVT 5A, SPL-VLS		
Shillongani	AVT-IR-TS-TAS, AVT-RI-TS-TAS, NIVT-1B	Good, but lodging in AVT-IR-TS and poor germination in few plots of NIVT-1B	

Trials not conducted/rejected by monitoring team: Nil

Entries showing promising performance in breeding trials:

Centre	Trial	Entry
Kalyani	AVT-IR-TS-TAS	NE-IR-101, NE-IR-108, NE-IR-109
	AVT-RI-TS-TAS	NE-RI-301, NE-RI-303
	NIVT 1A	N-107, N-122, N-125, N-129
	NIVT 1B	N-209, N-214, N-225, N-227
	NIVT 3A	N-404, N-405, N-407, N-408, N-410, N-429
	NIVT 5A	N-703, N-714, N-720
Burdwan	AVT-IR-TS-TAS	NE-IR-102, NE-IR-103, NE-IR-104, NE-IR-109
	AVT-RI-TS-TAS	NE-RI-301, NE-RI-303
	NIVT-1B-TS-TAS	N-209, N-219, N-235
Manikchak	NIVT 1A	N-103, N-106, N-117, N-123, N-125, N-126, N-135
Majhian	AVT-IR-TS-TAS,	NE-IR-103, NE-IR-106, NE-IR-109, NE-IR-111
Coochbehar	AVT-IR-TS-TAS	NE-IR-108, NE-IR-111
	AVT-RI-TS-TAS	NE-RI-301, NE-RI-304
	NIVT 1A	N-102, N-112, N-125, N-126, N-136
	NIVT 1B	N-209, N-215, N-224, N-235
	NIVT 3A	N-401, N-405, N-417, N-421, N-422, N-423, N-435
	NIVT 5A	N-704, N-707, N-718
	SPL-VLS	SPL-VLS-101, SPL-VLS-107
Shillongani	AVT-IR-TS-TAS	NE-IR-102, NE-IR-103, NE-IR-108
	AVT-RI-TS-TAS	NE-RI-301, NE-RI-306
	NIVT 1B	N-208, N-225, N-230

Entries recommended for purification:

Trial	Entry	Remarks
AVT-IR-TS-TAS	NE-IR-105	Maturity and height variation.
NIVT 1A	N-133	Variation in maturity and plant height.
NIVT 1B	N-202, N-203, N-215, N-220, N-236	Variation in plant height and maturity.
NIVT 3A	N-416, N-424, N-425, N-426	Variation in plant height and maturity.

Entries recommended to be dropped from further testing:

Trial	Entry	Remarks
NIVT 1B	N-210, N-221	Segregation for plant height and maturity

Entries exhibiting higher diseases incidence /insect infestation: At Kalyani and Coochbehar low incidence of leaf blight was seen in IPPSN. Brown rust incidence was observed in few entries of NIVT 1A at Coochbehar.

Report on Agronomical Trials:

Centre	Trial	Remark
Kalyani	IR-TAS-DOS,	Nicely conducted trial. NE-DOS-406 performed well in timely sowing. Under late sowing NE-DOS-402 and NE-DOS-408 were good. NE-DOS-403 performed well in 3rd date of sowing.
	RIR-TS-TAS	NE-DOS-502 and NE-DOS-503 performed well under no irrigation stage. NE-DOS-502 was good under both one and two irrigations.
Coochbehar	IR-TAS-DOS	Nicely conducted trial, NE-DOS-406 performed well in timely sowing. Under late sowing NE-DOS-402, NE-DOS-406 and NE-DOS-407 performed well. NE-DOS-403 performed well in 3rd date of sowing.
	RIR-TS-TAS	NE-DOS-502 performed well under one and two irrigation stage. However, NE-DOS-504 performed well under no irrigation.
Shillongani	IR-TAS-DOS	Trials were conducted well, however fertility variation was observed in few plots. Under timely sowing condition NE-DOS-402 performed well. Under late sowing (2nd date of sowing) NE-DOS-408 and NE-DOS-401, were found to be good. NE-DOS-406 performed well in 3rd date of sowing
	RIR-TS-TAS	NE-DOS-503 performed well under zero irrigation stage. NE-DOS-505 and NE-DOS-506 performed good under one and two irrigation stage, respectively.

Report on Pathological/Entomological Nurseries:

Centre	Nursery	Remark
Kalyani	IPPSN, TPN	Nursery was conducted well and foliar blight development was not observed except in infector.
Coochbehar	IPPSN, MDSN, LBSN, WBTN	Nursery was conducted well and diseases development was not observed except in infector. However, wheat blast was not observed in any entries.
Shillongani	LBSN, ESN	Nursery was conducted well and foliar blight development was observed in few entries. In ESN aphid infestation was not observed in any entries.

Report on Physiological Trials/Nurseries: MLHT I, MLHT II were nicely conducted at Manikchak (Malda).

Special comments, if any: Rat damage was observed sporadically in few plots at Coochbehar and Majhian centers. However, bird damage was observed at Burdwan. AVT-IR-TS-TAS and AVT-RI-TS-TAS trials conduction were excellent at Coochbehar and NIVT-1B at Majhian (Malda) center. All the entries of AVT-IR-TS trial were lodged, and poor plant population was observed in few entries of NIVT 1B at Shillongani. Moreover, lodging was also observed in few entries of AVT-IR-TS at Burdwan.

Team-II

Period of visit: March, 5-9 2019

Team	Centres Visited
Dr. Sudheer Kumar, Principal Scientist, IIWBR, Karnal	IARI-RS, Pusa, RPCAU, Pusa, KVK Jalagarh (Purnea), Sabour, Banka, Dumka, Goriakarma, Chianki, Ranchi
Dr. Amit Sharma, Senior Scientist, IIWBR, Karnal	
Dr. Surya Prakash Wheat Breeder, BAU, Ranchi	
Dr. Md. Hasim , Scientist (Agronomy) , IARI-RS Pusa (Bihar)	
Dr. P.K. Gupta, Sr. Wheat Breeder, CSAUA&T, Kanpur (Not present)	

Breeding trials allocated & monitored:

Centre	Trial	Remark*
IARI-RS, Pusa	AVT-IR-TS-TAS; AVT-RI-TS-TAS; NIVT-1A; NIVT-1B; NIVT-3A; NIVT-5A-RI;	Satisfactory
RPCAU, Pusa	AVT-IR-TS-TAS; AVT-RI-TS-TAS; NIVT-1B; NIVT-3A, NIVT-5A-RI; SPL-VLS,	
KVK Purnea	AVT-IR-TS-TAS, AVT-RI-TS-TAS	
BAU, Sabour	AVT-IR-TS-TAS; AVT-RI-TS-TAS; NIVT-1A; NIVT-1B; IVT-3A; NIVT-5A-RI; SPL-VLS,	
RS Banka	AVT-IR-TS-TAS, AVT-RI-TS-TAS	
ZRS, Dumka	AVT-IR-TS-TAS (**Satisfactory)**, AVT-RI-TS-TAS **(Rejected due to delayed sowing by ~ 1 month)**	**IR**-Satisfactory. **RI**-Rejected.
ZRS Goriakarma	AVT-RI-TS-TAS **(faulty layout)**	**Rejected**
ZRS, Chianki	AVT-IR-TS-TAS, AVT-RI-TS-TAS	Satisfactory
BAU, Ranchi	AVT-IR-TS-TAS; AVT-RI-TS-TAS; NIVT-1A; NIVT-1B; NIVT-3A; NIVT-5A; IPPSN, LBSN	Satisfactory

*****Evaluated trials as very good, good and average based on conduction.

Trials rejected by monitoring team:

1. AVT-RI-TS-TAS at Dumka centre due to delayed sowing by almost one month /three irrigations
2. AVT-RI-TS-TAS at Goriakarma centre due to faulty layout/plot size

Entries showing promising performance in breeding trials:

Trial	Entry	Trial	Entry
AVT-IR-TS-TAS	NE-IR-101, NE-IR-108, NE-IR-111,	NIVT-3A	N 403, N 420, N 433,
AVT-RI-TS-TAS	NE-RI-301, NE-RI-304, NE-RI- 306	NIVT-5A-RI-TS	N 701, N 710, N 714
NIVT-1A	N 103, N 125, N 126, N 134	SPL-VLS-TS	SPL-VLS- 102, SPL-VLS- 105
NIVT-1B	N 209, N 217, N 221		

Entries recommended for purification:

Trial	Entry	Remark
AVT-IR-TS-TAS	NE-IR-102,NE-IR-105 NE-IR-110	Height/colour variation
AVT-RI-TS-TAS	N 303,	Height colour variation
NIVT-1A	N 104, N 108, N 115, N 121	Height/ spike colour variation
NIVT-1B	N 202, N 210, N 227, N 231	Height/ variation
NIVT-3A	N 409, N 415, N 418, N 419	Height/ maturity variation
NIVT-5A-RI-TS	N 712, N 720, N 724,	Spike/ variation
SPL-VLS-TS	SPL-VLS- N 103	Height/ maturity variation

Entries recommended to be dropped from further testing:

Trial	Entry	Remark
NIVT-1B	N 228	High mixture and segregation
NIVT-5A-RI-TS	N 720	Height/ear shape/ maturity variation

Entries exhibiting higher diseases incidence / insect infestation:

Centre	Entry	Remark
IARI-Pusa	N 112, N 127, N 135, N 235	High Aphid infestation

Report on Agronomical Trials:

Centre	Trial	Remark
IARI, Pusa	Irrigation and DOS	Satisfactory DOS is 26.11.2018
RAU, Pusa	Irrigation and DOS	Satisfactory DOS is 26.11.2018
Sabour	Irrigation and DOS	**Rejected** DOS trial due to delayed sowing by one month
Ranchi	Irrigation and DOS	Satisfactory

Report on Pathological Nurseries:

Centre	Nursery	Remark
Ranchi	LBSN, IPPSN	Nurseries were planted but disease pressure was low
Sabour	LBSN, IPPSN	Satisfactory
Pusa	LBSN, IPPSN	Nurseries were planted but disease pressure was low

Report on Physiology Trials MLHT-1 & 2:

Centre	MLHT-1 / MLHT-2	Remark
Ranchi	MLHT-I: 18.11.18 and MLHT-II: 14.12.18 DTSN 2.11.2018 RI	Satisfactory

Special comments, if any; At Chianki the crop stand of NE-RI 304 genotype was patchy across replication in in AVT RI trial and thus lower yields are expected. To maintain uniformity in trial conduction and also for proper expression of genotypes machine sowing will be better. Aphid Infestation was observed at IARI, Pusa. Rat/bird damage was observed in Entry NE-IR-106 (10%) at Sabour and NE-IR-106 (15%) at RPCAU and (10%) at Sabour Centres and that need to compensate accordingly.

Team-III

Period of visit: 12 - 16 March, 2019

Team	Centres Visited
Dr. Gyanendra Singh, IIWBR, Karnal; Dr. Nayier Ali, BAU Ranchi, Jharkhand; Dr. Shiv Pratap Singh, NDUAT, Ayodhya U.P.; Dr. Somveer Singh, CSAUAT, Kanpur; Dr C N Mishra, ICAR-IIWBR, Karnal	Naini, Varanasi, Chandauli, Maharajganj (Basuli), Basti, Kumarganj, Masodha, Amethi, Deegh, Kanpur Araul

Breeding trials allocated & monitored:

Centre	Trial	Remark*
Naini	AVT-IR-TS-TAS	Very Good
BHU Varanasi	AVT-IR-TS-TAS, AVT-RI-TS-TAS, SPL VLS, NIVT1A, NIVT1B, NIVT3A, NIVT5A	Good
Chandauli	AVT-IR-TS-TAS, SPL VLS	Rejected - Faulty Layout
Maharajganj (Basuli),	AVT-RI-TS-TAS	Rejected - Faulty Layout & Delayed Sowing
Basti	AVT-IR-TS-TAS	Rejected, wider spacing
Faizabad	AVT-IR-TS-TAS, AVT-RI-TS-TAS, SPL VLS, NIVT1A, NIVT1B, NIVT3A, NIVT5A	Very Good
	SPL AST	Rejected - Faulty Layout
Amethi	AVT-IR-TS-TAS	Trial Vitiated (Saline/Alkali soils)
Deegh	AVT-RI-TS-TAS	Very Good
Kanpur	AVT-IR-TS-TAS, AVT-RI-TS-TAS, SPL VLS, NIVT1A, NIVT1B, NIVT3A, NIVT5A	Good
Araul	AVT-IR-TS	Rejected

*****Evaluated trials as very good, good and average based on conduction.

Trials rejected by monitoring team: Nil

Centre	Trial	Remark*
Chandauli	AVT-IR-TS-TAS, SPL VLS	Rejected - Faulty Layout
Maharajganj (Basuli),	AVT-RI-TS-TAS	Rejected - Faulty Layout and Delayed Sowing
Basti	AVT-IR-TS-TAS	Rejected wider pacing
Faizabad	SPL AST	Rejected - Faulty Layout
Amethi	AVT-IR-TS-TAS	Trial Vitiated - (Saline/Alkali soils)
Araul	AVT-IR-TS	Rejected- Poor plant stand and poor management

Entries showing promising performance in breeding trials:

Trial	Entry	Trial	Entry
AVT-IR-TS-TAS,	NE-IR-105, NE-IR-108	NIVT1B	N-217, N-218, N-219, N-224
AVT-RI-TS-TAS,	NE-RI-301, NE-RI-304	NIVT3A	N-434
NIVT1A	N-103, N-109, N-125, N-126	NIVT5A	N-703, N-709, N-719

Entries recommended for purification:

Trial	Entry	Comments
AVT-IR-TS-TAS	NE-IR-109	Mixture/ off types /variation in plant height
NIVT1A	N-108, N-113, N-130	
NIVT1B	N-201, N-210, N-220, N-223, N-230, N-233	
NIVT3A	N-409, N-415,	
NIVT5A	N-701, N-706,	

Entries recommended to be dropped from further testing:

Trial	Entry	Comments
NIVT1A	N-104	Segregation for plant height / ear type/ maturity
NIVT1B	N-202	Segregation for plant height / ear type/ maturity
NIVT3A	N-431, N-414, N-418	Segregation for plant height / maturity
NIVT5A	N-720, N-724	Segregation for plant height / ear shape/ maturity

Entries exhibiting higher diseases incidence / insect infestation: NIL

Centre	Entry	Remark
Faizabad	N-104, N-215, N-706	Leaf Blight Score (36 or more)

Report on Agronomical Trials:

Centre	Trial	Remark
Varanasi, Faizabad, Kanpur	DOS and Irrigation level	Conducted as per layout plan

Report on Pathological Nurseries:

Centre	Nursery	Remark
Varanasi	LBSN, NIVTs	Low disease development
Faizabad	LBSN, PPSN NIVTs	Leaf rust started developing in entries, high infection in infectors.
Kanpur	PPSN, NIVTs	Only yellow rust development, however mandate was for leaf rust
	Entomological Nurseries	Low infection for shoot fly

Report on Physiology Trials MLHT-1 & 2:

Centre	Trials	Remark
Faizabad	MLHT 1 & 2	Not as per technical programme, Rejected
Kanpur	MLHT 1 & 2, DTSN	Satisfactory

Special comments, if any; At Nain centre more trials especially RI may be given. For proper development of leaf blight time of sowing for LBSN should be early/timely. At Varanasi sowing with the drill was initiated, however it needs further refinement. At Kanpur centre, crop damage by animals/dogs be assessed and correct report of yield. At voluntary centres the trials may be properly coordinated by the main centre. The team also visited the seed production programme at different centres, the nucleus seed production programme at Faizabad and Kanpur was very poor.

Zonal Monitoring Report, 2018-19: Central Zone

Team-I: Period of visit- Feb 18-21, 2019

Team	Centres Visited
Dr Hanif Khan, ICAR-IIWBR, Karnal; Dr Jang Bahadur Singh, IARI-RS, Indore; Dr K K Mishra, JNKVV, ZARS, Powarkheda, JNKV, MP; Dr Jagdish Choudhary, MPUAT, Udaipur; Sh. S. K. Patel*, WRS, SDAU, Vijapur, Gujarat	SK Nagar, Vijapur, Anand, Arnej, Dhandhuka, Sanosara (Lok Bharti), Amreli, Junagadh

Dr K H Dabhi, was substituted by Sh. S K Patel, WRS, SDAU, Vijapur

Breeding trials allocated & monitored:

Centre	Trial	Remark
S K Nagar	AVT-IR-TS-TAD, AVT-IR-LS-TAD, NIVT-4	Satisfactorily conducted
Vijapur	AVT-IR-TS-TAD, AVT-IR-LS-TAD, AVT-RI-TS-TAD, NIVT-2,NIVT-3B, NIVT-4 & NIVT-5B	Satisfactorily conducted
Anand	AVT-IR-TS-TAD, AVT-IR-LS-TAD, AVT-RI-TS-TAD,	Satisfactorily conducted
Arnej	NIVT-5B	Poor plant population
Dhandhuka	AVT-RI-TS-TAD, NIVT-5B	Satisfactorily conducted
Sanosara	AVT-IR-LS-TAD, AVT-RI-TS-TAD,	Satisfactorily conducted
Amreli	AVT-IR-TS-TAD,	AVT-IR-TS-TAD Satisfactorily conducted
Amreli	AVT-RI-TS-TAD	Sown on 12/11/2018 under full irrigated, hence, rejected
Junagadh	AVT-IR-TS-TAD, AVT-RI-LS-TAD, AVT-RI-TS-TAD, NIVT-2, NIVT-3B, NIVT-4 & NIVT-5B	All satisfactorily conducted

Trials not conducted / rejected by monitoring team:

Centre	Trial	Remarks
Amreli	AVT-RI-TS-TAD	AVT-RI-TS-TAD was sown on 12/11/2018 under full irrigated conditions, hence, rejected

Entries recommended for purification:

Trial	Entry	Remarks
AVT-IR-TS-TAD	CZ-TS-111, 112 113	Off-types were found & need purification
AVT-RI-TS-TAD	CZ-RI-303, 304, 306	
AVT-IR-LS-TAD	CZ-LS-203, 204	
NIVT-2	N-301, 305, 308, 312, 313, 318, 322, 324, 325, 332	
NIVT-3B	N-518, N-525	
NIVT-4	N-616, 619, 621	
NIVT-5B	N-802, 806, 808	

Entries recommended to be dropped from further testing:

Trial	Entry	Remarks
AVI-IR-TS-TAD	CZ-TS-104	High variation for plant height, ear characteristics, and maturity duration
AVI-IR-LS-TAD	CZ-LS-206	High variation for plant height, ear characteristics, and maturity duration
NIVT-2	N-314	Durum genotype
	N-327	High variation for ear characteristics, plant height and maturity duration
	N-328	High variation for ear characteristics, and maturity duration
	N-329	High variation for maturity duration
NIVT-5B	N-811	High variation for ear characteristics and maturity duration
	N-814	High variation for plant height
	N-825	High variation for ear characteristics, plant height and maturity duration

Entries found promising:

Trial	Entry
NIVT-2	N-303, 315, 316, 331
NIVT 3B	N-516, 519
NIVT-4	N-610, 611
NIVT-5B	N-815, 816, 824
AVI-IR-TS-TAD	CZ-TS-102, 105, 108
AVI-IR-LS-TAD	CZ-LS-208
AVI-RI-TS-TAD	CZ-RI-305

Entries exhibiting higher diseases incidence / insect infestation:
The trials were free from diseases.

Report on Agronomical Trials:

Trials	Centres		
	Vijapur	Junagadh	Remarks
RIR-TS-TAD	Conducted	Conducted	Satisfactory
SPL-6	Not-conducted	Not-conducted	Due to unavailability of wheat genotype seeds

Report on Pathological Nurseries:

Centre	Nursery	Remark
Vijapur	PPSN	AVT Entries no. 84, 98, 147, 148, 152 have more than 30S black rust. Entry no. 146 have 60S black rust and 40S brown rust. Among NIVT entries no. 7, 8, 22, 128, 137, 138, 158, 213, 214, 258 had above 20S black rust incidence.
Vijapur	IPPSN	Most of the entries had very low level of brown and black rust incidence
Junagadh	PPSN	Entry no. 213 and 214 have about 20S black rust severity. Entries Nos. 9, 11, 20, 72, 82, 116, 119, 156, have about 40S severity of brown rust severity in AVT entries. Among NIVT entries No. 8, 22, 23, 28, 48, 64, 130 having 40S severity of brown rust. AVT Entry no. 146 had 80S brown rust incidence.

Report on Physiology Trials:

Centre	Trial	Remark
Vijapur	DTSN	Nursery was conducted satisfactorily
Junagadh	DTSN and MLHT-1, MLHT-2	Trials were conducted satisfactorily

Team-II

Period of visit- Feb 25- March 1, 2019

Team	Centres visited
Dr. S. V. Sai Prasad, ICAR-IARI, RS, Indore; Dr. BS Tyagi, ICAR-IIWBR, Karnal; Dr. AG Pansuriya, ,JAU,Junagadh; Dr .Om Prakash Gangwar, ICARIIWBR, Flowerdale; Dr. Dinesh Pandey, IGKVV, Bilaspur	Kota, Udaipur, Pratapgarh, Ujjain, Indore, Bhopal and Powarkheda

Breeding trials allocated & monitored:

Centre	Trial	Remark
Kota	AVT-IR-TS-TAD, AVT-IR-LS-TAD, NIVT-2, NIVT3B, NIVT4 & NIVT5B	Satisfactory but NIVT 5B was sown on 19.11.2018 due to late receipt of seed parcel, hence rejected. AVT-IR-LS-TAD was conducted in 3 replications
Udaipur	AVT-RI-TS-TAD, AVT-IR-TSTAD, AVT-IR-LS-TAD, NIVT-2, NIVT-3B, NIVT-5B	Satisfactory but uneven growth and plant stand in NIVT 5B, hence rejected
Pratapgarh	AVT-RI-TS-TAD	Satisfactorily conducted
Ujjain	AVT-IR-TS-TAD	Satisfactorily conducted
Indore	AVT-RI-TS-TAD,AVT-IR-TS,TAD, AVT-IR-LS-TAD, NIVT-2,NIVT3BNIVT-4 & NIVT-5B	Satisfactorily conducted and excellent
Bhopal	AVT-RI-TS-TAD,AVT-IR-TS-TAD	Satisfactorily conducted
Powarkheda	AVT-RI-TS-TAD,AVT-IR-TS-TAD,AVT-IR-LS-TAD, NIV2,NIVT3B, NIVT-4 & NIVT-5B	Satisfactorily conducted

Trials not conducted / rejected by monitoring team:

Centre	Trial	Remark
Kota	NIVT-5B	NIVT 5B was sown on19.11.2018 due to late receipt of seed parcel, hence rejected
Udaipur	NIVT -5B	Uneven growth and plant stand in NIVT 5B, hence rejected

Entries recommended for purification:

Trial	Entry	Remarks
AVT-IR-TS-TAD	CZ-TS-111, 113	Off-types were found & need purification
AVT-RI-TS-TAD	CZ-RI-302, 304, 305	
AVT-IR-LS-TAD	CZ-LS-201, 202, 208	
NIVT-2	N-301, 318, 319, 322, 323, 324, 325, 326, 330, 335	
NIVT-3B	N-509, N-514	
NIVT-4	N-604, 616,	
NIVT-5B	N-817, 825	

Entries recommended to be dropped from further testing:

Trial	Entry	Remarks
AVI-IR-TS-TAD	CZ-TS-104, 112	High variation for plant height, ear characteristics and maturity duration
AVI-IR-LS-TAD	CZ-LS-203, 206	High variation for plant height, ear characteristics and maturity duration
NIVT-2	N-314	Durum genotype
	N-327	High variation for plant height, ear characteristics and maturity duration
	N-328	High variation for ear characteristics, and maturity duration
	N-329	High variation for maturity duration
NIVT-3B	N-501, 510,525	High variation for ear characteristics and maturity duration
NIVT-4	N-619, 621	High variation for ear characteristics, and maturity duration
NIVT-5B	N-811	High variation for ear characteristics and maturity duration
	N-814	High variation for ear characteristics and maturity duration

Entries found promising:

Trial	Entry
NIVT-2	N-310, 311, 313, 315, 324, 325, 331, 336
NIVT-3B	N-505, 507, 512, 518, 519
NIVT-4	N-603, 606, 607, 610, 614, 617, 620, 625
NIVT -5	N-801, 809, 810, 813, 815, 816, 819, 821, 822, 824
AVI-IR-TS-TAD	CZ-TS-101, 106, 107, 109, 110
AVI-IR-LS-TA	CZ-LS-204, 208, 209, 210
AVI-RI-TS-TAD	CZ-RI-301, 306

Report on Agronomical Trials:

Trials	Udaipur	Indore	Powarkheda
RIR-TS-TAD	Satisfactorily	Satisfactorily	Satisfactorily
SPL-6	Satisfactorily	Satisfactorily	Satisfactorily
SPL-7	Satisfactorily	-	-

Report on Pathological Nurseries

Centre	Nursery	Remark
Indore	PPSN	AVT Entries no. NWTS-105, PZ-TS-109, SPL-AST-103 have more than 40s black rust. AVT Entries no. SPL-AST -103 have more than 40S brown rust. Among NIVT entries no .N-117, N-429, N-514, N-725 have above 40S black rust incidence.
Powarkhheda	PPSN	Disease was initiating in infectors, and entries were free from rust except brown rust in few entries of AVT

Report on Physiology Trials:

Centre	Trial	Remark
Indore	DTSN and MLHT-1 MLHT-2	Satisfactorily

Team-III

Period of visit: March, 01-06, 2019

Team	Centres Visited
Dr Lokendra Kumar, ICAR-IIWBR, Karnal; Dr Gopalareddy K, ICAR-IIWBR, Karnal; Dr AP Agrawal, IGKV, Bilaspur; Dr KC Sharma, , ICAR-IARI (RS), Indore; Dr Prakasha TL, ICAR-IARI (RS), Indore	IGKV Raipur, ICAR-NIBSM Raipur, Bilaspur, Jabalpur, Sagar centre, Tikamgarh, Morena, Gwalior

Breeding trials allocated & monitored:

Centre	Trial	Remark*
IGKV Raipur	AVT-IR-TS-TAD, NIVT-3B	Trial was very good
	AVT-IR-LS-TAD	Trial was good
ICAR-NIBSM Raipur	AVT-IR-TS-TAD	Faulty layout
	AVT-IR-LS-TAD	Trial was very poor
	AVT-RI-TS-TAD	Trial was poor
IGKV Bilaspur	AVT-IR-TS-TAD, AVT-RI-TS-TAD, NIVT-2, NIVT-3B, NIVT-5B	Trial was very good
JNKVV Jabalpur	AVT-IR-TS-TAD	Faulty layout
	AVT-IR-LS-TAD, AVT-RI-TS-TAD, NIVT-2, NIVT-3B, NIVT-5B	Trial was very good
JNKVV Sagar	AVT-IR-TS-TAD, AVT-IR-LS-TAD, NIVT-5B	Trial was very good
	AVT-RI-TS-TAD, NIVT-2	Faulty layout
JNKVV Tikamgarh	AVT-IR-TS-TAD	Trial was excellent
Morena	AVT-IR-TS-TAD	Trial was very good
Gwalior	AVT-IR-TS-TAD, AVT-IR-LS-TAD, AVT-RI-TS-TAD, NIVT-2, NIVT-3B	Trial was excellent

*****Evaluated trials as excellent, very good, good, average and poor based on conduction

Trials rejected by monitoring team:

Centre	Trial	Remark
ICAR-NIBSM Raipur	AVT-IR-TS-TAD	Rejected due to faulty layout
	AVT-IR-LS-TAD	Rejected due to the very poor plant stand
JNKVV Jabalpur	AVT-IR-TS-TAD	Rejected due to faulty layout
JNKVV Sagar centre	AVT-RI-TS-TAD, NIVT-2	Rejected due to faulty layout

Entries recommended for purification:

Trial	Entry	Remark
AVT-IR-TS-TAD	CZ-TS-111 CZ-TS-113	Off-type plants observed
AVT-IR-LS-TAD	CZ-LS-203, -206	Variation in plant height
AVT-RI-TS-TAD	CZ-RI-305	Variation in plant height
NIVT-2-IR-TS-TAS	N-311, -312, 313, 327, 329	Variation in plant height
NIVT-3B	N-510	Waxy and non waxy spike
	N-512, 525, 521	Variation in plant height
NIVT-5B-RI-TS-TAD	N-809, 823	Variation in plant height

Entries recommended to be dropped from further testing:

Trial	Entry	Remark
AVT-IR-TS-TAD	CZ-TS-104	Segregating for height and ear traits
NIVT-2-IR-TS-TAS	N-314	Durum genotype
NIVT-5B-RI-TS-TAD	N-811	Segregation
	N-814	Two plant types

Entries exhibiting higher diseases incidence / insect infestation: No disease on trials across locations

Report on Agronomical Trials:

Centre	Trial	Remark
IGKV Bilaspur, JNKVV Jabalpur, RVSKVV Gwalior	RIR-TS-TAD, SPL-6	Nicely conducted

Report on Physiology Trials/Nurseries:

Centre	Trial	Remark
IGKV Bilaspur	EIGN-I, NGSN, SDN, SSN	Conducted nicely
JNKVV Jabalpur	QCWBN, DTSN, SSN	Conducted nicely

Special comments, if any: At Tikamgarh center only one trial was conducted. The conduction & performance of trial was excellent, hence team recommends that centre may be given more trials in future for better evaluation of genetic materials. At RVSKVV Gwalior center the expression of all the trials was excellent; hence, yield levels of all trials may be higher in comparison of other centers. The date of sowing for Restricted Irrigation trials should be mentioned in technical programme of resource management

Zonal Monitoring Report, 2018-19: Peninsular Zone

Team-I

Period of visit: 03-02-2019 to 06-02-2019

Team	Centres Visited
Dr. C N Mishra, IIWBR, Karnal; Dr.Suma Biradar, UAS Dharwad; Dr. Gurudatt Hegde, UAS Dharwad; Dr. V K Vikas, IARI-RS, Wellington; Dr. Yashavantha Kumar K. J, ARI, Pune; Dr. R S Chhokar, IIWBR, Karnal	Bagalkot, Mudhol, Kallolli, Arabhavi, Ugar Khurd, Nippani, Bailhongal, Dharwad

Trials allocated & monitored: Breeding

Trials	Centre	Remarks	Trials	Centre	Remarks
AVT-IR-TS-TAD	Dharwad, Kallolli	Excellent	SPL-DIC	Dharwad, Kallolli	Excellent
	Arabhavi	Good		Ugar Khurd	Good
	Ugar Khurd	Average		Mudhol	Rejected (late sown)
	Nippani	Excellent	NIVT-2	Dharwad, Nippani	Excellent
	Mudhol	Rejected (late sown)		Ugar Khurd	Good
AVT-IR-LS-TAD	Dharwad, Kallolli, Arabhavi, Ugar Khurd, Nippani	Excellent / good	NIVT-3B	Dharwad	Good
			NIVT-4	Dharwad, Nippani	Excellent
				Ugar Khurd	Average
	Bailhongal	Late sowing	NIVT-5B	Dharwad	Excellent
AVT-RI-TS - TAD	Dharwad	Excellent		Nippani	Rejected (Extra irrigation)
	Nippani	Good		Bagalkot	Good
	Bailhongal	Excellent			
	Bagalkot	Good			

Trials not conducted / rejected by monitoring team:

Centre	Trial	Remark
Mudhol	AVT-IR-LS-TAD	Trial was not conducted and shifted to Bailhongal
	AVT-IR-TS-TAD, SPL-DIC	Rejected due to Appeared to be late sown
Nippani	NIVT-5B	Rejected due to Additional irrigation

Entries showing promising performance in breeding trials:

Trial	Entry	Remarks
AVT-IR-TS-TAD	PZ-TS-107 , PZ-TS-109	Uniform maturity and high ear density
AVT-IR-LS-TAD	PZ-LS-202, PZ-LS-204, PZ-LS-206	Early maturity and high ear density
AVT-RI-TS -TAD	PZ-RI-305, PZ-RI-304, PZ-RI-309	Uniform maturity and high ear density
SPL-DIC	DIC-IR-106	Good plant stand and high ear density
NIVT-2-IR-TS-TAS	N-308, N-321, N-325	
NIVT-3B-IR-LS-TAS	N-505, N-522	Optimum maturity, good plant stand and high ear density
NIVT-4-IR-TS-TDM	N-604, N-620, N-625	
NIVT-5B-RI-TS-TAD	N-807, N-815, N-818, N-823	

Entries recommended for purification:

Trial	Entry	Remarks
AVT-IR-TS-TAD	PZ-TS-101, PZ-TS-108, PZ-TS-110	Few plants showing height or maturity variation
	PZ-TS-102	Bread wheat Mixture
AVT-IR-LS-TAD	PZ-LS-203	Few plants showing height variation
AVT-RI-TS -TAD	PZ-RI-301, PZ-RI-303, PZ-RI-306, PZ-RI-312, PZ-RI-310	Few plants showing height variation
SPL-DIC	DIC-IR-104	Few plants showing height variation
NIVT-2-IR-TS-TAS	N-303,N-312, N-318, N-329	Few plants showing height variation
NIVT-4-IR-TS-TDM	N-611, N-616, N-622	Few plants showing height variation
	N-615, N-621	Bread wheat mixture
NIVT-5B-RI-TS-TAD	N-802, N-810, N-825	Few plants showing height variation

Entries recommended to be dropped from further testing:

Trial	Entry	Remarks
SPL-DIC	DIC-IR-107	Segregation for height and ear type
NIVT-2-IR-TS-TAS	N-306, N-328, N-336	Segregation for height and ear type
	N-314	Durum entry in aestivum trial
NIVT-5B-RI-TS-TAD	N-811, N-814, N-822	Segregation for height and ear type

Entries exhibiting higher diseases incidence / insect infestation:

Entries	Remark
N-313, N-326	Shoot fly incidence more than 30% at Dharwad centre
N-302, N-331, N-336, N-611	Leaf blight incidence ≥24 at Dharwad centre
PZ-TS-103	Stem rust 5S at Dharwad centre

Report on Agronomical Trials:

Centre	Trial	Remark
Dharwad	RIR-TS-TAS	Excellent. The response was up to two irrigation and genotype RIR-505 was performing well across irrigation levels.
	SPL-4, SPL-5, SPL-6, SPL-7	Conducted as per the technical programme and had good plant stand. Nitrogen response in SPL-5 and SPL-7 was less due to previous leguminous crop

Report on Pathological Nurseries:

Centre	Nursery	Remark
Dharwad	PPSN and IPPSN	Epiphytotic conditions created for brown rust were excellent. The development of rust in entries was low. Individual responses in the entries were recorded

Report on Physiology Trials:

Centre	Trial	Remark
Dharwad	MLHT-1, MLHT-2 and DTSN	The nurseries were conducted properly. High mixture was observed in WH 730 check and needs to be replaced with pure seeds.

Special comments, if any: For precision experimentation there is need to provide precision seed drill. No incidence of rust was observed in the farmers' field thought the monitoring track. Stem rust was observed in infector lines of trap nursery trial at Bailhongal. Training needs to be imparted to the newly recruited staff. Nucleus and breeder seed production plots were monitored at different centers of the UAS Dharwad

Team-II

Period of visit: 5.2.2019 to 8.2.2019

Name of team members:

Team	Centres Visited
Dr. SK Singh, ICAR-IIWBR, Karnal; Dr. DA Gadekar, MPKV, Niphad; Dr. VS Baviskar, ARI, Pune; Dr. PL Kashyap, ICAR-IIWBR, Karnal	Akola, Washim, Parbhani, Pravaranagar, Savilivihir, Niphad and Nashik.

Trials allocated & monitored:

Centre	Trials	Remark
Akola	AVT-IR-TS-TAD, AVT-IR-LS-TAS, NIVT-2, NIVT-3B, NIVT-4, NIVT-5B, Agronomy trial-RIR	Satisfactorily conducted.
Washim	Agronomy trial-RIR	
Parbhani	AVT-IR-TS-TAD, AVT-IR-LS-TAS, AVT-RI-TS-TAD, NIVT-2, NIVT-3B	
Pravaranagar	AVT-IR-TS-TAD, AVT-IR-LS-TAS	
Savilivihir	AVT-RI-TS-TAD	
Niphad	AVT-IR-TS-TAD, AVT-IR-LS-TAS, AVT-RI-TS-TAD, NIVT-2, NIVT-3B, NIVT-4, NIVT-5B	
Nasik	AVT-IR-TS-TAD, AVT-IR-LS-TAS, AVT-RI-TS-TAD	

Trials not conducted / rejected by monitoring team: AVT-IR-LS-TAS trial at Akola was rejected due to grazing by the wild animals.

Entries recommended for purification:

Trial	Entry	Remark
AVT-IR-TS-TAD	PZ-TS-101, PZ-TS-108, PZ-TS-109	Off-types
NIVT 2	N-304, N-312, N-318, N-327	
NIVT 3B	N-501	
NIVT-5B	N-805, N-814	

Entries recommended to be dropped from further testing:

Trial	Entry	Remark
NIVT -2	N-314	Durum wheat genotypes in bread wheat trial.

Entries exhibiting higher diseases incidence / insect infestation: Brown and black rusts were not observed anywhere at the centres monitored.

Report on Agronomical Trials:

Centre	Trial	Remark
Akola	Agronomy-RIR	Rejected - very poor population (>10% on overall basis) under zero irrigation
Washim		Rejected as it seems that the trial received more than the recommended irrigations.
Niphad		Very good trial

Report on Pathological Nurseries:

Centre	Nursery	Remark
Niphad	PPSN, IPPSN, LBSN, EPPSN, MDSN	Satisfactory conduction of nurseries and very good disease creation.

Report on Physiology Trials: MLHT-1, MLHT-2 and DTSN conducted satisfactorily.

Special comments, if any: Conduction was very good at the centres. The issue of fund release for voluntary centres was discussed where the funds for Nashik (voluntary centre) is continuously given to Niphad centre.

Team-III

Period of visit: 19th to 21th February, 2019

Team	Centres Visited
Dr. SS Dodake, ARS, Niphad; Dr. V Rudra Naik, UAS, Dharwad; Dr. RP Meena, ICAR-IIWBR, Karnal; Dr. B C Game, ARS, Niphad;Dr. Charan Singh, ICAR-IIWBR, Karnal	Pune, Baramati, Mahabaleshwar, Karad, K-Digraj, Kolhapur

Breeding trials allocated & monitored:

Centre	Trial	Remark*
Pune	AVT-IR-TS-TAD, AVT-IR-LS-TAD, AVT-RI-TS-TAD, NIVT-2, NIVT-3B, NIVT-4, NIVT-5B, SPL-DIC-IR-TS-PZ	Trial was very good
Baramati	AVT-RI-TS-TAD	Stunted growth
Mahabaleshwar	AVT-IR-TS-TAD, AVT-IR-LS-TAD, SPL-DIC-IR-TS-PZ	Frost damage
Karad	AVT-IR-TS-TAD, AVT-IR-LS-TAD, SPL-DIC-IR-TS-PZ	Trials were very good
K-Digraj	SPL-DIC-IR-TS-PZ	Trial was very good
Kolhapur	AVT-IR-TS-TAD, AVT-IR-LS-TAD, SPL-DIC-IR-TS-PZ	Trials were very good

*****Evaluated trials as very good, good and average based on conduction

Entries recommended for purification:

Trial	Entry	Remark
AVT-IR-TS-TAD	PZ-TS-104	Variation for plant height & maturity
	PZ-TS-105	Variation for plant height & maturity, mixture of club & tapering ear-head shape
	PZ-TS-109	Variation for maturity
	PZ-TS-110	Variation for plant height & maturity
AVT-IR-LS-TAD	PZ-LS-205	Variation for plant height
NIVT-2-IR-TS-TAS	N-312, 313, 322, 327, 335	Height variation
NIVT-3B-IR-LS-TAS	N-503, 515, 518	
NIVT-4-IR-TS-TDM	N-616, 619	
NIVT-5B-RI-TS-TAD	N-811	
SPL-DIC-IR-TS-PZ	DIC-IR-104	

Entries recommended to be dropped from further testing:

Trial	Entry	Remark
AVT-IR-TS-TAD	PZ-TS-101	Segregating for height and maturity
NIVT-2-IR-TS-TAS	N-307	Segregating for ear-head (club shaped, tapering)
NIVT-3B-IR-LS-TAS	N-525	Segregating for height and maturity
NIVT-5B-RI-TS-TAD	N-814	Segregating for height

Note: In NIVT-2 (N-314) and AVT-IR-LS-TAD one d*urum* wheat genotype (PZ-LS-201) were unfit.

Entries exhibiting higher diseases incidence / insect infestation: No foliar diseases across locations

Report on Agronomical Trials:

Centre	Trial	Remark
Pune	Varieties X Irrigation (RI)	Trial conduct was very good, No weed & lodging. By visual observation Ag-RIR-502 & Ag-RIR-509 seems to be good genotypes

Report on Physiology Trials/Nurseries:

Centre	Trial	Remark
Pune	MLHT	Trial was very good
	DTSN	Problems in seed germination

Special comments, if any: Breeding trials are not recommended at Mahabaleshwar due to unavailability of sufficient plot size and light soil type. All trials conducted at Mahabaleshwar centre are heavily damaged by extreme frost. At Baramati centre, soil is not suitable for conduction of breeding trials due to rocky terrain.

Appendix - IV

Recording of data on agronomic characteristics and sowing time of coordinated trials

Guidelines for Recording of Agronomic Characteristics in Coordinated Trials

SN	Characteristics	Method of recording
1.	Days to heading	It is calculated as days taken from sowing to emergence of 75% of ears (spikes) in a plot. Observation on off-type plant(s) should not be considered.
2.	Days to maturity	Total days taken from sowing to maturity when all the plants in the plot show natural senescence and the grains become hard and fit for harvesting.
3.	Plant height	Measured at the time of maturity in centimeters from the ground level upto the terminal spikelet, excluding the awns. Care should be taken to record the measurement from the most commonly representative plants in the plot.
4.	Lodging	It is visually determined in plots per replication and recorded in percentage when plants are bent at more than 30° angle.
5.	Threshability	It is recorded either Easy (Ey), Medium (M) or Hard (H). In easy threshability grains are easily separated when earheads are crushed between the palms. Medium-hard threshability is similar to well-known variety Sonalika. Hard threshability is commonly observed in synthetic wheats and some dicoccum varieties.
6.	Grain colour	This trait is recorded in three categories i.e., Amber (A), White (W) or Red (R). Most of the test entries bear amber coloured grains, few might be white (associated with soft grain texture) and rarely red (except in case of Dicoccum and Triticale).
7.	Grain texture	Grain texture is recorded in three categories i.e., Hard (H), Semi-hard (SH) or Soft (So). Hard grains make a typical sound when crushed between the teeth. A hard grain is vitreous and shining, while a soft grain has dull appearance. Semi-hard category is in-between hard and soft grains. Maximum varieties or test entries usually belong to semi-hard class.
8.	1000-grains weight	Bulk harvest of grains from a test entry should be utilized to draw sample(s) for counting grains (250, 500 or 1000 in number) and their weight is recorded in grams using electronic balance. Grain counter may be used, wherever available, for increasing efficiency and precision.
9.	Grain yield per plot	Two border rows (one row from each side) of the gross plot should be removed to record the grain yield from the remaining rows which comprise the net plot (4 rows in case of NIVT/IVT and 10 rows in case of AVT). The net plot grain yield should be recorded in grams using electronic balance.

Sowing time of yield trials in different zones

Trial Series	NHZ	NWPZ	NEPZ	CZ	PZ
AVT-IR-TS-TAS	Nov. 1-15	Nov. 1-15	Nov. 15-25	-	-
AVT-IR-TS-TAD	-	-	-	Nov. 10-20	Nov. 5-15
AVT-IR-TS/LS-TAS	-	-	-	-	-
AVT-IR-LS-TAS		Dec. 10-25	Dec. 15-25	Dec. 5-15	Dec. 1-10
AVT-RF-TS-TAS	Oct. 15-31	-	Oct. 25-Nov.10	-	-
AVT-RF-TS-TAD	-	-	-	-	Oct. 15-31
AVT-RI-TS-TAS/TAD	-	Oct.25-Nov.5	Oct.25-Nov.10	Oct. 25 - Nov.10	Oct. 25 - Nov.10
AVT-RF-ES-TAS	Oct. 1-10	-	-	-	-
AVT-RI-LS-TAS	Dec. 1-15	-	-	-	-
NIVT-1A-IR-TS-TAS	-	Nov. 1-15	Nov. 15-25	-	-
NIVT-1B-IR-TS-TAS	-	Nov. 1-15	Nov. 15-25	-	-
NIVT-2-IR-TS-TAS	-	-	-	Nov. 10-20	Nov. 10-20
NIVT-3A-IR-LS-TAS	-	Dec. 10-25	Dec. 15-25	-	-
NIVT-3B-IR-LS-TAS	-	-	-	Dec. 5-15	Dec. 1-10
NIVT-4-IR-TS-TDM	-	-	-	Nov. 10-20	Nov. 5-15
NIVT-5A-RI-TS-TAS	-	Oct.25-Nov. 5	Oct.25-Nov.10	Oct. 25-Nov. 10	Nov.1-10
NIVT-5B-RI-TS-TDM	-	-	-	Oct. 25-Nov. 10	Oct. 25 - Nov.10
IVT-RF-TS-TAS	Oct. 15-31	-	-	-	-
IVT-IR-TS-TAS	Nov. 1-15	-	-	-	-
IVT-RI-TS/LS-TAS	-	-	-	-	-
SPL-IR-TS-Dicoccum	-	-	-	-	Nov. 1-15
SPL-VLS-IR-TAS	-	Jan. 1-15	Jan. 1-15	-	-
SPL-SAL/ALK	-	Nov. 1-15	Nov. 15-25	Nov. 10-20	-
HYPT-IR-ES	-	Oct. 20-Nov.5	-	-	-

Appendix - IV

Norms with respect to site mean and coefficient of variation for acceptance/ rejection of coordinated yield trials

Norms for conduction of yield trials

1. The name and parental details of NIVT/IVT and Special trial entries once submitted and finalized in the workshop will not be changed.
2. The test sites of all trials and entries including the checks finalized in the workshop should not be changed.
3. Date of sowing should be strictly adhered to as given in the planting details supplied with the layout plan of different trials.
4. Seed rate and plot size should not be changed.
5. Plot border rows of the trial entries should be excluded during harvesting for reporting the net plot yield.

Norms with respect to site mean and coefficient of variation (CV) for acceptance or rejection of coordinated yield trials

Minimum limit of site mean (Yield in q/ha)

Zone/Trial	Timely sown irrigated condition	Late sown irrigated condition	Timely sown restricted irrigated condition	Timely sown rainfed condition
NHZ	30	IR=20 RI=15	-	15 (Also for early sown rainfed)
NWPZ	45	35 VLS = 25	30	-
NEPZ	40	30 VLS = 20	25	-
CZ	40	30	25	-
PZ	40	30	25	15
Salinity/ Alkalinity	20	-	-	-
Dicoccum	30	-	-	-
HYPT-IR-ES, NWPZ	65	-	-	-

Maximum limit of coefficient of variation (CV)

Production condition	Maximum limit
Irrigated condition (Timely or late sown)	15%
Restricted irrigated condition	20%
Rainfed condition (Timely sown)	25%
Salt affected condition	25%

Appendix-VI

Criteria for promotion/retention of varieties under test in Coordinated Wheat Varietal Trials

Criteria for Promotion/Retention of Varieties in the Coordinated Wheat Varietal Trials

The varieties qualifying for promotion/retention, besides being high yielding as compared to the best check varieties (including latest identified variety), should possess adequate degree of resistance to rusts and other diseases of regional importance and good nutritional and processing qualities. The following criteria are followed to achieve these objectives.

(I) Yield

Varieties which are significantly superior at 10% level of statistical significance to best performing check of the trial in AVT and best zonal check in NIVT/IVT will be considered for promotion/retention.

(II) Resistance to diseases

(A) Rusts

Varieties qualifying from yield point of view must have adequate degree of resistance to rusts under both natural as well as artificial conditions of infection.

The average coefficient of infection (ACI) for each of the rusts of importance in the particular zones should be considered in respect of varieties qualifying in yield criteria. Important rusts in each zone are as follows:

NHZ & NWPZ : Yellow and Brown
NEPZ : Brown
CZ & PZ : Brown and Black

When data of rusts from centres is not sufficient to calculate ACI, the intensity of susceptibility to rusts should be considered.

Varieties having reaction marked with an asterisk should be given benefit of doubt for susceptibility to that particular rust and thus should be considered suitable for promotion/retention.

(i) Under natural conditions of rust infection (In coordinated varietal trials)

a) ACI upto 15.0

b) Maximum, susceptibility should be considered if ACI could not be worked out. It should not be more than 40S.

c) Varieties with higher susceptibility but marked with asterisk should be given benefit of doubt and therefore not to be rejected on this account.

d) For NEPZ, susceptibility to yellow rust is limited to 40S under natural condition and/ or ACI 25.0 in PPSN.

(ii) Under artificial conditions of rust infection (in plant pathological screening nurseries).

a) ACI not more than 20.0 for varieties meant for irrigated condition and not more than 25.0 for varieties meant for rainfed condition.
b) If ACI is not worked out, maximum susceptibility should not exceed 30S both in case of varieties meant for irrigated and rainfed conditions.
c) Benefit of doubt to be given to varieties with higher degree of susceptibility but marked with an asterisk.

(B) Other diseases

Due weightage should be given to other diseases of regional importance such as *leaf blight for NEPZ and Karnal bunt for NWPZ* and varieties with extreme susceptibility shall be avoided from advancement/retention.

(III) Quality

Varieties qualifying for yield and disease resistance criteria should have at least 10% protein on dry matter basis. Any such variety having less than 10% protein should not be retained/promoted.

Disease Criteria for Promotion/Retention of Varieties

Varieties qualifying for yield	Reaction to rusts of importance in the zone					
	ACI value available		ACI not available		Varieties having higher readings but marked with asterisk	
	Natural conditions	PPSN	Natural conditions	PPSN	Natural conditions	PPSN
Varieties significantly superior in yield to the best check	Upto 15.0	Upto 20.0 for irrigated varieties & upto 25.0 for rainfed varieties	Upto 40S	May be ignored	To be retained/ promoted	To be retained/ promoted

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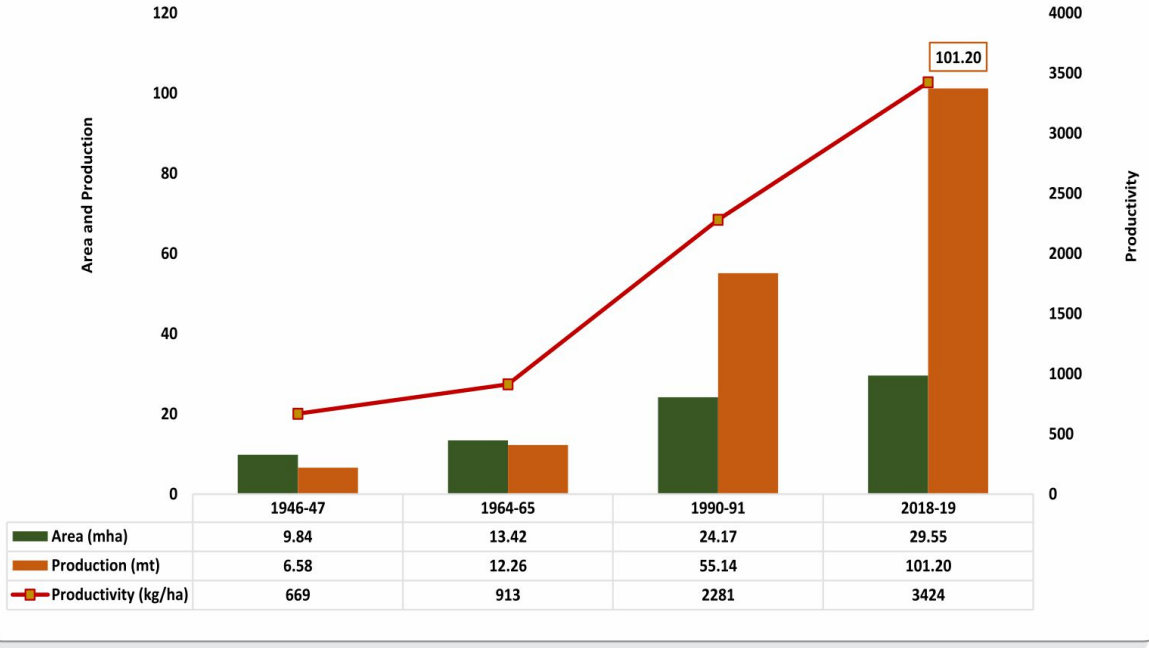
LAND MARK PRODUCTION DURING 2018-19 (>100 MT)



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

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क्षेत्रीय केन्द्र, इन्दौर में आयोजित गोष्ठी के दौरान जारी किया गया