

Hybrid Rice

Hybrid rice is the proven technology for increasing rice production & productivity and with good management yield advantage of 1.0 to 1.5 t/ha can be obtained by cultivation of hybrids as compared to the high yielding varieties under the same set of growing conditions. It is playing an important role in increasing the rice production in our country and appreciable progress has been made in the hybrid rice research and development. As a result of intensive research efforts made the last 25 years, 75 hybrids with high yield potential and better grain quality have been released for commercial cultivation. About 25-30 of them are in the active seed production chain and by encouraging the cultivation of these hybrids in the country, rice production and productivity can further be improved. During the year 2015, hybrid rice was planted in an area of about 2.5 m.ha and more than 80% of the total hybrid rice area in the states of Uttar Pradesh, Jharkhand, Bihar, Chhattisgarh, Madhya Pradesh, Gujarat, Odisha and Haryana. During this year three hybrids *viz.*, KPH 460, ADV 8301 and KRH 4 were released and notified by CSCCSN&RV for commercial cultivation in different states of the country.

For identification of high yielding widely adapted hybrids, a national level three-tier system of evaluation is being adopted since 1999. In this system, the hybrids developed by research network centers, including some of the voluntary centers and those developed by the private sector seed agencies having their own R&D are pooled together based on maturity and these are evaluated in the Initial Hybrid Rice Trials (IHRT). These IHRTs are constituted based on maturity groups into early (<120 days), and medium (121-140 days) trials. IHRT's are conducted at 25-35 locations and these trials consist of test hybrids, national varietal check, national hybrid check, zonal and local varietal checks, in the respective maturity groups.

The hybrids are promoted to next stage of testing *i.e.*, Advance Varietal Trial (AVT 1) based on following criterion. A 10% increase over the best varietal check and 5% increase over the best hybrid check, either on over all mean basis or on zonal mean basis [HRR >45%, intermediate to high amylose content (20-27.5)] qualifies a hybrid to be promoted to AVT 1, where the hybrids are jointly evaluated along with the elite breeding lines promoted from Initial Varietal Trials (IVT). Based on similar criteria, the hybrids are promoted from AVT 1 to AVT 2 stages. In the AVT 2 stage, the hybrids are also evaluated in agronomic trials to assess their response to varying levels of nitrogen. Simultaneously all hybrid entries are tested for resistance to diseases and insect pests and grain quality traits during all the three years. Those hybrids performing consistently well during all the three years are proposed to Varietal Identification Committee (VIC) for consideration.

Since there is an urgent need to develop high yielding hybrids with medium slender (MS) grains on par with the popular variety like Samba Mahsuri (BPT-5204) for Southern India, a separate trial being constituted for hybrids with medium slender grains. This trial is being conducted for the last 11 years with Samba Mahsuri as the national varietal check and DRRH-3 is included as national hybrid check since Kharif 2010. As a result of constitution of a separate trial like this, many promising hybrids with MS grain type *viz.*, TNAU RH CO-4, KRH-4, KPH-199, JKRH-3333, 27P11, 27P63, US 305 were identified and released for commercial cultivation. With the availability of these hybrids, area under hybrid rice in Southern India is likely to increase in the coming years.

During Kharif 2015, three trials were conducted and hybrids were evaluated in these trials (Table 1) and details of test locations are given in Table 2.

Table 1: Details of hybrid rice trials conducted during Kharif 2015

Sl. No	Name of the trial	No. of hybrids evaluated		No. of test locations
		Public	Private	
1.	Initial Hybrid Rice Trial - Early	5	23	34
2.	Initial Hybrid Rice Trial - Medium	11	47	36
3.	Initial Hybrid Rice Trial - MS grain quality	3	15	34

Table 2: Zonewise test centers for Initial Hybrid Rice Trials (Kharif 2015)

Zone	No. of Locations	Name of Locations
Zone II (Northern)	6	Public Sector: Chatha (CHT), Kaul (KUL), Ludhiana (LDN), Malan (MLN), Pantnagar (PNT) Private Sector: Savannah Seeds (SAV)
Zone III (Eastern)	12	Public Sector: Allahabad (ALH), Bhubaneswar (BBN), Chinsurah (CHN), Chiplima (CHP), Cuttack (CTK), Hazaribagh (HZB), Masodha (MSD), Ranchi(RCI) Private Sector: Bio Seeds (BIO), JK Agri Seeds (JKA), Nuziveedu (NUZ), PAN Seeds (PAN)
Zone IV (North Eastern)	2	Public Sector: Arundhatinagar (ARD), Titabar (TTB)
Zone V (Central)	5	Public Sector: Jabalpur (JBP), Raipur (RPR), Sakoli (SKL), Sindewahi (SND) Private Sector: Advanta (ADV)
Zone VI (Western)	8	Public Sector: Dabhoi (DBI), Karjat (KJT), Navsari (NVS), Nawagam (NWG), Radhanagari (RDN), Shirgaon (SHR), Vadgaon Maval (VDG) Private Sector: Ankur Seeds (ANK)
Zone VII (Southern)	16	Public Sector: Aduthurai (ADT), Bapatla (BPT), Brahmavar (BRM), Coimbatore (CBT), Gudalur (GDL), Jagtial (JGL), Karaikal (KRK), Mandya (MND), Maruteru (MTU), Mugad (MGD), Hyderabad (IIRR), Sirsi (SRS), Warangal (WGL) Private Sector: Mahyco (MAH), Bayer (BAY), Rasi Seeds (Rasi)

1. Initial Hybrid Rice Trial - Early (IHRT - E)

Twenty eight hybrids, 23 from private sector and five from public sector were evaluated in 34 locations, along with national hybrid check (US 314), national varietal check (Anjali), zonal varietal check [PR-124 (Northern), NDR-97 (Eastern), Sahbhagidhan (Central & Western), Luit (North Eastern), DRR Dhan-43 (Southern) and local checks of respective locations. A recently released variety Gontra Bidhan-3 was included in the trial, as observational national varietal check (ONCV). This was done to evaluate the performance of this variety (and if it is superior to the existing NCV Anjali) for replacing Anjali as NCV. The details about composition of the trial are given in Table 3.

Table 3: Composition of Initial Hybrid Rice Trial – Early (IHRT-E), Kharif 2015

S. No.	IET No.	Name	Nominating Agency
1	24901	SAVA-200	Savannah Seeds, Gurgaon
2	24902	SVZ-1103	Savannah Seeds, Gurgaon
3	24903	Siri-2266 (Gold)	Siri Seeds, Hyderabad
4	24904	NK-17508	Syngenta, Hyderabad
5	24905	NK-18902	Syngenta, Hyderabad
6	24906	NS-1545	Namdhari Seeds, Hyderabad
7	24907	NS-5149	Namdhari Seeds, Hyderabad
8	24908	PVRH-4017	Pravardhan Seeds, Hyderabad
9	24909	PVRH-4047	Pravardhan Seeds, Hyderabad
10	24910	HN-1	Nath Biogene, Aurangabad
11	24911	SL-8H	Nath Biogene, Aurangabad
12	24912	SL-18H	Nath Biogene, Aurangabad
13	24913	SL-12H	Nath Biogene, Aurangabad
14	24914	JKRH-2154	JK Seeds, Hyderabad
15	24915	ADV-1502	Advanta, Hyderabad
16	24916	IRH-91	IGKV, Raipur
17	24917	IRH-102	IGKV, Raipur
18	24918	MEPH-122	Mahyco, Kallakal
19	24919	MEPH-123	Mahyco, Kallakal
20	24920	Bio-648	Bioseed, Hyderabad
21	24921	Bio-4311 BH	Bioseed, Hyderabad
22	24922	KPH-476	Kaveri Seeds, Hyderabad
23	24923	JGLH-2	RARS, Jagtial
24	24924	US-317	Seed Works, Hyderabad
25	24925	US-326	Seed Works, Hyderabad
26	24926	TNTRH-39	TNAU, Coimbatore
27	24927	TNRH-271	TNAU, Coimbatore
28	24928	MR-8181	Metahelix, Bangalore
29	-	US-314 (NCH)	National Check Hybrid
30	-	Anjali (NCV)	National Check Variety
31	-	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)	Zonal Check Variety
32	-	Local Check Variety	Local Check Variety
33	-	Gontra Bidhan-3 (ONCV)	Observational National Check Variety

Northern: PR-124; North Eastern: Luit; Eastern: NDR-97; Central and Western: Sahbhagidhan; Southern: DRR Dhan-43

The detailed location wise and zone wise performance for grain yield and days to 50% flowering are given in Appendix 1 & 2 respectively. The grain quality traits are given in Appendix-3. The overall DFF in the trial ranged from 80 to 99 days. The national varietal check Anjali had mean DFF of 80 days, observational varietal check Gontra Bidhan-3 had mean DFF of 92 days and the zonal check (91 days), local check (89 days), hybrid check (91 days).

Based on the overall mean, one hybrid SL-8H was found to be superior to the best checks. Based on zonal checks, 10 hybrids viz., NK 17508 (Zone III, V & VII); SAVA-200 (Zone II & III); MEPH-123 (Zone III & V); SVZ-1103, NK-18902, IRH-102, MEPH-122 (Zone V); Siri-2266 (Gold), SL-18H, JKRH-2154 (Zone III) were found to be promising (Table 4). For promotion of entries (based on 90 day DFF limit prescribed for this trial), Check's mean of 88±5 days criterion was adapted. As per the criterion, **seven hybrids viz., SL-8H, NK-17508, MEPH-123, SVZ-1103, NK 18902, Siri 2266 (Gold), SL-18H meet the DFF requirement and hence are promoted to AVT-1-ETP irrigated trail.** Two hybrids viz., IRH-102 and JKRH-2154, having exceeded, the DFF criterion, are dropped from further evaluation. Another two hybrids viz., SAVA-200 (low amylose) and MEPH-122 (high amylose) were also dropped, based on quality issues.

Table 4: Promising hybrids identified in IHRT-E, Kharif 2015

S. No	Hybrid	DFF	Grain Type	Mean Yield (kg/ha)						Remarks
				Overall	Zone II	Zone III	Zone V	Zone VI	Zone VII	
1.	SL-8H (IET 24911)	93	LB	6147 [6] (21)	7165 [5]	5725 [12] (15)	6442 (24)	5989 (23)	6147 [12] (22)	Promoted to AVT-1-E TP
2.	NK-17508 (IET 24904)	93	MS	6118 (17)	6702	5870 [15] (18)	7071 [9] (36)	5848 (20)	5869 [7] (16)	Promoted to AVT-1-E TP
3.	SAVA-200 (IET 24901)	86	LB	5774 (11)	7950 [16] (13)	5433 [6] (10)	6375 (23)	5374 (11)	5256	Dropped low amylose
4.	MEPH-123 (IET 24919)	93	LB	5862 (15)	7097	5497 [7] (11)	6918 [6] (33)	5823 (20)	5239	Promoted to AVT-1-E TP
5.	SVZ-1103 (IET 24902)	88	LB	5538	7053	5051	6791 [5] (31)	5456 (12)	4886	Promoted to AVT-1-E TP
6.	NK-18902 (IET 24905)	93	LB	5882 (12)	7039	5050	6866 [6] (32)	5971 (23)	5713 (13)	Promoted to AVT-1-E TP
7.	IRH-102 (IET 24917)	95	MS	5560	6765	5245	6833 [5] (31)	5392 (11)	4931	Dropped high DFF
8.	MEPH-122 (IET 24918)	93	SB	5949 (17)	7275	5250	6865 [6] (32)	6244 (29)	5381	Dropped high amylose
9.	Siri-2266 (Gold) (IET 24903)	91	LB	5653	6948	5609 [10] (13)	6230 (20)	5475 (13)	5269	Promoted to AVT-1-E TP
10.	SL-18H (IET 24912)	90	LB	5569	6612	5439 [6] (10)	5969 (15)	5186	5444	Promoted to AVT-1-E TP
11.	JKRH-2154 (IET 24914)	94	LB	5978 (17)	7230	6298 [23] (27)	6721 (29)	5549 (14)	5417	Dropped high DFF
12.	US-314 (NCH)	91	MS	5803	6829	5119	6496	6046	5479	
13.	NCV	80	SB	3845	5664	3941	3133	3548	3886	
14.	PR-124/Luit/ NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)	91	LB	5098	7008	4719	5203	4856	4738	
15.	LCV	89	SB	5028	6610	4957	4661	4792	5052	
16.	ONCV	92	SB	5928	7321	4848	7508	6058	5452	

[] - Yield superiority percent over the hybrid check; () - Yield superiority in percent over the best varietal check;

The observational National Check Variety (ONCV) Gontra Bidhan-3 has shown its superiority over the national check variety (NCV) Anjali across the zones as well as on overall mean basis. **Hence it may be considered to replace Anjali as national variety check in the trial (Table 5).**

Table 5: Performance of Observational National Varietal Check Gontra Bidhan-3 over Anjali in IHRT-E Kharif 2015

S. No.	Varietal Check	DFF	Yield (Kg/Ha)					
			Over all	Zone II	Zone III	Zone V	Zone VI	Zone VII
1.	Gontra Bidhan-3	92	5928 (54)	7321 (29)	4848 (23)	7508 (140)	6058 (70)	5452 (40)
2.	Anjali	80	3845	5664	3941	3133	3548	3886

(): Yield superiority in percent over Anjali

As per the quality data of IHRT-E hybrids (Appendix-3), the milling percentage ranged from 64.4 to 72.3 and HRR from 47.1 to 68.5. Majority of the hybrids showed intermediate amylose content with the exceptions of SAVA-200, NS 5149 (low amylose); HN-1, MEPH-122 (high amylose). Regarding grain type, the entries were falling in different grain type categories.

2. Initial Hybrid Rice Trial - Medium (IHRT-M)

In this trial, 58 hybrids (11 from public and 47 from private sector), were evaluated along with national varietal checks *viz.*, NDR-359 (medium), MTU-1010 (mid early); national hybrid checks *viz.*, HRI-174 (medium), US-312 (mid early); zonal varietal checks *viz.*, [PR-113 (Northern); CR Dhan 201 (Eastern); IR 64 (Central); Akshayadhan (Western); Jaya (Southern)]. The trial was conducted at 36 locations. The details about the composition of the trial are given in Table 6.

Table 6: Composition of Initial Hybrid Rice Trial – Medium (IHRT-M), Kharif 2015

S. No.	IET No.	Name	Nominating Agency
1	24929	Siri-2244 (Gold)	Siri Seeds, Hyderabad
2	24930	NK-17715	Syngenta, Hyderabad
3	24931	RH-9000 Plus	Devgen Seeds, Hyderabad
4	24932	JRH-66	JNKVV, Jabalpur
5	24933	Siri-2277 (Gold)	Siri Seeds, Hyderabad
6	24934	NK-5251 Plus	Syngenta, Hyderabad
7	24935	JRH-68	JNKVV, Jabalpur
8	24936	RH-664 Imp Plus	Devgen Seeds, Hyderabad
9	24937	PRSH-9018	Prabhat Agri Biotech, Hyderabad
10	24938	NPH-2003	Nuziveedu Seeds, Hyderabad
11	24939	UPRH-106	GBPUAT, Pantnagar
12	24940	NPH-2012	Nuziveedu Seeds, Hyderabad
13	24941	NS-5153	Namdhari Seeds, Hyderabad
14	24942	UPRH-122	GBPUAT, Pantnagar
15	24943	NS-5156	Namdhari Seeds, Hyderabad
16	24944	PRSH-9003	Prabhat Agri Biotech, Hyderabad
17	24945	TMRH-104	TriMurthi Seeds, Hyderabad
18	24946	HN-4	Nath Biogene, Aurangabad
19	24947	BLR-101	Bisco Bioscience, Hydreabad
20	24948	TMRH-124	TriMurthi Seeds, Hyderabad
21	24949	BLR-102	Bisco Bioscience, Hydreabad
22	24950	JKRH-2230	JK Seeds, Hyderabad

S. No.	IET No.	Name	Nominating Agency
23	24951	VNR-218	VNR Seeds, Raipur
24	24952	ADV-1503	Advanta, Hyderabad
25	24953	IRH-91-1	IGKV, Raipur
26	24954	VNR-219	VNR Seeds, Raipur
27	24955	MEPH-124	Mahyco, Kallakal
28	24956	IRH-103	IGKV, Raipur
29	24957	GK-5030	Ganga Kaveri Seeds, Hyderabad
30	24958	MEPH-125	Mahyco, Kallakal
31	24959	IIRRH-103	IIRR, Hyderabad
32	24960	IRH-104	IGKV, Raipur
33	24961	SRH-5201	Shakthi Seeds, Hyderabad
34	24962	GK-5036	Ganga Kaveri Seeds, Hyderabad
35	24963	Bio-681	Bioseeds, Hyderabad
36	24964	IIRRH-104	IIRR, Hyderabad
37	24965	KPH-475	Kaveri Seeds, Hyderabad
38	24966	CPH-166	Rohini Seeds, Hyderabad
39	24967	Bio-680	Bioseeds, Hyderabad
40	24968	KPH-484	Kaveri Seeds, Hyderabad
41	24969	MR-8222	Metahelix, Bangalore
42	24970	HRI-188	Bayer Bioscience, Hyderabad
43	24971	IIRRH-105	IIRR, Hyderabad
44	24972	US-330	Seed Works, Hyderabad
45	24973	MR-8333	Metahelix, Bangalore
46	24974	PR-15101	Pioneer Overseas, Hyderabad
47	24975	US-335	Seed Works, Hyderabad
48	24976	SPH-1065	Super Agri Seeds, Hyderabad
49	24977	PR-15103	Pioneer Overseas, Hyderabad
50	24978	RRX-022	Rasi Seeds, Hyderabad
51	24979	US-384	Seed Works, Hyderabad
52	24980	PR-15104	Pioneer Overseas, Hyderabad
53	24981	NPH-242	Nirmal Seeds, Jalgaon
54	24982	SPH-921	Super Agri Seeds, Hyderabad
55	24983	US-337	Seed Works, Hyderabad
56	24984	PR-15107	Pioneer Overseas, Hyderabad
57	24985	RRX-024	Rasi Seeds, Hyderabad
58	24986	TNTRH-55	TNAU, Coimbatore
59	-	US-312 (NCH)	National Check Hybrid
60	-	MTU-1010 (NCV)	National Check Variety
61	-	HRI-174 (NCH)	National Check Hybrid
62	-	NDR-359 (NCV)	National Check Variety
63	-	PR-113/CR Dhan-201/ IR-64/ Akshayadhan/ Jaya (ZCV)	Zonal Check Variety
64	-	Local Check Variety	Local Check Variety

Northern: PR-113; Eastern: CR Dhan-201; Central: IR-64; Western: Akshayadhan; Southern: Jaya

Location wise data on grain yield and DFF are given in Appendix 4&5 respectively. Grain quality traits of the hybrids are given in Appendix 6.

For the purpose of evaluation of hybrids in the trial, test hybrids were classified in two groups based on the data of 50% days to flowering *viz.*, Group I (DFF 91 to 100); Group II (DFF 101 and above); Group I hybrids were compared with the hybrid check US 312, varietal check – MTU 1010 and zonal check mean. Group II hybrids were compared with the hybrid check HRI-174, varietal check – NDR 359 and zonal check means.

The list of promising hybrids with the advantage over the best checks in their respective zones is given in Table 7.

Table 7: Promising hybrids identified in IHRT-M, Kharif 2015 (Group I)

S. No	Hybrid	DFD	Grain Type	Mean Yield (kg/ha)							Remarks
				Over all	Zone II	Zone III	Zone IV	Zone V	Zone VI	Zone VII	
1	NK-5251 Plus (IET 24934)	98	LS	6225 [11] (23)	5718	6609 [15] (19)	5090 [7] (30)	7420 [11] (29)	5363	6300 [18] (23)	Promoted to AVT-1-IM
2	PR-15101 (IET 24974)	100	LB	6039 [8] (19)	6487 (17)	6409 [11] (16)	4020	7013 (22)	5742 [6] (10)	5690 [6] (11)	Dropped low amylose
3	IRH-104 (IET 24960)	98	LS	5875 [5] (16)	5712	6136 [7] (11)	4648 (19)	7037 [5] (22)	6185 [14] (18)	5331	Dropped high amylose
4	Bio-681 (IET 24963)	99	LS	5890 [5] (16)	5265	6829 [19] (23)	4380 (12)	6321 (10)	6030 [11] (15)	5448	Promoted to AVT-1-IM
5	Siri-2277 (Gold) (IET 24933)	99	LS	5880 [5] (16)	5673	5945	4255	6451 (12)	6027 [11] (15)	5928 [11] (16)	Promoted to AVT-1-IM
6	RH-9000 Plus (IET 24931)	98	LS	5853 (16)	6084 [10]	6063 [5] (10)	4955 (26)	6767 (18)	5052	5786 [8] (13)	Promoted to AVT-1-IM
7	NS-5156 (IET 24943)	96	LS	5563 (10)	4785	6104 [6] (10)	4153	5747	5347	5705 [7] (12)	Dropped low amylose
8	IRH-103 (IET 24956)	98	LS	5776 (14)	5798	6080 [6] (10)	4395 (12)	6384 (11)	5278	5777 [8] (13)	Promoted to AVT-1-IM
9	JKRH-2230 (IET 24950)	98	LB	5850 (16)	5810	6332 [10] (14)	4900 (25)	6388 (11)	5844 [7] (12)	5362	Promoted to AVT-1-IM
10	VNR-218 (IET 24951)	98	MS	5829 (15)	5833	6589 [14] (19)	4943 (26)	7307 [9] (27)	5064	5188	Dropped high amylose
11	KPH-484 (IET 24968)	94	MS	5756 (14)	5705	6186 [7] (12)	4055	7257 [8] (26)	5311	5351	Promoted to AVT-1-IM
12	PR-15107 (IET 24984)	100	LB	5717 (13)	5500	6004	5105 [8] (30)	6134	5737	5491	Promoted to AVT-1-IM
13	Bio-680 (IET 24967)	97	LB	5764 (14)	5547	6049	4148	6457 (12)	5420	5812 [9] (14)	Promoted to AVT-1-IM
14	SPH-921 (IET 24982)	99	MS	5574 (10)	5559	5920	3798	5995	5142	5672 [6] (11)	Promoted to AVT-1-IM
15	US-337 (IET 24983)	98	LS	5317	5337	5809	3315	5589	5748 [6] (10)	4943	Promoted to AVT-1-IM
16	RRX-024 (IET 24985)	95	LS	5505	5934	5717	4123	5473	6094 [12] (16)	5137	Promoted to AVT-1-IM
17	ADV-1503 (IET 24952)	96	SB	5544	5358	6088 [6] (10)	4268	6093	4887	5493	Dropped high amylose
18	IIRRH-105 (IET 24971)	96	MS	5458	5128	6202 [8] (12)	3730	6792 (18)	5377	4771	Promoted to AVT-1-IM
19	US-330 (IET 24972)	98	LS	5494	5315	6095 [6] (10)	4883 (25)	6189	5244	4995	Dropped low amylose
20	RRX-022 (IET 24978)	100	LS	5586	5253	6214 [8] (12)	3893	6825 (19)	5468	5057	Promoted to AVT-1-IM
23	US-312 (NCH-ME)	98	MS	5616	5532	5758	4748	6712	5440	5346	
22	MTU-1010 (NCV-ME)	93	LS	4947	4186	5089	3920	5749	4754	5106	
21	ZCV	98	SB	5064	6028	5535	3240	5163	5240	4492	
Promising hybrids identified in IHRT-M, Kharif 2015 (Group II)											
1	MEPH-125 (IET 24958)	101	MS	5848	6404 [16]	5953	4160	7370 [9] (13)	5863 [7] (12)	5254	Promoted to AVT-1-IM
2	MR-8333 (IET 24973)	102	LS	5572	5513	5846	3910	6495	5925 [8] (13)	5136	Promoted to AVT-1-IM
3	PR-15103 (IET 24977)	101	LS	5900	5451	6125	4523	7442 [10] (14)	5161	5906 (12)	Promoted to AVT-1-IM
4	VNR-219 (IET 24954)	101	MS	5732	5662	5998	3885	7216 [7] (10)	5508	5410	Promoted to AVT-1-IM
7	HRI-174 (NCH-M)	102	LB	6039	5525	6572	4373	6766	5477	6142	
6	NDR-359 (NCV-M)	100	LB	5554	5486	6110	4838	6542	4688	5261	
5	ZCV	98	SB	5064	6028	5535	3240	5163	5240	4492	

Based on the grain quality parameters (Appendix 6), milling percentage of the hybrids in the trial ranged from 64.8 to 72.3 and HRR from 36.6 to 69.8. Majority of the hybrids showed intermediate amylose with few exceptions viz., NPH-2012, NS-5156, IRH-91-1, SRH-5201, CPH-166, MR-8222, US-330, PR 15101, US 335, PR 15104, NPH-242 (low amylose);

NK 17715, JRH-66, VNR-218, ADV-1503, IRH-104 (high amylose). The hybrids had different grain types.

Based on overall mean, in Group I, five hybrids *viz.*, NK 5251 Plus, PR 15101, IRH-104, Bio-681, Siri-2277 (Gold) were found promising with more than 10 percent yield advantage over the highest yielding varietal check and 5 percent over the hybrid check. In addition 15 more hybrids *viz.*, RH 9000 Plus, NS-5156, IRH-103 (Zone III & VII); JKRH 2230 (Zone III & VI); VNR-218, KPH-484 (Zone III & V); ADV-1503, IIRRH-105, US-330, RRX-022 (Zone III); PR 15107 (Zone IV); US 337, RRX-024 (Zone VI); Bio 680, SPH-921 (Zone VII) were found to be promising based on the zonal means. Among these promising hybrids, **the following 14 hybrids *viz.*, NK 5251 Plus, Bio 681, Siri 2277 (Gold), RH 9000 Plus, IRH-103, JKRH 2230, KPH-484, IIRRH-105, RRX-022, PR 15107, US-337, RRX-024, Bio 680, SPH-921 are promoted to AVT-1 irrigated medium trial.** The following six hybrids *viz.*, PR 15101, NS-5156, US-330 (low amylose); IRH-104, VNR-218, ADV-1503 (high amylose) were dropped from further evaluation because of certain quality parameters.

In Group II, none of the test hybrids were found promising over the checks on the overall mean basis. However, four hybrids *viz.*, MEPH-125 (Zone V & VI); MR-8333 (Zone VI); PR 15103 and VNR 219 (Zone V) were found to be promising based on Zonal means. **All these four hybrids are promoted to AVT-1 irrigated medium trial.**

3. Hybrid Rice Trial with Medium Slender (MS) grain type (IHRT-MS)

In order to develop and release heterotic MS grain type hybrids with similar grain quality features of popular variety BPT 5204, a separate trial for MS grain type is being constituted for the last 11 years. In this trial, BPT 5204 is used as national varietal check and DRRH-3 is used as hybrid check. A high yielding and popular variety WGL-14 is included in the trial to evaluate its yield performance and its suitability to replace existing national varietal check BPT 5204.

The trial consisting of 18 test hybrids, 15 from the private sector and three from the public sector was conducted at 34 locations. The composition of the trial is given in Table 8. One hybrid 28P09 was evaluated for third year, seven hybrids *viz.*, KPH-459, SPH-6159, PR-14109, HRI-186, PR-14111, PR-14112 and DRRH-92 for second year and rest were tested for the first time.

Table 8: Composition of Hybrid Rice Trial – Medium Slender (IHRT-MS), Kharif 2015

S. No.	IET No.	Name	Nominating Agency
1	24987	ADV-15104	Advanta, Hyderabad
2	24988	Bio-633	Bioseed, Hyderabad
3	24989	JGLH-1	RARS, Jagtial
4	24990	MR-8666	Metahelix, Hyderabad
5	24991	HRI-187	Bayer Bio-science, Hyderabad
6	24992	US-353	Seed Works, Hyderabad
7	24993	PR-15108	Pioneer Overseas, Hyderabad
8	24994	SPH-1003	Super Agri Seeds, Hyderabad
9	24995	SRH-5400	Shakthi Seeds, Hyderabad
10	24888	KPH-459*	Kaveri Seeds, Hyderabad
11	24156	28P09**	Pioneer Overseas, Hyderabad
12	24896	SPH-6159*	Super Agri Seeds, Hyderabad

S. No.	IET No.	Name	Nominating Agency
13	24891	PR-14109*	Pioneer Overseas, Hyderabad
14	24887	HRI-186*	Bayer Bio-science, Hyderabad
15	24892	PR-14111*	Pioneer Overseas, Hyderabad
16	24159	DRRH-92*	IIRR, Hyderabad
17	24893	PR-14112*	Pioneer Overseas, Hyderabad
18	24996	TNRH-280	TNAU, Coimbatore
19	-	DRRH-3 (NCH)	National Check Hybrid
20	-	WGL-14 (NCV)	National Check Variety
21	-	BPT-5204 (Old NCV)	National Check Variety

* = 2nd Year of testing; ** = 3rd Year of testing

The location wise mean data on grain yield and DFF are given in Appendix 7&8 respectively. The grain quality traits are given in Appendix 9.

Based on the overall mean, PR 14109, PR 15108, SPH-1003, PR 14112 and 28P09 were found promising with more than 10 percent yield advantage over the varietal check BPT 5204 and more than 5 percent over the hybrid check DRRH-3 (Table 9). In addition to these hybrids, remaining all the hybrids viz., JGLH-1, MR 8666, HRI-187, HRI-186, PR-14111, DRRH-92, TNRH-280 (East and West); ADV 15104, Bio 633, US 353, SRH-5400, KPH-459, SPH-6159, (West) were found to be promising based on zonal means.

Based on the grain quality parameters (Appendix 9) the milling percentage of hybrids in the trial ranged from 68.1 to 71.2 and HRR from 60.6 to 68.3. All the hybrids has MS grain type with intermediate amylose content except two hybrids viz., Bio 633 and US 353 which recorded low amylose.

Among the promising hybrids identified in the trial, the hybrids viz., KPH-459, SPH-6159, PR 14109, HRI-186, PR-14111, PR 14112 and DRRH-92 which have completed two years of testing (and are being promoted) may be subjected to agronomy testing during Kharif 2016 season. The hybrids viz., ADV 15104, JGLH-1, MR-8666, HRI-187, PR 15108, SPH-1003, SRH-5400 and TNRH 280 are promoted for second year of testing. Two hybrids viz., Bio-633 and US 353 are discontinued from further testing because of low amylose content.

The hybrid 28P09, which has completed three years of testing, has shown the requisite yield superiority over the checks in the final year of testing also. Its performance for all three years of testing in HRT-MS trial is given in Table 10 (zone wise) and Table 11 (state wise). The hybrid was found promising in all the three years of testing based on overall mean, as well as East and West zones. However, in Southern Zone, it's performance was not consistent. The hybrid was found promising in Odisha, Maharashtra, Chhattisgarh and Tamil Nadu.

Table 9: Promising hybrids identified in IHRT-MS, Kharif 2015

S. No	Hybrid	DFF	Grain Type	Mean Yield (kg/ha)					Remarks
				Overall	Zone III	Zone V	Zone VI	Zone VII	
1.	PR 14109 (IET 24891)	105	MS	6101 [10] (38)	6072 [19] (29)	6908 (33)	4942 [11] (25)	6456 [5] (54)	Promoted to IHRT-MS 3 rd year testing
2.	PR 15108 (IET 24993)	105	MS	6026 [8] (36)	5643 [11] (20)	6963 (34)	5421 [22] (37)	6363 (52)	Promoted to IHRT-MS 2 nd year testing
3.	SPH-1003	100	MS	6009	5184	6639	4961	6897	Promoted to IHRT-MS

S. No	Hybrid	DFD	Grain Type	Mean Yield (kg/ha)					Remarks
				Overall	Zone III	Zone V	Zone VI	Zone VII	
	(IET 24994)			[8] (36)	(10)	(28)	[11] (25)	[12] (65)	2 nd year testing
4.	PR 14112 (IET 24893)	103	MS	5831 [5] (32)	5682 [11] (20)	6440 (24)	4779 [7] (21)	6289 (50)	Promoted to IHRT-MS 3 rd year testing
5.	28P09 (IET 24156)	106	MS	5834 [5] (32)	5968 [17] (26)	6987 (34)	5010 [12] (26)	5818 (39)	Completed three year testing
6.	JGLH-1 (IET 24989)	99	MS	5430 (22)	5568 [9] (18)	5824 (12)	5561 [25] (40)	5230 (25)	Promoted to IHRT-MS 2 nd year testing
7.	MR-8666 (IET 24990)	105	MS	5711 (29)	5787 [13] (23)	6671 (28)	4995 [12] (26)	5722 (37)	Promoted to IHRT-MS 2 nd year testing
8.	HRI-187 (IET 24991)	101	MS	5703 (29)	5653 [11] (20)	5877 (13)	5330 [20] (34)	6104 (46)	Promoted to IHRT-MS 2 nd year testing
9.	HRI-186 (IET 24887)	97	MS	5302 (20)	5451 [7] (16)	5539	4871 [9] (23)	5370 (28)	Promoted to IHRT-MS 3 rd year testing
10.	PR 14111 (IET 24892)	104	MS	5388 (22)	5651 [11] (20)	5763 (11)	4821 [8] (22)	5487 (31)	Promoted to IHRT-MS 3 rd year testing
11.	DRRH-92 (IET 24159)	103	MS	5478 (24)	5563 [9] (18)	6017 (16)	5000 [12] (26)	5480 (31)	Promoted to IHRT-MS 3 rd year testing
12.	TNRH-280 (IET 24996)	100	MS	5515 (24)	5642 [11] (20)	5767 (11)	4814 [8] (21)	5790 (38)	Promoted to IHRT-MS 2 nd year testing
13.	ADV 15104 (IET 24987)	97	MS	5178 (17)	5273 (12)	5299	4964 [11] (25)	5195 (24)	Promoted to IHRT-MS 2 nd year testing
14.	Bio-633 (IET 24988)	103	MS	5358 (21)	5240 (11)	6390 (23)	5050 [13] (27)	5171 (24)	Dropped due to low amylose
15.	US 353 (IET 24992)	100	MS	5084 (15)	5198 (10)	5234	4686 [5] (18)	5230 (25)	Dropped due to low amylose
16.	SRH 5400 (IET 24995)	97	MS	5430 (22)	5303 (12)	5701 (10)	5223 [17] (32)	5463 (31)	Promoted to IHRT-MS 2 nd year testing
17.	KPH-459 (IET 24888)	101	MS	5613 (27)	5305 (12)	5847 (12)	5497 [23] (39)	5795 (39)	Promoted to IHRT-MS 3 rd year testing
18.	SPH-6159 (IET 24896)	99	MS	5338 (20)	5070	4931	4853 [9] (22)	6061 (45)	Promoted to IHRT-MS 3 rd year testing
19.	DRRH-3 (NCH)	103	MS	5558	5104	6758	4460	6134	
20.	BPT 5204 (NCV)	110	MS	4434	4718	5200	3966	4181	

[] - Yield superiority percent over the hybrid check; () - Yield superiority in percent over the varietal check;

Table 10: Summary yield data 28P09 in IHRT-MS trials 2013-15 (Zone Wise)

	Year of testing	No. of trials	Proposed 28P09 (Overall)	Check variety BPT 5204 (overall)	Hybrid check DRRH-3 (overall)	No. of trials	Proposed variety 28P09 (East)	Check variety BPT 5204 (East)	Hybrid check DRRH-3 (East)	No. of trials	Proposed variety 28P09 (West)	Check variety BPT 5204 (West)	Hybrid check DRRH-3 (West)	No. of trials	Proposed variety 28P09 (South)	Check variety BPT 5204 (South)	Hybrid check DRRH-3 (South)
Mean yield (Kg/ha) in regions East, West and South	I Year 2013	26	5422	4325	4986	9	5638	4581	5158	5	4384	3751	3876	12	5537	4299	5153
	II Year 2014	29	6203	4658	5507	9	5755	4389	5003	7	6197	4247	4767	13	6468	5055	6232
	III Year 2015	34	5834	4434	5558	8	5968	4718	5104	7	5010	3966	4460	12	5818	4181	6134
	Wt. Avg.	89	5834	4475	5374	26	5780	4557	5088	19	5283	4013	4419	37	5955	4526	5850
Percentage increase or decrease over the checks	I Year 2013	26		25	9			23	9			17	13			29	7
	II Year 2014	29		33	13			31	14			46	30			28	4
	III Year 2015	34		32	5			26	17			26	12			39	-5
	Wt. Avg.	89		30	9			27	14			32	20			32	2

Table 11: Summary yield data 28P09 in IHRT-MS trials 2013-15 (State Wise)

	Year of testing	West Bengal				Jharkhand				Odisha				Uttar Pradesh			
		No. of trials	Proposed 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. Of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3
Mean yield (Kg/ha) in regions East, West and South	I Year 2013	1	7806	6040	6382	1	4333	2750	4083	1	5607	4282	4590	1	4238	5944	4991
	II Year 2014	-	-	-	-	1	4571	4000	6000	1	6699	4364	6338	2	6299	4461	5197
	III Year 2015	1	6333	5619	-	-	-	-	-	3	6466	4327	4601	3	5347	4809	5439
	Wt. Avg.	2	7070	5830	6382	2	4452	3375	5041	5	6341	4325	4946	6	5480	4882	5284
Percentage increase or decrease over the checks	I Year 2013	1		29	22	1		58	6			31	22			-29	-15
	II Year 2014			-	-	1		14	-24			54	6			41	21
	III Year 2015	1		13	-	-		-	-			49	41			11	-17
	Wt. Avg.	2		21	11	2		32	-12			47	28			12	4

*2014 CHN Low CV - not included in the analysis; *2015 RCI Low Yield & High CV - not included in the analysis; *2013 BBN Low plot size - not included in the analysis

Table 11(contd): Summary yield data 28P09 in IHRT-MS trials 2013-15 (State Wise)

	Year of testing	Assam				Madhya Pradesh				Maharashtra				Chhattisgarh			
		No. of trials	Proposed 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3
Mean yield (Kg/ha) in regions East, West and South	I Year 2013	1	4950	3533	4817	1	6510	5510	8280	2	5563	4646	4638	2	5831	4293	4062
	II Year 2014	1	4770	3609	3597	-	-	-	-	5	5625	4167	4478	2	5825	4915	4348
	III Year 2015	1	5584	4933	5528	1	9349	5724	9466	6	5470	3965	4399	2	7080	6180	5898
	Wt. Avg.	3	5101	4025	4647	2	7930	5617	8873		5549	4147	4466	6	6245	5129	4769
Percentage increase or decrease over the checks	I Year 2013			40	3			18	-21			20	20			36	44
	II Year 2014			32	33							35	26			19	34
	III Year 2015			13	1			63	63			38	24			15	20
	Wt. Avg.			27	10			41	-11			34	24			22	31

*2014 JBL Low CV- not included in the analysis; *2013 SND Low Yield & high CV- not included in the analysis

Table 11(contd): Summary yield data 28P09 in IHRT-MS trials 2013-15(State Wise)

	Year of testing	Gujarat				Andhra Pradesh				Telangana				Karnataka			
		No. of trials	Proposed 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3
Mean yield (Kg/ha) in regions East, West and South	I Year 2013	1	2026	1961	2353	1	3705	4280	3597	6	6085	4366	5112	3	4824	3695	5227
	II Year 2014	2	7628	4445	5488	2	5531	4753	4095	5	6689	4960	6783	2	6867	4721	6762
	III Year 2015	3	4557	3962	4999	2	5362	3870	4996	5	6070	4690	7060	3	5485	3562	5977
	Wt. Avg.	6	5159	3790	4721	5	5098	4305	4356	16	6269	4653	6243	8	5583	3902	5892
Percentage increase or decrease over the checks	I Year 2013			3	-14			-13	3			39	19			31	-8
	II Year 2014			72	39			16	35			35	-1			45	2
	III Year 2015			15	-9			39	7			29	-14			54	-8
	Wt. Avg.			36	9			18	17			35	0			43	-5

*2013 NWG high CV- not included in the analysis; *2014 BRM Low Yield not included in the analysis

Table 11(contd): Summary yield data 28P09 in IHRT-MS trials 2013-15 (State Wise)

	Year of testing	Tamil Nadu				Puducherry			
		No. of trials	Proposed 28P09	Check variety BPT 5204	Hybrid check DRRH-3	No. of trials	Proposed variety 28P09	Check variety BPT 5204	Hybrid check DRRH-3
Mean yield (Kg/ha) in regions East, West and South	I Year 2013	1	6764	4775	5543	1	5000	5250	6333
	II Year 2014	2	6827	5141	6362	1	5727	6628	6435
	III Year 2015	2	6143	4146	5552	-	-	-	-
	Wt. Avg.	5	6541	4670	5874	2	5363	5939	6384
Percentage increase or decrease over the checks	I Year 2013			42	22			-5	-21
	II Year 2014			33	7			-14	-11
	III Year 2015			48	11				
	Wt. Avg.			40	11			-10	-16

The observational national check variety (ONCV) WGL-14 has shown its superiority over the national check variety BPT-5204 in majority of zones (Zone III, Zone VI and Zone VII) as well as on overall mean basis (Table 12). It also has requisite quality parameters for MS trial. Hence, it may be considered to replace BPT 5204 as national varietal check in the trial (Table 13).

Table 12: Performance of Observational National Check Variety WGL-14 over BPT-5204 in IHRT-MS Kharif 2015

S. No.	Varietal Check	DFF	Grain Type	Yield (Kg/Ha)					
				Over all	Zone III	Zone IV	Zone V	Zone VI	Zone VII
1.	WGL-14	104	MS	4798 (8.20)	5113 (8.37)	4776 (-3.18)	5132 (-1.30)	4513 (13.79)	4645 (11.10)
2.	BPT-5204	110	MS	4434	4718	4933	5200	3966	4181

Table 13: Quality parameters of WGL14 & BPT-5204

S. No	Varietal Check	Hull	Mill	HRR	KL	KB	L/B	Grain Type	Grain Chalk	VER	WU	KLAC	ER	AC	GC	AROMA
1	WGL-14 (NCV)	78.7	70	67.6	5.24	1.89	2.77	MS	A	4.6	230	8.6	1.64	24.99	22	NS
2	BPT-5204 (Old NCV)	78.8	69.6	65.4	5	1.84	2.71	MS	A	4.8	235	8	1.6	24.34	40	NS

Hull: Hulling (%); Mill: Milling (%); HRR: Head rice recovery (%); KL: Kernel length (mm); KB: Kernel breadth (mm); L/B: Length and breadth ratio; Grain Chalk: Grain chalkiness; VER: Volume expansion ratio; WU: Water uptake (ml); KLAC: Kernel length after cooking (mm); ER: Elongation ratio; AC: Amylose content (%); GC: Gel consistency; MS: Medium slender; VOC: Very occasionally present; A: Absent; NS: No scent; MS: Medium scent; SS: Strong scent;

Appendix 1: Grain Yield (kg/ha) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	Hybrid	ZONE I			ZONE II				ZONE III					
			MLN	KUL	SAV	HA mean	PNT	LDN	Northern Mean	CHN	BBN	RCI	HZB	ALH	MSD
1	24901	SAVA-200	4506	6511	12687	9599	4034	8569	7950	5000	3492	2167	8200	4567	6383
2	24902	SVZ-1103	4074	5800	10653	8227	3271	8487	7053	5524	2698	1500	7500	4800	3484
3	24903	Sri-2266 (Gold)	2685	5711	9977	7844	3139	8967	6948	5524	4762	1100	7267	4533	4234
4	24904	NK-17508	4529	6333	9957	8145	2908	7612	6702	5905	4921	1033	7133	4800	4673
5	24905	NK-18902	3138	6422	10423	8423	2945	8365	7039	5762	4762	300	6867	4633	2962
6	24906	NS-1545	3407	6533	8883	7708	3300	7610	6581	4810	3810	833	6067	4833	4172
7	24907	NS-5149	2995	5933	8277	7105	3090	7641	6235	5571	3333	633	6800	5267	3212
8	24908	PVRH-4017	2844	5733	9317	7525	3367	6371	6197	5619	1746	1833	6917	4700	3671
9	24909	PVRH-4047	2324	6022	9587	7804	3033	6147	6197	4429	2063	1833	6517	4400	3463
10	24910	HN-1	5394	6578	10797	8687	2286	8965	7156	5667	3333	767	9033	4333	2920
11	24911	SL-8H	5623	6600	11060	8830	3351	7649	7165	5667	3968	1900	7917	4700	5841
12	24912	SL-18H	3549	6156	10203	8179	2163	7926	6612	5857	2698	1900	7850	4800	3963
13	24913	SL-12H	3126	5844	10677	8261	2599	8116	6809	5667	3651	1300	8267	4800	4589
14	24914	JKRH-2154	3867	6244	10883	8564	3161	8631	7230	6286	5397	467	8417	4900	5382
15	24915	ADV-1502	2929	5733	9703	7718	2363	6755	6139	4810	2857	933	7917	4867	6195
16	24916	IRH-91	3897	5956	9307	7631	2943	7407	6403	5619	3175	1833	7400	4767	4631
17	24917	IRH-102	3838	6556	11027	8791	3671	5806	6765	5714	4127	1433	8200	4567	3796
18	24918	MEPH-122	5159	5867	11723	8795	3788	7721	7275	5952	4444	1967	7817	4200	3129
19	24919	MEPH-123	5158	5733	10510	8122	2993	9153	7097	5667	4444	1433	9500	4133	3838
20	24920	Bio-648	3784	5733	8450	7092	3245	6364	5948	5714	2540	733	7933	4333	4172
21	24921	Bio-4311 BH	3000	5733	8277	7005	3354	7649	6253	5095	3492	867	6433	4700	3963
22	24922	KPH-476	1784	5756	9280	7518	3583	6586	6301	5000	3016	1500	8400	4633	4255
23	24923	JGLH-2	2813	5200	7290	6245	3294	6791	5644	4952	2222	300	6733	4300	4380
24	24924	US-317	3463	5756	9947	7851	3294	8028	6756	5810	3333	767	8000	4267	4506
25	24925	US-326	4607	5956	10397	8176	3243	8779	7094	5095	3968	2100	8267	4233	3463
26	24926	TNTRH-39	2754	5667	9177	7422	3010	6641	6124	5762	5079	433	6600	4767	4464
27	24927	TNTRH-271	2933	4822	6827	5824	2462	4636	4687	4476	1429	1967	4900	4100	4506
28	24928	MR-8181	2842	5000	9760	7380	3001	5639	5850	4762	1905	1100	8383	4233	3129
29	US-314 (NCH)		4679	5889	9407	7648	3004	9016	6829	5143	3492	867	8600	4367	3713
30	Anjali (NCV)		1457	5689	8567	7128	2418	5983	5664	4143	952	1167	5733	4967	3087
31	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)		4620	5733	10060	7897	3590	8648	7008	4667		700		5167	3129
32	Local Check Variety		3651	6289	9143	7716	2985	8024	6610	5476	3016	2033	8233	4700	3296
33	Gonta Bidhan-3 (ONCV)		4694	5911	9727	7819	3964	9680	7321	4952	3651	733	6333	4100	3671
Exp Mean			3608	5925	9823	7874	3103	7465	6579	5418	3452	1248	7544	4577	4192
CD(0.05)			735.37	342.99	1090.2		445.46	1999.17		659.57	1076.12	912.96	618.32	266.64	482.83
CV			10	3.58	6.91		8.84	16.3		7.65	19.76	46.09	5.1	3.59	7.34
			**	**	**		**	**		**	**	**	**	**	**
D/S			06-06-2015	13-06-2015	17-06-2015		13-06-2015	30-05-2015		02-07-2015	13-07-2015	08-07-2015	04-07-2015	05-06-2015	26-06-2015
D/P			18-07-2015	13-07-2015	15-07-2015		01-07-2015	07-07-2015		05-08-2015	17-08-2015	05-08-2015	25-07-2015	07-08-2015	27-07-2015
Zonal Check			PR 124	PR 124	PR 124		PR 124	PR 124		NDR 97	NDR 97	NDR 97	NDR 97	NDR 97	NDR 97
Local Check			HPR 2143	Govind	PR 124		Govind	PR 115		G.B.1		BVD 111	Sahbhagi Dhan	NDR 359	NDR 97

The data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 1 (contd): Grain Yield (kg/ha) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	Hybrid	ZONE III (contd)				ZONE IV		ZONE V						
			BIO	JKA	UP mean	Eastern Mean	TTB	JBP	SND	SKL	MH mean	RPR	ADV	CG Mean	Central Mean
1	24901	SAVA-200	6684	3707	5335	5433	4797	9337	1159	5423	3291	5708	10246	7977	6375
2	24902	SVZ-1103	6847	4504	4909	5051	4443	9362	2718	5465	4092	5240	11170	8205	6791
3	24903	Sri-2266 (Gold)	7598	5347	5428	5609	5387	8098	3431	4422	3927	3925	11271	7598	6230
4	24904	NK-17508	6878	6779	5782	5870	6210	9345	4078	6592	5335	4088	11253	7670	7071
5	24905	NK-18902	6889	3474	4490	5050	5887	9453	4345	5590	4968	4537	10406	7472	6866
6	24906	NS-1545	6575	3917	4874	4883	4913	9428	4078	5340	4709	4338	10784	7561	6794
7	24907	NS-5149	5252	3680	4353	4731	4957	6900	2897	4214	3555	3111	9607	6359	5346
8	24908	PVRH-4017	5979	4369	4680	4714	4597	6921	1426	3922	2674	1761	8343	5052	4475
9	24909	PVRH-4047	5309	4124	4324	4329	4663	5836	1671	3755	2713	2200	9131	5666	4519
10	24910	HN-1	7922	4595	4943	5401	5630	9491	3766	4923	4344	3671	9897	6784	6349
11	24911	SL-8H	6575	5408	5631	5725	5013	8999	2094	5632	3863	4265	11221	7743	6442
12	24912	SL-18H	7919	4985	5417	5439	5763	6950	2139	5715	3927	4025	11015	7520	5969
13	24913	SL-12H	7111	3749	5062	5405	5190	6859	3699	5757	4728	5039	11046	8042	6480
14	24914	JKRH-2154	7891	5817	5997	6298	4757	9549	4412	6592	5502	3052	10000	6526	6721
15	24915	ADV-1502	4843	2191	4524	4811	4457	6854	2072	4130	3101	4062	11002	7532	5624
16	24916	IRH-91	6850	3674	4980	5159	4947	9483	2050	5048	3549	3210	9943	6577	5947
17	24917	IRH-102	6684	3629	4669	5245	4960	9408	3008	5632	4320	5708	10411	8060	6833
18	24918	MEPH-122	7640	3569	4635	5250	5097	9487	4300	6091	5196	4534	9914	7224	6865
19	24919	MEPH-123	6571	4325	4717	5497	4720	9391	3988	6091	5040	4272	10848	7560	6918
20	24920	Bio-648	8233	4643	5345	5367	4760	5532	1537	5966	3752	3788	8667	6228	5098
21	24921	Bio-4311 BH	7873	2615	4788	4882	4487	7622	3498	6133	4815	2698	9409	6053	5872
22	24922	KPH-476	7541	4641	5268	5355	4750	5640	1716	4589	3152	4268	8575	6422	4958
23	24923	JGLH-2	6871	4232	4946	4813	4090	6971	2362	4589	3475	3981	10068	7024	5594
24	24924	US-317	6607	4308	4922	5261	5347	6955	3699	5298	4499	3737	9945	6841	5927
25	24925	US-326	6550	5677	4981	5322	4770	7017	3788	5173	4480	3918	10519	7219	6083
26	24926	TNTRH-39	5704	4302	4809	5240	5433	8252	4791	5131	4961	4335	9787	7061	6459
27	24927	TNRH-271	4413	2731	3937	3793	4710	6996	2340	2962	2651	2757	6737	4747	4358
28	24928	MR-8181	6413	4462	4559	4755	4653	3129	1716	4923	3319	4029	7558	5793	4271
29	US-314 (NCH)		6945	3573	4649	5119	5603	9458	2741	5590	4165	4593	10101	7347	6496
30	Anjali (NCV)		6127	2579	4190	3941	3257	3141	1738	4631	3184	2422	3736	3079	3133
31	PR-124/Luit/NDR-97/ Sahbhagi dhan/ DRR Dhan-43 (ZCV)			5914	4736	4719	3633	6863	2652	4506	3579	3585	8409	5997	5203
32	Local Check Variety		6755	3221	4493	4957	3607	3396	4144	4589	4367	4183	6994	5589	4661
33	Gonta Bidhan-3 (ONCV)		7591	3637	4750	4848	4737	9637	4122	6091	5107	6524	11167	8845	7508
Exp Mean			6722	4266	4939	5168	4978	7831	2956	5182	4069	3938	9956	6947	5973
CD(0.05)			391.9	236.81			750.51	826.01	312.25	450.58		525.01	1303.57		
CV			3.6	3.49			9.56	6.7	6.49	5.39		8.15	6.67		
			**	**			**	**	**	**		**	**		
D/S			26-06-2015	07-06-2015			13-07-2015	10-06-2015	30-06-2015	16-06-2015		15-06-2015	17-06-2015		
D/P			30-07-2015	30-07-2015			05-08-2015	02-07-2015	29-07-2015	13-07-2015		16-07-2015	08-07-2015		
Zonal Check			NDR 97	NDR 97			Luit	Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan		
Local Check				NDR 359			Lachit	JR 201	SYE 1	SKL-6		Indira Barani Dhan-1	Poomima		

The data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 1 (contd): Grain Yield (kg/ha) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	Hybrid	ZONE VI												
			KJT	VDG	ANK	MH mean	NWG	NVS	DBI	GJ mean	Western Mean	MTU	IIRR	WGL	BAY
1	24901	SAVA-200	4247	5445	4699	4797	4595	6966	6291	5951	5374	3487	5589	6609	6925
2	24902	SVZ-1103	5289	5423	4017	4910	5898	5689	6422	6003	5456	3759	3847	5991	5927
3	24903	Sri-2266 (Gold)	5585	5159	4088	4944	5350	6428	6242	6007	5475	3063	5714	4072	7579
4	24904	NK-17508	5146	5423	4561	5043	6859	6167	6935	6654	5848	4681	6178	5985	7972
5	24905	NK-18902	4953	5291	5185	5143	6379	7168	6853	6800	5971	5267	4963	5364	6980
6	24906	NS-1545	5091	5666	3878	4878	4938	4042	6216	5065	4972	3198	4532	5122	6705
7	24907	NS-5149	3279	5203	3080	3854	5007	6294	7206	6169	5011	2919	6180	3383	6132
8	24908	PVRH-4017	3590	5203	3015	3936	4938	6170	5748	5619	4777	2561	6769	3907	6408
9	24909	PVRH-4047	3333	5600	3471	4135	2743	5351	5239	4444	4290	3952	4719	3606	5824
10	24910	HN-1	3615	5401	5514	4843	6104	8315	6853	7091	5967	4635	4212	4731	6734
11	24911	SL-8H	5383	5842	4764	5330	6653	6376	6918	6649	5989	4292	6388	6829	7770
12	24912	SL-18H	3240	5225	4631	4365	4733	6255	7033	6007	5186	4421	6006	5836	5985
13	24913	SL-12H	5264	5181	4496	4980	7545	7175	7366	7362	6171	3056	6560	5825	8059
14	24914	JKRH-2154	4370	5137	3046	4184	7682	6489	6569	6913	5549	3643	5752	6264	7828
15	24915	ADV-1502	4212	5247	3346	4269	3704	5386	4775	4621	4445	3281	6219	4560	7090
16	24916	IRH-91	4370	5026	3255	4217	5281	4363	6830	5491	4854	4344	5470	5874	6680
17	24917	IRH-102	5432	5026	5752	5403	4115	5581	6448	5381	5392	3905	5710	4121	5909
18	24918	MEPH-122	6316	5313	5165	5598	6447	7343	6879	6890	6244	2725	6966	4473	8194
19	24919	MEPH-123	5126	5423	4265	4938	6790	7208	6127	6709	5823	2057	5557	6003	6327
20	24920	Bio-648	4563	5026	3285	4292	3978	6354	4739	5023	4657	4373	3499	5172	5301
21	24921	Bio-4311 BH	4825	5115	3664	4534	4664	6636	7147	6149	5342	2429	5718	4369	5071
22	24922	KPH-476	4163	5401	3503	4356	4321	7086	7078	6162	5259	2708	7850	4193	6607
23	24923	JGLH-2	5249	4894	3722	4622	3635	5340	5654	4876	4749	2583		4892	5118
24	24924	US-317	4291	5159	3662	4371	5693	6432	6176	6100	5235	4817	5592	5329	6246
25	24925	US-326	6059	5467	4583	5370	5761	6547	5856	6055	5712	2933	6438	4477	6531
26	24926	TNTRH-39	4059	4850	4187	4365	4870	4329	5418	4872	4619	3582	3671	3799	5527
27	24927	TNRH-271	4133	5423	3029	4195	4184	4779	5016	4660	4428	3112	3697	3675	4061
28	24928	MR-8181	5437	5357	4207	5000	4252	5658	5062	4991	4996	3235	5858	5525	4771
29	US-314 (NCH)		5847	5335	5403	5528	5624	7853	6216	6564	6046	2614	5505	6362	7598
30	Anjali (NCV)		3235	4960	2796	3664	3978	3192	3124	3432	3548	1578	3793	4928	5159
31	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)		3254	5247	3375	3959	4595	6673	5990	5753	4856	3876	5769	4079	6402
32	Local Check Variety		4420	5093	3312	4275	4458	5900	5572	5310	4792	4657	6452	4950	5967
33	Gonta Bidhan-3 (ONCV)		4069	5644	5831	5181	6447	7595	6765	6936	6058	3735	6654	5442	6627
Exp Mean			4665	5283	4074	4674	5254	6140	6253	5883	5278	3536	5543	5000	6438
CD(0.05)			571.05	574.09	588.41		1026.76	1281.2	507.61			342.66	1854.96	1129.7	708.02
CV			7.7	6.73	8.91		9.73	12.87	5.11			6.06	20.68	13.91	6.82
			**	ns	**		**	**	**	**		**	**	**	**
D/S			20-06-2015	26-06-2015	24-06-2015		18-06-2015	11-06-2015	12-06-2015			03-07-2015	17-06-2015	31-07-2015	17-06-2015
D/P			25-07-2015	22-07-2015	20-07-2015		23-07-2015	02-07-2015	16-07-2015			06-08-2015	14-07-2015	27-08-2015	24-07-2015
Zonal Check			Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan		Sahbhagi Dhan	Sahbhagi Dhan	Sahbhagi Dhan			DRR Dhan 43	DRR Dhan 43	DRR Dhan 43	DRR Dhan 43
Local Check			Karjat-7	Sahyadri	Sakoli-6		GR-7	GR-7	GR-7			MTU 1010	Rasi	Sheethal	Tellahansa

The data of Ranchi (RC) was not included in the analysis due to low yield and high CV.

Appendix 1 (contd): Grain Yield (kg/ha) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	Hybrid	ZONE VII									Overall Mean
			MAH	TS mean	MND	BRM	KA mean	CBT	ADT	TN mean	Southern Mean	
1	24901	SAVA-200	6283	6352	7440	2461	4951	5535	2973	4254	5256	5774
2	24902	SVZ-1103	5003	5192	7160	2458	4809	6501	3329	4915	4886	5538
3	24903	Siri-2266 (Gold)	6943	6077	6255	3477	4866	6866	3451	5159	5269	5653
4	24904	NK-17508	6220	6589	6074	2539	4306	8965	4209	6587	5869	6118
5	24905	NK-18902	6287	5898	5959	3375	4667	9179	4044	6612	5713	5882
6	24906	NS-1545	6893	5813	5844	3130	4487	7555	4387	5971	5263	5454
7	24907	NS-5149	5303	5249	6222	2976	4599	6156	3076	4616	4705	5005
8	24908	PVRH-4017	5147	5558	4741	2875	3808	4490	2656	3573	4395	4722
9	24909	PVRH-4047	5443	4898	5449	3585	4517	3822	3998	3910	4489	4570
10	24910	HN-1	4423	5025	5481	3305	4393	6918	3778	5348	4913	5734
11	24911	SL-8H	6357	6836	6979	3508	5244	8996	4207	6602	6147	6147
12	24912	SL-18H	6043	5968	7111	3806	5459	6302	3484	4893	5444	5569
13	24913	SL-12H	5263	6427	6486	2770	4628	7644	5222	6433	5654	5870
14	24914	JKRH-2154	4850	6173	5432	2388	3910	9033	3562	6298	5417	5978
15	24915	ADV-1502	5473	5836	6930	2514	4722	3430	2760	3095	4695	4929
16	24916	IRH-91	5213	5809	5317	2216	3767	5676	3920	4798	4968	5277
17	24917	IRH-102	5887	5407	6996	2812	4904	5190	3851	4521	4931	5560
18	24918	MEPH-122	5323	6239	7918	3410	5664	6647	2776	4711	5381	5949
19	24919	MEPH-123	5543	5857	7802	3207	5505	6542	4116	5329	5239	5862
20	24920	Bio-648	4817	4697	5926	3491	4708	5717	3120	4419	4602	4993
21	24921	Bio-4311 BH	5213	5093	7029	3470	5249	5874	2351	4113	4614	5140
22	24922	KPH-476	5577	6056	7638	3358	5498	7273	3556	5414	5418	5283
23	24923	JGLH-2	5210	5073	5218	2815	4017	5446	2591	4019	4234	4797
24	24924	US-317	5403	5643	5860	3417	4639	5691	3402	4547	5084	5438
25	24925	US-326	5443	5722	6519	2591	4555	6569	3904	5236	5045	5609
26	24926	TNTRH-39	5670	4667	5021	2976	3998	5801	4391	5096	4493	5146
27	24927	TNRH-271	5297	4182	4148	2405	3277	4407	1867	3137	3630	4060
28	24928	MR-8181	5867	5505	7012	3421	5217	6052	2889	4470	4959	4853
29	US-314 (NCH)		6927	6598	7342	2468	4905	5905	4589	5247	5479	5803
30	Anjali (NCV)		5710	4898	3770	2637	3203	4647	2756	3701	3886	3845
31	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)		4833	5271	5218	2920	4069	6516	3027	4771	4738	5098
32	Local Check Variety		5770	5785	4494	3603	4048	6156	3422	4789	5052	5028
33	Gonta Bidhan-3 (ONCV)		5403	6032	5844	3302	4573	8030	4031	6031	5452	5928
Exp Mean			5586	5637	6285	3027	4656	6367	3495	4931	5025	5390
CD(0.05)			367.29		1025.12	464.41		1391.24	785.83			
CV			4.05		10.33	9.51		13.55	13.86			
			**		**	**		**	**			
D/S			30-06-2015		06-08-2015	10-06-2015		23-06-2015	19-06-2015			
D/P			30-07-2015		29-08-2015	11-07-2015		22-07-2015	16-07-2015			
Zonal Check			DRR Dhan 43		DRR Dhan 43	DRR Dhan 43		DRR Dhan 43	DRR Dhan 43			
Local Check					Raksha	MO 4		CORH 3	CORH 3			

The data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 2: Days to 50% flowering (DFF) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	HYBRID	ZONE I	ZONE II						ZONE III										ZONE IV
			MLN	KUL	SAV	HA Mean	PNT	LDN	Northern Mean	CHN	BBN	RCI	HZB	ALH	MSD	BIO	JKA	UP Mean	Eastern Mean	TTB
1	24901	SAVA-200	102	80	91	86	80	96	87	86	85	86	80	81	91	84	77	83	84	89
2	24902	SVZ-1103	106	88	95	92	84	100	92	87	85	99	83	84	98	87	83	88	87	79
3	24903	Siri-2266 (Gold)	107	87	91	89	82	97	89	88	92	99	88	86	98	86	83	88	89	83
4	24904	NK-17508	111	92	94	93	92	104	96	97	93	100	91	83	95	88	87	88	90	91
5	24905	NK-18902	110	92	92	92	82	99	91	91	94	103	91	86	98	85	87	89	90	90
6	24906	NS-1545	111	93	96	94	88	103	95	91	93	100	87	88	96	88	87	90	90	90
7	24907	NS-5149	106	87	92	89	83	96	89	89	89	101	87	82	93	85	83	86	87	81
8	24908	PVRH-4017	97	79	86	82	76	90	83	88	87	86	77	89	99	78	80	86	85	83
9	24909	PVRH-4047	97	79	85	82	76	91	83	81	86	89	76	92	103	78	74	87	84	81
10	24910	HN-1	110	92	95	94	84	101	93	88	88	101	90	85	81	86	86	85	86	79
11	24911	SL-8H	111	91	94	93	95	104	96	91	91	98	89	85	95	90	82	88	89	90
12	24912	SL-18H	106	88	93	90	90	101	93	87	87	99	86	84	95	84	82	86	86	86
13	24913	SL-12H	108	89	93	91	87	104	93	93	91	90	87	81	94	88	83	86	88	90
14	24914	JKRH-2154	112	92	94	93	87	99	93	93	98	113	92	83	91	84	89	87	90	89
15	24915	ADV-1502	96	80	85	82	78	88	83	81	84	87	77	85	81	74	77	79	80	77
16	24916	IRH-91	105	84	90	87	83	95	88	88	87	101	84	88	90	78	87	86	86	88
17	24917	IRH-102	114	94	102	98	99	110	101	93	92	93	91	85	102	89	95	93	92	94
18	24918	MEPH-122	112	93	101	97	92	107	98	91	90	102	90	82	93	86	86	87	88	91
19	24919	MEPH-123	111	94	96	95	89	105	96	91	91	106	91	83	93	88	86	88	89	90
20	24920	Bio-648	97	83	87	85	78	90	85	81	83	92	80	82	95	74	79	83	82	80
21	24921	Bio-4311 BH	106	87	91	89	81	98	89	88	91	91	87	81	93	85	86	86	87	80
22	24922	KPH-476	102	84	90	87	80	94	87	86	86	93	82	84	103	82	81	87	86	82
23	24923	JGLH-2	110	88	92	90	85	98	91	86	60	91	84	85	99	74	82	85	81	82
24	24924	US-317	109	93	100	96	96	107	99	91	89	100	87	84	81	90	86	85	87	95
25	24925	US-326	106	88	91	89	90	96	91	81	88	101	88	85	96	83	83	87	86	79
26	24926	TNTRH-39	118	101	109	105	102	114	107	97	101	113	100	85	93	90	94	90	94	96
27	24927	TNTRH-271	102	84	88	86	87	97	89	89	85	93	80	87	101	83	82	88	87	86
28	24928	MR-8181	96	80	82	81	76	87	81	88	78	87	76	89	92	74	74	82	82	76
29	US-314 (NCH)		110	92	94	93	90	104	95	88	86	93	84	84	92	88	83	87	87	92
30	Anjali (NCV)		90	77	80	79	72	84	79	72	77	103	75	82	91	70	69	78	77	75
31	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)		111	93	99	96	91	110	98	80		93		82	82		100	88	86	75
32	Local Check Variety		100	88	105	96	78	101	93	88	87	75	83	85	102	76	92	89	88	73
33	Gonta Bidhan-3 (ONCV)		110	89	93	91	85	98	91	91	90	102	92	82	81	85	89	84	87	83

Appendix 2 (contd): Days to 50% flowering (DFF) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	HYBRID	ZONE V								ZONE VI													
			JBP	SND	SKL	MH Mean	RPR	ADV	CG Mean	Central Mean	KJT	VDG	ANK	MH mean	NWG	NVS	DBI	GJ mean	Western Mean	MTU	IIRR	WGL	BAY	
1	24901	SAVA-200	90	78	80	79	81	79	80	82	84	91	86	87	91	78	93	87	87	88	84	86	96	
2	24902	SVZ-1103	95	76	84	80	81	82	82	84	85	93	86	88	93	78	88	87	87	85	86	86	91	
3	24903	Siri-2266 (Gold)	97	85	84	85	89	84	86	88	88	95	91	91	93	87	91	90	91	89	94	87	96	
4	24904	NK-17508	97	89	88	89	92	85	89	90	95	97	95	96	96	88	95	93	94	95	96	89	99	
5	24905	NK-18902	98	91	88	90	90	85	87	90	89	98	93	93	98	89	93	93	93	94	95	89	94	
6	24906	NS-1545	97	91	87	89	92	84	88	90	92	96	98	95	103	88	93	95	95	96	94	87	96	
7	24907	NS-5149	95	85	86	86	88	84	86	88	94	95	93	94	99	81	88	89	92	89	93	88	96	
8	24908	PVRH-4017	89	80	78	79	80	74	77	80	83	89	86	86	91	82	83	85	86	86	81	86	91	
9	24909	PVRH-4047	89	82	78	80	81	75	78	81	82	89	84	85	78	78	85	80	83	86	83	86	89	
10	24910	HN-1	96	85	87	86	89	85	87	88	90	98	97	95	96	88	92	92	93	86	95	87	97	
11	24911	SL-8H	96	85	89	87	92	85	88	89	93	97	98	96	96	89	93	93	94	90	94	89	103	
12	24912	SL-18H	96	85	85	85	90	82	86	88	92	98	92	94	93	88	92	91	92	87	93	87	99	
13	24913	SL-12H	96	86	86	86	91	85	88	89	92	97	92	94	95	88	93	92	93	89	87	87	91	
14	24914	JKRH-2154	98	87	88	88	91	85	88	90	95	98	94	96	97	87	95	93	95	93	100	87	103	
15	24915	ADV-1502	87	78	77	78	81	74	78	80	83	88	83	85	75	91	80	82	83	77	85	87	87	
16	24916	IRH-91	94	81	82	82	89	82	85	86	88	94	87	89	91	80	102	91	90	86	90	86	92	
17	24917	IRH-102	98	90	88	89	93	89	91	92	82	93	90	88	104	87	88	93	91	94	94	88	107	
18	24918	MEPH-122	97	88	85	87	93	87	90	90	94	93	98	95	99	76	93	89	92	95	93	87	102	
19	24919	MEPH-123	98	91	88	90	91	87	89	91	88	98	98	95	99	85	98	94	94	83	96	87	104	
20	24920	Bio-648	91	80	80	80	85	79	82	83	86	91	86	88	78	78	93	83	85	95	86	86	90	
21	24921	Bio-4311 BH	88	80	84	82	90	85	88	85	87	98	94	93	95	88	87	90	92	92	93	89	97	
22	24922	KPH-476	91	78	81	80	85	80	83	83	86	91	86	88	91	78	88	86	87	89	87	86	101	
23	24923	JGLH-2	92	81	82	82	85	82	84	85	87	93	90	90	90	78	90	86	88	88		86	96	
24	24924	US-317	89	86	86	86	94	85	90	88	87	94	98	93	103	86	88	92	93	93	92	88	105	
25	24925	US-326	98	87	87	87	84	85	84	88	86	93	97	92	98	79	88	88	90	89	90	86	91	
26	24926	TNTRH-39	108	93	98	96	102	96	99	99	101	98	99	99	99	89	101	96	98	96	95	91	115	
27	24927	TNRH-271	91	85	83	84	81	80	80	84	86	87	86	87	90	81	94	88	88	89	85	86	91	
28	24928	MR-8181	88	77	79	78	81	74	78	80	81	87	83	84	95	78	80	84	84	83	82	77	90	
29	US-314 (NCH)		88	85	83	84	89	82	85	85	91	91	93	92	99	85	94	93	92	90	88	87	99	
30	Anjali (NCV)		88	75	74	75	78	70	74	77	83	89	80	84	78	99	73	83	84	74	77	78	70	
31	PR-124/Luit/NDR-97/ Sahbhagidhar/ DRR Dhan-43 (ZCV)		95	88	87	88	90	83	86	88	87	94	92	91	95	80	92	89	90	90	93	87	96	
32	Local Check Variety		91	87	88	88	81	72	77	84	88	98	92	93	93	78	96	89	91	90	84	97	101	
33	Gonta Bidhan-3 (ONCV)		102	92	88	90	93	85	89	92	88	99	97	95	100	89	90	93	94	90	96	88	106	

Appendix 2 (contd): Days to 50% flowering (DFF) of hybrids in IHRT-Early, Kharif 2015

S. No	IET No	HYBRID	ZONE VII									Overall Mean
			MAH	TS mean	MND	BRM	KA Mean	CBT	ADT	TN mean	Southern Mean	
1	24901	SAVA-200	97	91	91	86	89	88	84	86	89	86
2	24902	SVZ-1103	97	90	90	94	92	87	89	88	90	88
3	24903	Siri-2266 (Gold)	99	94	104	90	97	99	88	94	94	91
4	24904	NK-17508	82	92	102	85	93	99	93	96	93	93
5	24905	NK-18902	93	93	109	86	98	101	95	98	95	93
6	24906	NS-1545	94	93	105	87	96	100	90	95	94	93
7	24907	NS-5149	95	93	101	95	98	101	94	98	95	91
8	24908	PVRH-4017	101	90	89	84	87	83	93	88	88	85
9	24909	PVRH-4047	96	88	90	90	90	88	88	88	88	85
10	24910	HN-1	92	93	98	82	90	96	94	95	92	91
11	24911	SL-8H	93	95	101	91	96	97	89	93	94	93
12	24912	SL-18H	92	93	94	86	90	95	86	91	91	90
13	24913	SL-12H	96	90	92	87	90	93	90	92	90	91
14	24914	JKRH-2154	93	96	108	97	102	102	90	96	97	94
15	24915	ADV-1502	92	88	90	80	85	84	88	86	86	83
16	24916	IRH-91	91	90	99	83	91	93	87	90	90	89
17	24917	IRH-102	98	97	95	97	96	97	90	94	96	95
18	24918	MEPH-122	99	95	99	97	98	95	92	94	95	93
19	24919	MEPH-123	91	94	100	83	91	100	91	95	93	93
20	24920	Bio-648	89	88	92	81	87	86	86	86	88	85
21	24921	Bio-4311 BH	91	93	106	85	96	101	90	96	94	90
22	24922	KPH-476	96	92	94	84	89	87	85	86	90	87
23	24923	JGLH-2	94	92	89	98	94	86	86	86	90	87
24	24924	US-317	91	94	94	86	90	94	92	93	93	92
25	24925	US-326	94	90	102	100	101	97	91	94	93	90
26	24926	TNTRH-39	90	98	109	82	96	110	94	102	98	99
27	24927	TNRH-271	93	89	89	72	80	90	90	90	87	87
28	24928	MR-8181	93	85	89	98	93	85	83	84	87	83
29	US-314 (NCH)		100	93	91	93	92	87	87	87	91	91
30	Anjali (NCV)		92	79	81	87	84	81	88	84	81	80
31	PR-124/Luit/NDR-97/ Sahbhagidhan/ DRR Dhan-43 (ZCV)		96	93	100	83	91	97	90	94	92	91
32	Local Check Variety		82	91	89	86	88	87	83	85	89	89
33	Gonta Bidhan-3 (Old ONCV)		87	95	109	80	95	102	90	96	94	92

Appendix 3: Quality characteristics of IHRT-Early, Kharif 2015

S. No	Designation	IET No	HULL	MILL	HRR	KL	KB	L/B	Grain Type	Grain Chalk	VER	WU	KLAC	ER	ASV	AC	GC	AROMA
1	SAVA-200	24901	80.7	70.3	66.0	6.00	2.10	2.85	LB	VOC	4.8	185	11.1	1.85	3.0	17.88	60	MS
2	SVZ-1103	24902	78.8	66.6	60.3	6.44	2.20	2.92	LB	VOC	5.4	190	10.0	1.55	4.0	25.16	22	NS
3	Sri-2266 (Gold)	24903	80.9	72.2	68.5	6.24	2.22	2.81	LB	VOC	5.6	305	10.4	1.66	6.3	23.02	50	NS
4	NK-17508	24904	77.4	66.4	47.1	5.96	2.24	2.66	MS	VOC	5.6	285	10.2	1.71	5.5	22.00	44	MS
5	NK-18902	24905	80.3	71.4	68.5	6.61	2.33	2.83	LB	VOC	5.3	315	11.0	1.66	7.0	22.73	22	NS
6	NS-1545	24906	77.9	68.4	65.4	6.30	2.22	2.83	LB	VOC	5.2	195	10.7	1.69	4.0	20.50	41	NS
7	NS-5149	24907	78.8	67.2	57.8	7.08	2.03	3.48	LS	VOC	5.4	155	10.9	1.53	4.6	16.01	78	MS
8	PVRH-4017	24908	79.2	69.2	59.9	7.31	1.97	3.71	LS	VOC	5.6	320	13.4	1.83	7.0	23.14	24	MS
9	PVRH-4047	24909	79.1	70.3	65.9	7.28	2.00	3.64	LS	VOC	5.6	330	13.1	1.79	7.0	25.81	23	MS
10	HN-1	24910	79.4	66.7	56.0	6.96	2.51	2.77	LB	VOC	5.4	280	11.1	1.59	4.0	27.01	23	NS
11	SL-8H	24911	79.7	70.4	66.4	6.67	2.25	2.96	LB	VOC	4.7	210	10.0	1.49	4.0	22.23	25	NS
12	SL-18H	24912	80.9	70.9	65.4	6.81	2.33	2.92	LB	VOC	4.0	220	11.8	1.73	4.7	23.55	35	NS
13	SL-12H	24913	80.3	69.8	60.9	6.92	2.34	2.95	LB	VOC	4.7	270	11.4	1.64	4.5	23.55	48	NS
14	JKRH-2154	24914	80.2	70.4	67.5	6.49	2.20	2.95	LB	A	4.1	295	11.8	1.81	3.8	22.90	44	SS
15	ADV-1502	24915	78.4	67.5	57.1	5.75	2.26	2.54	MS	VOC	4.8	210	10.3	1.79	4.0	25.16	30	NS
16	IRH-91	24916	80.1	70.2	64.9	6.95	2.07	3.35	LS	VOC	5.3	250	12.6	1.81	4.6	24.08	44	SS
17	IRH-102	24917	80.8	71.2	67.8	5.93	2.27	2.61	MS	VOC	5.0	325	10.6	1.78	7.0	20.94	35	SS
18	MEPH-122	24918	79.9	64.4	58.4	5.64	2.41	2.34	SB	OC	5.5	295	10.6	1.87	5.1	27.63	36	NS
19	MEPH-123	24919	80.4	72.3	71.1	6.22	2.27	2.74	LB	VOC	4.2	230	10.7	1.72	5.0	20.38	34	NS
20	Bio-648	24920	79.4	68.9	63.9	6.68	2.19	3.05	LS	VOC	5.2	245	10.8	1.61	5.0	21.79	40	NS
21	Bio-4311 BH	24921	78.8	70.1	66.6	7.80	1.99	3.91	LS	VOC	5.1	330	14.3	1.83	7.0	25.02	30	SS
22	KPH-476	24922	81.2	69.3	61.4	6.64	1.94	3.42	LS	VOC	5.3	335	10.9	1.64	4.0	21.56	53	NS
23	JGLH-2	24923																
24	US-317	24924	81.0	69.0	63.4	6.32	1.95	3.24	LS	VOC	4.8	335	11.1	1.75	6.0	25.46	45	NS
25	US-326	24925	79.8	69.7	62.3	7.19	2.11	3.40	LS	VOC	4.1	305	13.2	1.83	7.0	22.79	37	MS
26	TNTRH-39	24926	80.4	70.4	67.4	5.63	2.23	2.52	MS	VOC	4.7	235	10.2	1.81	4.0	25.49	22	NS
27	TNRH-271	24927	79.4	68.5	60.3	6.26	2.00	3.13	LS	VOC	4.5	265	11.1	1.77	4.5	23.93	26	NS
28	MR-8181	24928	80.0	66.1	55.5	5.36	2.29	2.34	SB	VOC	5.0	250	10.5	1.95	5.0	25.87	23	NS
29	US-314 (NCH)	-	79.9	70.6	66.5	5.73	2.22	2.58	MS	VOC	5.0	270	10.2	1.78	4.1	21.47	38	NS
30	Anjali (NCV)	-	77.3	67.8	57.1	5.42	2.53	2.14	SB	OC	4.1	150	8.5	1.56	4.0	23.61	22	NS
31	DRR Dhan 43 (ZCV)	-	77.8	68.6	64.2	6.25	2.31	2.70	LB	VOC	4.7	285	11.1	1.77	7.0	25.63	36	NS
32	Rasi (LCV)	-	77.7	69.3	58.9	5.28	2.27	2.32	SB	VOC	4.1	255	10.2	1.93	7.0	25.81	23	NS
33	Gonta Bidhan-3 (ONCV)	-	79.8	69.7	67.1	5.39	2.25	2.39	SB	VOC	4.6	170	10.0	1.85	4.0	25.34	23	NS

Hull: Hulling (%); Mill: Milling (%); HRR: Head rice recovery (%); KL: Kernel length (mm); KB: Kernel breadth (mm);L/B: Length and breadth ratio; Grain Chalk: Grain chalkiness; VER: Volume expansion ratio; WU: Water uptake (ml); KLAC: Kernel length after cooking (mm); ER: Elongation ratio; AC: Amylose content (%); GC: Gel consistency; MS: Medium slender; LS: Long slender, LB: Long bold; SB: Short bold; VOC: Very occasionally present; A: Absent; NS: No scent; MS: Medium scent; SS: Strong scent;

Appendix 4: Grain Yield (kg/ha) of hybrids in IHRT – Medium, Kharif 2015

S. NO	IET No.	Name	ZONE II					Zone III					
			KUL	PNT	LDN	CHT	Northern	MSD	BIO	JKA	NUZ	ALH	UP mean
Group I													
1	24930	NK-17715	6300	4694	5871	4900	5441	5882	7810	3204	6907	4600	5680
2	24931	RH-9000 Plus	6367	4435	6835	6700	6084	7728	7794	3543	7217	4850	6226
3	24932	JRH-66	5633	4170	5774	5200	5194	7322	7820	2807	6713	5000	5932
4	24933	Sri-2277 (Gold)	6400	4668	5997	5625	5673	7384	7418	2269	7278	4850	5840
5	24934	NK-5251 Plus	6633	4623	6993	4625	5718	7372	7884		7621	4650	6882
6	24935	JRH-68	5100	2517	3269	5350	4059	9199	4603	3851	5907	4650	5642
7	24936	RH-664 Imp Plus	6567	3957	6967	6600	6023	7447	7370	3285	6899	4650	5930
8	24939	UPRH-106	5133	2813	3786	3750	3870	7384	5757		8449	4550	6535
9	24940	NPH-2012	6100	3426	6185	6700	5603	7916	8101	3320	8913	5000	6650
10	24941	NS-5153	5600	4874	6156	3650	5070	6446	7159	3209	8599	5000	6082
11	24942	UPRH-122	3400	2353	2540	2800	2773	6696	3339	1768	7580	5200	4916
12	24943	NS-5156	5667	3844	5580	4050	4785	6170	7762	5155	7281	5200	6314
13	24945	TMRH-104	6167	4134	6027	6650	5745	7572	6392	4268	7765	5100	6219
14	24946	HN-4	6300	4746	7723	4950	5930	4568	8243	4184	7033	5300	5866
15	24947	BLR-101	4900	4260	4553	4700	4603	8417	4280	4244	7800	5200	5988
16	24948	TMRH-124	5767	5440	5900	5150	5564	5319	7365	2999	7430	5100	5642
17	24949	BLR-102	5833	2938	5925	5150	4961	7822	7799	4499	7619	5300	6608
18	24950	JKRH-2230	6433	4415	7440	4950	5810	6446	8180	4967	7286	5100	6396
19	24951	VNR-218	6967	4501	6014	5850	5833	8698	7571		7777	5350	7349
20	24952	ADV-1503	5700	3470	6611	5650	5358	7447	6698	3629	8251	5250	6255
21	24953	IRH-91-1	5067	2257	3904	3250	3619	6884	4614	2500	7633	5100	5346
22	24955	MEPH-124	5967	3808	5096	5900	5193	5257	7471	3020	8081	4450	5656
23	24956	IRH-103	5933	3417	6942	6900	5798	7572	8360	3840	7899	4350	6404
24	24959	IIRRH-103	6567	4077	6021	6900	5891	5663	7005	2734	7964	4650	5603
25	24960	IRH-104	6867	4528	6753	4700	5712	4443	7704	5879	7926	4700	6130
26	24961	SRH-5201	6300	3864	7099	6900	6041	7259	6704	4818	7852	4600	6247
27	24963	Bio-681	7100	3598	6462	3900	5265	7697	9175		7865	4850	7397
28	24964	IIRRH-104	6600	3605	6649	4600	5363	5757	7011	4274	7273	4650	5793
29	24966	CPH-166	7233	3740	5978	5900	5713	6758	7434	2895	6585	4700	5675
30	24967	Bio-680	6867	4951	6968	3400	5547	7509	9989	3138	7510	4550	6539
31	24968	KPH-484	5900	5200	7372	4350	5705	7541	6942	4292	7366	4850	6198
32	24969	MR-8222	6167	3594	6119	5000	5220	6571	8989	3676	7760	4650	6329
33	24970	HRI-188	5667	4461	6198	4000	5081	6946	6624	3507	7810	4950	5967
34	24971	IIRRH-105	5933	4111	6216	4250	5128	7447	7196	5114	8126	5050	6586
35	24972	US-330	5967	4344	6102	4850	5315	7760	7947	4814	7517	5100	6627
36	24974	PR-15101	6800	5042	8754	5350	6487	7822	8778	4251	7192	5200	6648
37	24975	US-335	6333	3915	6706	4250	5301	8073	8942	4654	7149	5150	6793
38	24976	SPH-1065	5633	3907	5564	4450	4888	6414	7794	3145	7448	5200	6000
39	24978	RRX-022	5933	4167	5963	4950	5253	6758	8074	4059	6904	4750	6109

S. NO	IET No.	Name	ZONE II					Zone III					
			KUL	PNT	LDN	GHT	Northern	MSD	BIO	JKA	NUZ	ALH	UP mean
40	24981	NPH-242	6533	3537	5572	4900	5135	6602	5323	2951	6899	4750	5305
41	24982	SPH-921	6600	4708	5878	5050	5559	6884	7402	3852	6622	4600	5872
42	24983	US-337	6700	4212	6034	4400	5337	7572	7619	4725	7061	4550	6305
43	24984	PR-15107	6367	4840	6344	4450	5500	6727	8423	2128	7294	4800	5874
44	24985	RRX-024	5767	4054	7215	6700	5934	7503	7005	3792	6768	4350	5884
45	24986	TNTRH-55	6867	3784	6207	5350	5552	7259	4561	2860	7230	4150	5212
46	US-312 (NCH-ME)		6300	4170	6759	4900	5532	3880	7487	4155	7847	4650	5604
47	MTU-1010 (NCV-ME)		4500	3710	4883	3650	4186	5006	6646	2806	7425	4600	5297
Group II													
1	24929	Sri-2244 (Gold)	6300	3933	5973	5950	5539	4255	8317	3318	5497	4900	5257
2	24937	PRSH-9018	6167	4403	6558	6100	5807	7697	8339		6670	4550	6814
3	24938	NPH-2003	6633	5073	6536	4600	5711	5820	8090		8725	4650	6821
4	24944	PRSH-9003	6733	3813	5745	4650	5235	6665	8360	1501	7401	5150	5815
5	24954	VNR-219	5733	3465	6849	6600	5662	6320	6942	3787	8138	4750	5987
6	24957	GK-5030	6200	3653	5562	6850	5566	6821	7804	4445	6732	4600	6080
7	24958	MEPH-125	7033	4527	5805	8250	6404	6414	7741	4909	7083	4650	6159
8	24962	GK-5036	6600	3831	6808	5150	5597	6821	8058	6004	7842	4650	6675
9	24965	KPH-475	6867	4070	7188	3800	5481	7322	8439	3282	7365	4650	6211
10	24973	MR-8333	6200	4198	6754	4900	5513	6977	8561	2157	7715	5150	6112
11	24977	PR-15103	6700	4348	7106	3650	5451	7259	8794	2017	7671	5300	6208
12	24979	US-384	6500	4127	7263	4450	5585	6758	7180	2923	7073	4700	5727
13	24980	PR-15104	7233	4406	7711	4900	6062	9293	8217	2892	7097	4650	6430
14	HRI-174 (NCH-M)		6733	4510	5658	5200	5525	8698	8937		6714	4650	7250
15	NDR-359 (NCV-M)		6633	3615	6047	5650	5486	9199	8545	2814	7944	5250	6750
16	ZCV		6500	3660	6653	7300	6028	6852	5751	3689	6665	4650	5521
17	LCV		5833	3351	5748	5400	5083	5820	8492	4973	6582	5150	6203
Exp Mean			6199	4066	6209	5129	5401	6971	7436	3641	7432	4844	6134
CD(0.05)			429.73	777.21	1492.63	726.7		791.76	681.38	613.79	1347.24	272.66	
CV			3.51	9.71	12.19	7.13		5.77	4.62	8.43	9.18	2.84	
			**	**	**	**		**	**	**	*	**	
D/S			13-06-2015	01-06-2015	06-02-2015	04-06-2015		26-06-2015	22-06-2015	07-09-2015	10-06-2015	15-06-2015	
D/P			11-07-2015	30-06-2015	07-04-2015	19-07-2015		27-07-2015	19-07-2015	30-07-2015	10-07-2015	07-05-2015	
ZCV			PR-113	PR-113	PR-113	PR-113		CR Dhan-201	CR Dhan-201	CR Dhan-201	CR Dhan-201	CR Dhan-201	

Data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 4 (contd): Grain Yield (kg/ha) of hybrids in IHRT – Medium, Kharif 2015

S. No	IET No.	Name	ZONE III (contd)								Zone IV			Zone V					
			CHN	PAN	WB mean	RCI	CHP	CTK	OD mean	Eastern Mean	TTB	ARD	North eastern Mean	JBP	SND	RPR	ADV	CG mean	Central Mean
Group I																			
1	24930	NK-17715	5820	5225	5523	2500	7051	5473	6252	5775	5785	4125	4955	6777	4011	2837	9179	6008	5701
2	24931	RH-9000 Plus	5971	5600	5786	1650	6624	5238	5931	6063	6135	3775	4955	8179	4378	6476	8035	7256	6767
3	24932	JRH-66	5518	5988	5753	950	5742	4423	5083	5704	4795	3575	4185	9330	4679	4277	7074	5675	6340
4	24933	Siri-2277 (Gold)	6349	5720	6035	1450	5876	6357	6117	5945	5010	3500	4255	9474	4044	3909	8377	6143	6451
5	24934	NK-5251 Plus	6122	6350	6236	1600	7025	5845	6435	6609	5680	4500	5090	9293	4345	6844	9197	8020	7420
6	24935	JRH-68	5820	5295	5558	350	4167	5098	4632	5399	3590	4950	4270	4224	4913	2866	6315	4590	4579
7	24936	RH-664 Imp Plus	5669	6000	5834	1250	6223	4523	5373	5785	3450	4150	3800	8292	3977	4958	10421	7689	6912
8	24939	UPRH-106	5896		5896	650	2511	3725	3118	5467	4330	3125	3728	6834	2774	3478	6686	5082	4943
9	24940	NPH-2012	6274	5085	5679	650	5609	4226	4918	6049	3460	2900	3180	7760	2172	3385	9430	6408	5687
10	24941	NS-5153	5745	5835	5790	950	6864	4940	5902	5977	4675	3225	3950	6646	3643	4027	9411	6719	5932
11	24942	UPRH-122	6198		6198	250	1976	4356	3166	4639	3030	4350	3690	3479	3209	1773		1773	2820
12	24943	NS-5156	6047	5740	5893	850	6197	5389	5793	6104	3955	4350	4153	6952	3108	3121	9808	6464	5747
13	24945	TMRH-104	5896	5000	5448	1550	5903	4140	5021	5782	4815	4850	4833	8079	3910	3645	8955	6300	6147
14	24946	HN-4	5971	4625	5298	1000	5823	5275	5549	5669	3830	2675	3253	7103	4612	2631	9855	6243	6050
15	24947	BLR-101	5971	4875	5423	800	5823	4158	4990	5641	5465	4250	4858	8041	4679	4243	8673	6458	6409
16	24948	TMRH-124	6122	5625	5874	900	6384	4625	5504	5663	5455	3600	4528	9118	3275	2920	8959	5939	6068
17	24949	BLR-102	6122	4500	5311	1100	5556	4304	4930	5947	4595	2900	3748	9293	3409	3023	8551	5787	6069
18	24950	JKRH-2230	5971	5865	5918	1200	7479	5696	6587	6332	5850	3950	4900	9431	2139	3400	10582	6991	6388
19	24951	VNR-218	6198	5515	5857	1300	6036	5567	5802	6589	5635	4250	4943	9330	2908	6917	10072	8494	7307
20	24952	ADV-1503	6198	5675	5937	1300	6998	4645	5821	6088	5260	3275	4268	7046	2473	4164	10688	7426	6093
21	24953	IRH-91-1	5140		5140	500	6303	4286	5295	5307	3950	2650	3300	5444	3910	1876	6300	4088	4383
22	24955	MEPH-124	6274	5675	5974	1600	6384	4006	5195	5624	5300	3725	4513	9155	3376	2910	8761	5836	6050
23	24956	IRH-103	5518	5875	5696	1450	6757	4547	5652	6080	5440	3350	4395	7829	4111	4385	9212	6798	6384
24	24959	IIRRH-103	5820	5800	5810	1000	6651	6241	6446	5836	4365	2850	3608	8229	5548	5105	8742	6923	6906
25	24960	IRH-104	6122	6500	6311	900	7719	4227	5973	6136	5045	4250	4648	8279	4445	6211	9213	7712	7037
26	24961	SRH-5201	5971	5000	5486	1500	5075	4669	4872	5772	4575	3675	4125	7484	4378	3253	8991	6122	6027
27	24963	Bio-681	6425	4935	5680	1300	7612	6074	6843	6829	5160	3600	4380	9487	2473	3282	10041	6661	6321
28	24964	IIRRH-104	6500	6365	6433	1100	6197	4421	5309	5827	4050	3375	3713	6852	2005	5737	8770	7254	5841
29	24966	CPH-166	5971	4875	5423	1250	4300	5556	4928	5453	4790	1950	3370	7972	3877	3194	8185	5689	5807
30	24967	Bio-680	5669	4875	5272	1900	6490	4709	5599	6049	5045	3250	4148	8360	4378	3787	9301	6544	6457
31	24968	KPH-484	5971	6450	6211	1900	7131	5136	6133	6186	4360	3750	4055	9693	2941	6060	10333	8196	7257
32	24969	MR-8222	6198	5560	5879	750	5235	4806	5020	5938	4480	3500	3990	6377	3041	3081	8613	5847	5278
33	24970	HRI-188	6425	5750	6087	1700	6464	5862	6163	6038	4235	3600	3918	9593	2640	4370	9134	6752	6434
34	24971	IIRRH-105	5971	5375	5673	1100	6811	4729	5770	6202	4210	3250	3730	9506	3710	5800	8153	6977	6792
35	24972	US-330	6122	4750	5436	900	5716	5126	5421	6095	5165	4600	4883	8805	3075	3963	8913	6438	6189
36	24974	PR-15101	5820	7225	6523	1650	6410	4985	5697	6409	4740	3300	4020	9368	4412	4272	10002	7137	7013
37	24975	US-335	5896	4335	5115	950	5075	4785	4930	6006	3530	2750	3140	9618	2072	3968	8688	6328	6087
38	24976	SPH-1065	5593	6125	5859	1050	5636	5626	5631	5887	4625	3850	4238	6702	3643	3160	8565	5862	5518
39	24978	RRX-022	6122	7000	6561	1700	6010	6245	6127	6214	4685	3100	3893	9193	3543	5007	9558	7282	6825
40	24981	NPH-242	5896	5000	5448	1350	5769	5345	5557	5393	3820	3050	3435	6765	3142	3429	7138	5283	5118
41	24982	SPH-921	6122	5250	5686	850	6170	6378	6274	5920	4220	3375	3798	5889	4311	4517	9262	6889	5995

S. No	IET No.	Name	ZONE III (contd)								Zone IV			Zone V						
			CHN	PAN	WB mean	RCI	CHP	CTK	OD mean	Eastern Mean	TTB	ARD	North eastern Mean	JBP	SND	RPR	ADV	CG mean	Central Mean	
42	24983	US-337	5669	4800	5234	1500	5342	4943	5143	5809	3580	3050	3315	7941	2106	3890	8418	6154	5589	
43	24984	PR-15107	5820	6000	5910	1350	6303	6544	6424	6004	5460	4750	5105	6927	2507	5609	9491	7550	6134	
44	24985	RRX-024	6425	4500	5462	1350	5823	5285	5554	5717	4745	3500	4123	5469	3643	3674	9104	6389	5473	
45	24986	TNTRH-55	5518	5500	5509	1350	6971	5365	6168	5490	4155	3700	3928	6884	2874	4522	8731	6626	5753	
46	US-312 (NCH-ME)		6122	5750	5936	1150	6811	5120	5966	5758	4895	4600	4748	8573	3509	4933	9831	7382	6712	
47	MTU-1010 (NCV-ME)		4989	4875	4932	650	5475	3983	4729	5089	4340	3500	3920	6627	3175	5565	7629	6597	5749	
Group II																				
1	24929	Siri-2244 (Gold)	6122	5638	5880	1700	5556	5058	5307	5407	5700	3725	4713	9262	3443	4198	8620	6409	6381	
2	24937	PRSH-9018	6122	5725	5924	1900	6250	6011	6131	6421	6425	3875	5150	9305	2440	5536	9857	7696	6785	
3	24938	NPH-2003	5820	5275	5548	1150	6330	5242	5786	6244	3795	4075	3935	8129	1705	3816	10018	6917	5917	
4	24944	PRSH-9003	6122	5310	5716	1150	5636	5878	5757	5780	4745	3200	3973	8229	2874	4066	9060	6563	6057	
5	24954	VNR-219	5820	6385	6103	1450	6384	5461	5922	5998	4120	3650	3885	9562	4612	4605	10085	7345	7216	
6	24957	GK-5030	6047	4625	5336	1500	5769	6070	5919	5879	5030	4600	4815	9318	3509	3836	8875	6356	6385	
7	24958	MEPH-125	6047	5125	5586	1900	6517	5088	5803	5963	4570	3750	4160	9330	5414	3699	11036	7367	7370	
8	24962	GK-5036	6274	5000	5637	950	5662	5612	5637	6214	4950	3100	4025	9656	3643	4007	9449	6728	6689	
9	24965	KPH-475	6122	5625	5874	1000	4808	6153	5480	5974	4925	3350	4138	9869	3844	4355	9176	6766	6811	
10	24973	MR-8333	6198	5225	5712	1150	5182	5451	5316	5846	4570	3250	3910	8129	3844	4159	9849	7004	6495	
11	24977	PR-15103	6122	5690	5906	1450	6464	5809	6136	6125	5245	3800	4523	9587	3777	6413	9992	8202	7442	
12	24979	US-384	6047	4875	5461	1050	5796	6052	5924	5712	4300	3250	3775	9543	2908	4267	9435	6851	6538	
13	24980	PR-15104	6198	6185	6192	300	7211	5117	6164	6318	4165	3250	3708	7935	3309	4683	9051	6867	6245	
14	HRI-174 (NCH-M)		5442	6580	6011	2050	6651	4903	5777	6572	4845	3900	4373	9218	2640	6197	9010	7604	6766	
15	NDR-359 (NCV-M)		6047	4935	5491	900	4861	5392	5126	6110	5050	4625	4838	9506	4412	4223	8029	6126	6542	
16	ZCV		5367	5115	5241	850	6490	5239	5864	5535	3630	2850	3240	7991	2206	4056	6398	5227	5163	
17	LCV		6047	4375	5211	400	7799	4344	6072	5954	5065	3850	4458	5426	2607	5355	7998	6676	5346	
Exp Mean			5999	5504	5758	1222	5996	5188	5592	5919	4674	3603	4138	8110	3520	4165	9059	6550	6187	
CD(0.05)			955.5	932.21		845.39	356.71	258.14			900.04	1623.48		998.38	462.5	1246.52	936.38			
CV			8.09	8.5		35.56	2.99	2.53			9.73	22.59		6.23	6.71	14.82	5.27			
			ns	**		**	**	**			**	ns		**	**	**	**			
D/S			29-06-2015	02-07-2015		18-06-2015	15-07-2015	06-06-2015			26-06-2015	31-07-2015		10-06-2015	30-06-2015	16-06-2015	17-06-2015			
D/P			31-07-2015	07-08-2015		12-08-2015	10-08-2015	15-07-2015			24-07-2015	18-08-2015		02-07-2015	27-07-2015	17-07-2015	06-07-2015			
ZCV			CR Dhan-201	CR Dhan-201		CR Dhan-201	CR Dhan-201	CR Dhan-201			CR Dhan-201	CR Dhan-201		IR-64	IR-64	IR-64	IR-64			

Data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 4 (contd): Grain Yield (kg/ha) of hybrids in IHRT – Medium, Kharif 2015

S. No	IET No.	Name	Zone VI							Western mean	Zone VII					TS mean
			KJT	ANK	MH mean	NWG	NVS	DEI	GJ mean		MTU	IIRR	WGL	BAY	MAH	
Group I																
1	24930	NK-17715	3985	4812	4399	5000	4257	6912	5390	4993	4374	3649	4552	10048	6775	6256
2	24931	RH-9000 Plus	3696	5522	4609	5432	3992	6618	5347	5052	4178	4158	5740	9905	6835	6660
3	24932	JRH-66	6296	4282	5289	4383	4070	5735	4729	4953	4431	4596	3794	8402	6665	5864
4	24933	Sri-2277 (Gold)	6644	5503	6074	5370	5509	7108	5996	6027	4836	6234	4161	8930	8605	6982
5	24934	NK-5251 Plus	5978	4429	5204	5247	4503	6657	5469	5363	5381	6029	4326	8471	8730	6889
6	24935	JRH-68	2904	3863	3383	3457	3943	5108	4169	3855	3007	2522	3528	3725	6985	4190
7	24936	RH-664 Imp Plus	6363	4877	5620	4938	4504	7044	5495	5545	2355	4425	3829	8958	6665	5969
8	24939	UPRH-106	4193	4769	4481	2531	3502	4534	3523	3906	2402	3847	4063	6449	6400	5190
9	24940	NPH-2012	5607	4272	4940	4383	5378	6049	5270	5138	3406	5757	3860	7596	6990	6051
10	24941	NS-5153	5556	3924	4740	4321	5240	4907	4823	4790	3295	2926	3745	9024	8260	5988
11	24942	UPRH-122	3104	2134	2619	1667	3827	2255	2583	2597	2126	2363	3937	6558	7055	4978
12	24943	NS-5156	7444	4266	5855	5000	5954	4069	5007	5347	2842	6074	4626	10151	8460	7328
13	24945	TMRH-104	4904	4608	4756	3148	5144	4755	4349	4512	3697	4824	3376	8790	8095	6271
14	24946	HN-4	6170	4244	5207	4198	6041	4657	4965	5062	4629	4206	3522	6133	7995	5464
15	24947	BLR-101	5141	4748	4945	4938	6208	6176	5774	5442	3103	5681	5081	8543	7225	6633
16	24948	TMRH-124	5674	4266	4970	4136	4614	6078	4943	4954	3638	4796	3848	8526	6605	5944
17	24949	BLR-102	5333	3854	4594	4074	5896	5000	4990	4832	4029	5461	3474	8421	5990	5836
18	24950	JKRH-2230	8119	4230	6174	4815	6223	5833	5624	5844	4999	5338		7872	6430	6547
19	24951	VNR-218	7874	4845	6360	2963	3657	5980	4200	5064	2525	6034	3285	8638	7050	6252
20	24952	ADV-1503	5022	4502	4762	4877	3956	6078	4970	4887	4503	6020	3662	8617	7750	6512
21	24953	IRH-91-1	3133	2941	3037	2284	5179	3431	3631	3394	4196	3355	3014	5810	6215	4599
22	24955	MEPH-124	7348	5268	6308	3580	5384	5343	4769	5385	3712	4248	4093	8187	6890	5855
23	24956	IRH-103	6533	4743	5638	4753	5019	5343	5039	5278	3408	5255	4414	8752	6610	6258
24	24959	IIRR-103	6030	5001	5515	5247	3225	6373	4948	5175	3248	4961	3986	8018	6785	5937
25	24960	IRH-104	7230	6523	6876	6296	4455	6422	5724	6185	3147	5938	5387	8590	6405	6580
26	24961	SRH-5201	6978	5438	6208	4506	4013	6029	4850	5393	1961	4876	3135	7632	7005	5662
27	24963	Bio-681	8622	4142	6382	5494	5959	5931	5795	6030	3355	5541	5918	8578	6380	6604
28	24964	IIRR-104	4333	4750	4542	5679	5174	6225	5693	5232	3151	4802	3931	8935	6195	5966
29	24966	CPH-166	7726	4412	6069	3827	2772	5735	4112	4895	2066	4605		8927	6655	6729
30	24967	Bio-680	6526	4893	5709	4815	4496	6373	5228	5420	4942	5996	4853	9031	6215	6524
31	24968	KPH-484	5022	4989	5006	5679	5964	4902	5515	5311	1735	6211	4095	8131	7280	6429
32	24969	MR-8222	7785	3324	5555	4259	5491	5098	4950	5192	2344	5587	4344	7189	7035	6039
33	24970	HRI-188	7348	5209	6279	4383	4545	3971	4300	5091	2909	3491	3347	8543	6955	5584
34	24971	IIRR-105	5570	5135	5352	5617	4338	6225	5394	5377	1565	4447	4146	9320	5995	5977
35	24972	US-330	6207	4075	5141	4815	5338	5784	5312	5244	1991	5639	3461	8778	7160	6260
36	24974	PR-15101	6548	3954	5251	5617	6268	6324	6070	5742	5158	5035	3796	9956	6240	6257
37	24975	US-335	6067	4924	5496	4383	4536	5539	4819	5090	3746	5683	3640	9124	5830	6069
38	24976	SPH-1065	7533	4031	5782	4383	4517	4853	4584	5063	4903	4934	3774	8364	6000	5768
39	24978	RRX-022	6689	4274	5482	4012	5402	6961	5458	5468	3383	4799	3275	8491	6455	5755
40	24981	NPH-242	3830	4026	3928	2840	4401	6373	4538	4294	3614	4336	3345	7229	7745	5664

S. No	IET No.	Name	Zone VI							Western mean	Zone VII					
			KJT	ANK	MH mean	NWG	NVS	DBI	GJ mean		MTU	IIRR	WGL	BAY	MAH	TS mean
41	24982	SPH-921	7104	4727	5916	3704	3558	6618	4627	5142	4833	4664	5378	8783	7950	6694
42	24983	US-337	7422	5209	6316	4259	6311	5539	5370	5748	2490	5388	3622	8529	6625	6041
43	24984	PR-15107	6607	5302	5955	4877	4793	7108	5592	5737	5402	4352	4009	9045	6885	6072
44	24985	RRX-024	7348	4969	6159	5741	5649	6765	6051	6094	3884	4572	4018	9645	6135	6093
45	24986	TNTRH-55	5778	4881	5330	5247	4744	7451	5814	5620	3511	4745	3235	9319	6790	6022
46	US-312 (NCH-ME)		6393	4079	5236	4012	6319	6397	5576	5440	3209	6939	4203	8931	5775	6462
47	MTU-1010 (NCV-ME)		5985	3568	4777	4012	4812	5392	4739	4754	3652	4157	5268	7508	6165	5774
Group II																
1	24929	Sri-2244 (Gold)	6052	4977	5514	4012	4024	6887	4975	5190	3537	4629	4557	9482	7025	6423
2	24937	PRSH-9018	6637	5521	6079	3395	4898	6985	5093	5487	3296	4703	3946	9004	6080	5933
3	24938	NPH-2003	4963	5621	5292	4136	5554	7059	5583	5467	1814	5295	3621	8952	6225	6023
4	24944	PRSH-9003	6156	5330	5743	4321	4068	6520	4969	5279	2992	4769	3299	8758	6550	5844
5	24954	VNR-219	5785	6376	6081	3951	5151	6275	5125	5508	3808	4514	3633	8341	7760	6062
6	24957	GK-5030	7148	4014	5581	4012	4916	5098	4675	5038	3241	5941	4036	8146	6005	6032
7	24958	MEPH-125	9044	5252	7148	5000	3648	6373	5007	5863	2021	5334	3360	8874	6195	5941
8	24962	GK-5036	7222	4394	5808	4753	4153	6127	5011	5330	3590	5112	2959	8786	5720	5644
9	24965	KPH-475	6059	4785	5422	4630	4173	5196	4666	4969	2046	3338	3370	7878	6420	5251
10	24973	MR-8333	6689	5673	6181	5309	5386	6569	5755	5925	3615	4192	3410	8681	6775	5765
11	24977	PR-15103	5259	5018	5139	4938	4805	5784	5176	5161	3684	6490	4460	8982	7445	6844
12	24979	US-384	6756	5431	6094	3827	5657	5147	4877	5364	1782	4391	3695	9224	6800	6028
13	24980	PR-15104	6126	4667	5396	4444	2807	6225	4492	4854	5913	4235	3258	8080	6815	5597
14	HRI-174 (NCHM)		6319	4948	5633	4198	5593	6328	5373	5477	4580	5414	6393	9714	7055	7144
15	NDR-359 (NCV-M)		3593	3929	3761	3395	7228	5294	5306	4688	3548	5317	3499	8615	6105	5884
16	ZCV		4919	5428	5173	4506	5662	5686	5285	5240	2756	4259	3435	7385	6025	5276
17	LCV		6044	4380	5212	5309	5787	5147	5414	5333	5294	3660	4366	6665	5650	5085
Exp Mean			6125	4692	5408	4447	4779	5836	5021	5176	3444	4851	3933	8446	6859	6045
CD(0.05)			906.84	879.59		433.31	1597.34	1564.38			318.15	1805.35	709.84	916.74	456.38	
CV			7.55	9.53		4.94	16.52	13.57			4.62	18.69	8.98	5.5	3.39	
			**	**		**	**	**			**	**	**	**	**	
D/S			20-06-2015	24-06-2015		18-06-2015	11-06-2015	12-06-2015			03-07-2015	15-06-2015	08-07-2015	18-06-2015	30-06-2015	
D/P			25-07-2015	21-07-2015		23-07-2015	01-07-2015	22-07-2015			06-08-2015	14-07-2015	17-08-2015	17-07-2015	30-07-2015	
ZCV			Akshayadhan	Akshayadhan		Akshayadhan	Akshayadhan	Akshayadhan			Jaya	Jaya	Jaya	Jaya	Jaya	

Data of Ranchi (RC) was not included in the analysis due to low yield and high CV.

Appendix 4 (contd): Grain Yield (kg/ha) of hybrids in IHRT – Medium, Kharif 2015

S. No	IET No.	Name	Zone VII (contd)								Overall mean
			MND	BRM	KA mean	CBT	ADT	TN mean	KRK	Southern mean	
Group I											
1	24930	NK-17715	5296	2321	3809	7518	2542	5030	4929	5200	5395
2	24931	RH-9000 Plus	5778	2799	4289	6774	5000	5887	6698	5786	5853
3	24932	JRH-66	4593	3151	3872	7839	4583	6211	4304	5236	5381
4	24933	Siri-2277 (Gold)	6148	3445	4797	7881	3292	5586	5751	5928	5880
5	24934	NK-5251 Plus	6185	3125	4655	8405	5200	6802	7144	6300	6225
6	24935	JRH-68	3537	3466	3502	4381	3125	3753	6215	4049	4454
7	24936	RH-664 Imp Plus	4519	2279	3399	8143	4625	6384	4608	5041	5575
8	24939	UPRH-106	3630	2574	3102	6042	3125	4583	5840	4437	4528
9	24940	NPH-2012	4704	2862	3783	6964	3125	5045	6144	5141	5384
10	24941	NS-5153	3963	3235	3599	5405	3875	4640	2500	4623	5173
11	24942	UPRH-122	704	2826	1765	3589	3333	3461		3610	3533
12	24943	NS-5156	5037	2216	3627	7827	2958	5393	6858	5705	5563
13	24945	TMRH-104	4630	3477	4053	4435	2958	3696	3572	4785	5285
14	24946	HN-4	4407	3256	3832	5839	3292	4565	2500	4578	5192
15	24947	BLR-101	6333	2589	4461	8619	3792	6205	3733	5470	5484
16	24948	TMRH-124	4481	2390	3436	6857	2750	4804	6251	5014	5337
17	24949	BLR-102		3057	3057	6559	3125	4842	3393	4834	5236
18	24950	JKRH-2230	2778	2563	2670	8250	4942	6596	5090	5362	5850
19	24951	VNR-218	7333	3099	5216	6690	4542	5616	2679	5188	5829
20	24952	ADV-1503	5556	2164	3860	8184	3292	5738	5179	5493	5544
21	24953	IRH-91-1	2741	3146	2943	5208	3792	4500	6787	4426	4312
22	24955	MEPH-124	6296	2868	4582	9024	5083	7054	4286	5469	5477
23	24956	IRH-103	7259	3508	5384	8619	3333	5976	6608	5777	5776
24	24959	IIRRH-103	6296	2153	4225	7089	4125	5607	4465	5113	5527
25	24960	IRH-104	6111	2610	4361	5411	5250	5330	4465	5331	5875
26	24961	SRH-5201	5000	2705	3852	7744	4625	6185	4465	4915	5429
27	24963	Bio-681	7630	2805	5217	4821	3917	4369	5537	5448	5890
28	24964	IIRRH-104	5481	2143	3812	3792	3450	3621	5179	4706	5233
29	24966	CPH-166	4889	3183	4036	9655	4042	6848	4644	5407	5304
30	24967	Bio-680	8741	2868	5804	7571	3617	5594	4286	5812	5764
31	24968	KPH-484	8074	3057	5565	6613	4917	5765	3393	5351	5756
32	24969	MR-8222	5926	3099	4512	7607	3767	5687	4465	5136	5316
33	24970	HRI-188	7167	3214	5190	7232	3917	5574	3840	5062	5421
34	24971	IIRRH-105	4741	3167	3954	6631	3417	5024	4286	4771	5458
35	24972	US-330	5667	2663	4165	7702	3583	5643	3304	4995	5494
36	24974	PR-15101	5963	2652	4308	9667	3875	6771	4554	5690	6039
37	24975	US-335	7333	2532	4932	8875	4458	6667	3393	5461	5469
38	24976	SPH-1065	6815	3130	4973	6768	4125	5446	3929	5274	5328
39	24978	RRX-022	6000	3162	4581	6637	3458	5048	4912	5057	5586
40	24981	NPH-242	5185	2705	3945	7696	4279	5988	5715	5185	4992

S. No	IET No.	Name	Zone VII (contd)								Southern mean	Overall mean
			MND	BRM	KA mean	CBT	ADT	TN mean	KRK			
41	24982	SPH-921	5519	2096	3807	8214	5000	6607	4286	5672	5574	
42	24983	US-337	6000	2994	4497	6250	4500	5375	3036	4943	5317	
43	24984	PR-15107	5815	2757	4286	9232	4375	6804	3036	5491	5717	
44	24985	RRX-024	5815	2379	4097	6726	2833	4780	5358	5137	5505	
45	24986	TNTRH-55	6519	2500	4509	5911	5167	5539	4108	5180	5364	
46	US-312 (NCH-ME)		5926	1975	3950	6964	4000	5482	5537	5346	5616	
47	MTU-1010 (NCV-ME)		6370	2852	4611	5976	2500	4238	6608	5106	4947	
Group II												
1	24929	Siri-2244 (Gold)	5889	2395	4142	8280	3167	5723	4465	5342	5445	
2	24937	PRSH-9018	5037	3099	4068	7690		7690	3545	5156	5808	
3	24938	NPH-2003	5741	3571	4656	8976	4367	6671	6072	5463	5645	
4	24944	PRSH-9003	5889	2815	4352	8167	3333	5750	3893	5046	5353	
5	24954	VNR-219	6222	3072	4647	6869	6125	6497	3751	5410	5732	
6	24957	GK-5030	6370	2868	4619	8077	4208	6143	6608	5550	5619	
7	24958	MEPH-125	6852	4175	5514	9184	3417	6301	3126	5254	5848	
8	24962	GK-5036	6370	1975	4173	8917	4513	6715	3929	5187	5636	
9	24965	KPH-475	2778	3004	2891	8798	4592	6695	5001	4722	5390	
10	24973	MR-8333	5741	3487	4614	8857	3208	6033	3393	5136	5572	
11	24977	PR-15103	5333	3162	4248	8661	4417	6539	6430	5906	5900	
12	24979	US-384	5778	2773	4275	9143	4375	6759	2858	5082	5444	
13	24980	PR-15104	4852	2805	3828	8494	5417	6955	4644	5451	5655	
14	HRI-174 (NCH-M)		5444	2505	3975	8286	4708	6497	7323	6142	6039	
15	NDR-359 (NCV-M)		4481	2595	3538	8458	5167	6812	4822	5261	5554	
16	ZCV		3519	2405	2962	6798	3875	5336	4465	4492	5064	
17	LCV		4963	3251	4107	6637	3667	5152	4822	4897	5290	
Exp Mean			5534	2865	4178	7362	3992	5709	4622	5195	5460	
CD(0.05)			1625.63	384.41		1297.99	501.58		1104.65			
CV			15.09	6.84		8.92	6.35		11.83			
			**	**		**	**		**			
D/S			06-08-2015	10-06-2015		12-06-2015	27-08-2015		20-08-2015			
D/P			31-08-2015	15-07-2015		04-07-2015	29-09-2015		24-09-2015			
ZCV			Jaya	Jaya		Jaya	Jaya	Jaya	Jaya			

Data of Ranchi (RC) was not included in the analysis due to low yield and high CV.

Appendix 5: Days to 50% flowering of hybrids in IHRT-M, Kharif 2015

S. No	IET No.	Hybrid	ZONE II					Zone III													
			KUL	PNT	LDN	CHT	Northern	MSD	BIO	JKA	NUZ	ALH	UP mean	CHN	PAN	WB mean	RCI	CHP	CTK	OD mean	Eastern Mean
Group I																					
1	24930	NK-17715	92	89	98	103	96	101	87	91	100	101	96	94	93	93	112	97	97	97	95
2	24931	RH-9000 Plus	93	102	107	113	104	100	90	87	87	98	92	91	97	94	116	97	99	98	94
3	24932	JRH-66	98	110	110	121	110	102	94	87	107	99	98	99	101	100	120	99	95	97	98
4	24933	Siri-2277 (Gold)	94	106	106	113	104	97	90	93	103	101	97	94	97	95	120	100	100	100	97
5	24934	NK-5251 Plus	92	96	104	114	101	102	89		106	103	100	94	97	96	119	97	95	96	98
6	24935	JRH-68	81	84	91	93	87	102	80	82	84	104	90	83	87	85	108	88	85	87	88
7	24936	RH-664 Imp Plus	94	106	104	108	103	102	90	91	105	101	98	94	95	95	120	97	96	97	97
8	24939	UPRH-106	87	89	95	101	93	109	86		100	97	98	94	91	93	114	97	92	95	96
9	24940	NPH-2012	88	91	97	101	94	92	88	91	100	101	94	94	88	91	121	97	93	95	94
10	24941	NS-5153	91	96	103	106	99	106	87	87	99	102	96	94	93	94	119	95	97	96	95
11	24942	UPRH-122	91	98	101	108	99	105	91	88	97	102	97	93	89	91	116	91	90	91	94
12	24943	NS-5156	88	91	97	102	94	102	86	92	101	103	97	92	92	92	114	96	95	95	95
13	24945	TMRH-104	91	110	105	106	103	108	90	87	98	103	97	94	91	92	117	93	92	93	95
14	24946	HN-4	92	97	102	105	99	95	90	85	111	104	97	86	88	87	118	93	97	95	94
15	24947	BLR-101	85	88	94	100	92	107	83	84	98	101	94	91	88	90	119	91	88	89	92
16	24948	TMRH-124	89	102	108	103	100	107	87	87	100	101	96	91	95	93	120	96	96	96	95
17	24949	BLR-102	88	94	99	100	95	99	88	92	101	101	96	91	93	92	118	99	96	98	95
18	24950	JKRH-2230	92	96	104	107	100	101	94	92	103	104	99	98	97	97	120	99	103	101	99
19	24951	VNR-218	95	108	111	109	106	105	93		105	103	101	93	97	95	118	95	103	99	99
20	24952	ADV-1503	88	96	99	103	96	101	87	85	103	99	95	92	94	93	119	97	95	96	95
21	24953	IRH-91-1	86	89	97	100	93	101	86	92	101	98	96	91	90	91	116	96	95	96	94
22	24955	MEPH-124	94	110	107	108	105	98	95	93	100	102	97	91	98	95	120	98	100	99	97
23	24956	IRH-103	94	111	111	109	106	102	94	92	101	103	98	91	95	93	120	97	96	97	97
24	24959	IIRRH-103	90	101	106	112	102	105	93	92	100	100	98	94	99	96	119	98	100	99	98
25	24960	IRH-104	94	111	112	115	108	92	94	91	99	102	95	84	98	91	115	94	104	99	95
26	24961	SRH-5201	90	94	99	105	97	102	91	93	103	101	98	95	91	93	119	99	99	99	97
27	24963	Bio-681	95	114	111	121	110	108	98		101	105	103	98	97	97	120	96	99	98	100
28	24964	IIRRH-104	94	106	110	110	105	93	90	87	97	103	94	93	95	94	119	94	95	94	94
29	24966	CPH-166	97	103	107	113	105	97	94	96	106	103	99	94	97	96	122	99	98	99	98
30	24967	Bio-680	90	102	110	118	105	97	89	92	96	102	95	94	94	94	120	95	95	95	95
31	24968	KPH-484	85	91	98	99	93	103	84	82	100	101	94	91	90	91	121	91	92	92	93
32	24969	MR-8222	91	92	97	103	96	99	87	87	102	101	95	96	94	95	121	99	99	99	96
33	24970	HRI-188	92	107	107	111	104	104	90	92	102	102	98	96	105	101	121	97	98	98	98
34	24971	IIRRH-105	94	106	111	107	105	91	90	92	99	103	95	93	93	93	119	94	95	94	94
35	24972	US-330	94	105	107	105	103	97	93	93	104	103	98	94	94	94	120	97	98	98	97
36	24974	PR-15101	95	110	105	107	104	103	91	94	104	100	98	94	95	95	122	98	98	98	97

S. No	IET No.	Hybrid	ZONE II					Zone III													
			KUL	PNT	LDN	CHT	Northern	MSD	BIO	JKA	NUJ	ALH	UP mean	CHN	PAN	WB mean	RCI	CHP	CTK	OD mean	Eastern Mean
37	24975	US-335	92	95	98	106	98	105	87	97	99	99	97	90	90	90	121	96	95	95	95
38	24976	SPH-1065	86	90	95	99	92	101	85	85	96	100	93	85	92	88	121	97	98	98	93
39	24978	RRX-022	97	109	110	112	107	98	92	93	104	101	98	94	98	96	120	100	104	102	98
40	24981	NPH-242	92	104	103	103	101	99	87	87	103	101	95	94	95	95	120	97	92	94	95
41	24982	SPH-921	93	100	105	106	101	104	90	87	99	103	97	91	98	94	119	98	99	99	96
42	24983	US-337	97	105	110	114	106	101	91	92	100	102	97	84	104	94	120	99	95	97	96
43	24984	PR-15107	90	106	105	118	105	99	92	91	105	101	98	96	99	97	119	100	105	103	99
44	24985	RRX-024	97	93	95	101	96	98	86	87	101	101	94	91	88	89	120	97	92	95	93
45	24986	TNTRH-55	99	105	107	107	104	105	88	98	102	101	99	96	98	97	121	103	100	101	99
46	US-312 (NCH-ME)		92	102	104	105	101	104	90	86	98	103	96	91	98	94	118	97	99	98	96
47	MTU-1010 (NCV-ME)		85	94	102	106	97	92	82	83	94	101	90	94	89	91	111	93	86	89	90
Group II																					
1	24929	Sri-2244 (Gold)	99	110	112	115	109	99	96	98	110	101	101	96	101	99	116	103	102	102	101
2	24937	PRSH-9018	99	111	114	115	110	107	96		109	99	103	96	97	96	117	100	104	102	101
3	24938	NPH-2003	93	108	107	113	105	563	90		96	98	212	93	97	95	118	99	100	99	154
4	24944	PRSH-9003	96	124	114	115	112	104	96	97	107	102	101	96	100	98	121	102	104	103	101
5	24954	VNR-219	98	108	111	109	106	99	95	97	109	104	101	85	99	92	120	101	102	102	99
6	24957	GK-5030	98	111	111	107	107	108	98	98	107	105	103	94	110	102	118	100	105	102	103
7	24958	MEPH-125	97	108	117	115	109	103	94	92	103	105	99	91	110	101	122	101	102	102	100
8	24962	GK-5036	96	111	111	118	109	103	98	96	107	103	101	96	100	98	123	104	103	103	101
9	24965	KPH-475	98	100	114	119	108	105	94	97	107	102	101	94	100	97	122	100	99	100	100
10	24973	MR-8333	98	111	112	116	109	97	97	99	111	103	101	96	97	97	121	103	102	102	100
11	24977	PR-15103	97	111	114	116	109	99	92	94	102	103	98	91	98	94	120	101	100	101	98
12	24979	US-384	98	111	110	120	110	95	95	98	106	100	99	101	101	101	122	105	104	105	101
13	24980	PR-15104	100	111	116	118	111	95	96	98	108	102	100	101	101	101	124	105	102	103	101
14	HRI-174 (NCH-M)		99	110	113	118	110	98	97		107	104	101	96	98	97	119	101	102	102	100
15	NDR-359 (NCV-M)		96	106	112	107	105	101	95	96	106	102	100	94	100	97	119	102	100	101	99
16	ZCV		98	109	108	115	107	104	86	93	106	100	98	91	94	92	117	94	98	96	96
17	LCV		99	103	109	110	105	105	93	95	101	104	100	107	98	102	108	95	102	98	100
Exp Mean			93	102	105	109	102	109	91	91	102	101	99	93	96	94	119	98	98	98	98

Appendix 5 (contd): Days to 50% flowering of hybrids in IHRT-M, Kharif 2015

S. No	IET No.	Hybrid	Zone IV			Zone V						Zone VI							
			TTB	ARD	North eastern Mean	JBP	SND	RPR	ADV	CG mean	Central Mean	KJT	ANK	MH mean	NWG	NVS	DBI	GJ mean	Western mean
Group I																			
1	24930	NK-17715	101	88	94	100	88	94	86	90	92	95	101	98	102	88	95	95	96
2	24931	RH-9000 Plus	109	88	98	105	88	96	88	92	94	97	101	99	103	92	103	99	99
3	24932	JRH-66	110	86	98	107	91	101	91	96	97	93	104	99	104	90	108	101	100
4	24933	Siri-2277 (Gold)	111	92	101	105	88	91	87	89	93	94	103	98	104	88	107	100	99
5	24934	NK-5251 Plus	109	92	100	106	92	96	88	92	95	94	104	99	103	89	101	97	98
6	24935	JRH-68	92	90	91	94	76	86	73	80	82	78	88	83	87	75	89	83	83
7	24936	RH-664 Imp Plus	109	90	99	107	92	96	88	92	95	99	100	99	103	89	103	98	98
8	24939	UPRH-106	95	87	91	100	83	99	83	91	91	90	98	94	103	81	95	93	93
9	24940	NPH-2012	97	89	93	104	87	88	86	87	91	96	97	96	102	87	94	94	95
10	24941	NS-5153	104	84	94	100	90	91	84	87	91	95	98	96	103	80	97	93	94
11	24942	UPRH-122	98	89	93	100	81	88	84	86	88	89	97	93	93	77	93	88	90
12	24943	NS-5156	101	90	96	104	91	93	87	90	93	95	102	98	102	86	96	95	96
13	24945	TMRH-104	106	92	99	99	85	90	85	87	90	91	98	94	96	87	93	92	93
14	24946	HN-4	94	91	92	113	91	91	86	89	95	91	97	94	98	82	100	93	93
15	24947	BLR-101	92	86	89	100	89	85	83	84	89	85	97	91	99	77	92	89	90
16	24948	TMRH-124	105	86	95	108	86	89	86	87	92	90	98	94	97	88	102	96	95
17	24949	BLR-102	103	89	96	105	94	90	88	89	94	99	98	98	102	89	94	95	96
18	24950	JKRH-2230	107	90	99	101	96	93	89	91	94	102	98	100	104	89	95	96	98
19	24951	VNR-218	106	87	97	98	93	99	91	95	95	96	102	99	104	93	104	100	100
20	24952	ADV-1503	98	89	93	107	89	91	86	88	93	95	98	96	99	80	105	95	95
21	24953	IRH-91-1	96	87	91	106	86	96	84	90	93	93	97	95	103	77	94	91	93
22	24955	MEPH-124	113	87	100	112	88	92	86	89	94	97	102	99	103	87	108	99	99
23	24956	IRH-103	111	88	99	112	90	92	87	89	95	96	103	100	103	91	110	101	101
24	24959	IIRRH-103	106	87	97	105	97	95	88	91	96	96	98	97	103	89	101	97	97
25	24960	IRH-104	110	86	98	107	86	95	87	91	94	95	101	98	103	87	108	99	98
26	24961	SRH-5201	102	89	96	107	89	94	88	91	94	96	98	97	105	91	94	96	97
27	24963	Bio-681	109	97	103	110	90	94	90	92	96	96	103	100	104	87	107	99	99
28	24964	IIRRH-104	107	92	100	103	86	94	84	89	92	96	98	97	103	82	100	95	96
29	24966	CPH-166	109	86	97	110	95	100	92	96	99	97	103	100	108	93	101	100	100
30	24967	Bio-680	102	87	94	102	86	91	88	89	91	89	103	96	99	101	103	101	99
31	24968	KPH-484	92	86	89	99	86	92	85	88	90	86	94	90	102	81	94	92	91
32	24969	MR-8222	100	88	94	100	91	90	88	89	92	96	98	97	100	89	96	95	96
33	24970	HRI-188	107	92	100	107	93	101	88	94	97	95	97	96	103	90	93	95	95
34	24971	IIRRH-105	109	81	95	104	85	92	87	89	92	88	101	94	103	89	100	97	96
35	24972	US-330	107	81	94	105	90	93	90	91	94	95	98	97	102	91	102	98	97

S. No	IET No.	Hybrid	Zone IV			Zone V						Zone VI							
			TTB	ARD	North eastern Mean	JBP	SND	RPR	ADV	CG mean	Central Mean	KJT	ANK	MH mean	NWG	NVS	DBI	GJ mean	Western mean
36	24974	PR-15101	107	87	97	106	93	98	91	94	97	98	100	99	105	98	103	102	101
37	24975	US-335	101	86	93	104	92	92	90	91	94	97	98	97	103	90	93	95	96
38	24976	SPH-1065	98	89	93	102	91	92	85	89	92	95	98	96	99	78	93	90	92
39	24978	RRX-022	111	88	99	108	93	96	90	93	96	96	102	99	104	93	105	100	100
40	24981	NPH-242	116	86	101	105	87	93	87	90	93	94	102	98	100	90	99	96	97
41	24982	SPH-921	109	92	100	105	93	95	88	91	95	97	102	99	101	89	99	96	97
42	24983	US-337	107	85	96	108	91	91	87	89	94	94	103	98	103	90	100	97	98
43	24984	PR-15107	109	88	98	110	96	100	90	95	99	96	103	99	108	92	102	101	100
44	24985	RRX-024	96	87	91	104	84	94	83	89	91	90	98	94	99	80	99	93	93
45	24986	TNTRH-55	110	89	100	105	94	91	86	88	94	97	104	100	103	89	104	99	99
46	US-312 (NCH-ME)		107	91	99	106	90	96	88	92	95	96	102	99	102	89	99	97	97
47	MTU-1010 (NCV-ME)		99	88	93	98	82	84	82	83	86	87	98	93	88	90	100	93	93
Group II																			
1	24929	Siri-2244 (Gold)	113	93	103	110	94	102	96	99	100	97	108	102	111	98	108	106	104
2	24937	PRSH-9018	113	90	102	112	96	103	93	98	101	96	104	100	109	96	107	104	102
3	24938	NPH-2003	109	88	98	106	89	119	85	102	100	94	103	98	108	87	104	100	99
4	24944	PRSH-9003	112	88	100	112	98	103	89	96	100	97	102	99	108	96	108	104	102
5	24954	VNR-219	110	86	98	107	95	102	93	97	99	93	104	98	108	94	107	103	101
6	24957	GK-5030	114	82	98	106	96	102	93	97	99	95	105	100	108	101	109	106	103
7	24958	MEPH-125	112	89	100	100	91	97	89	93	94	96	104	100	105	92	108	102	101
8	24962	GK-5036	110	88	99	114	95	102	94	98	101	103	108	105	105	93	106	101	103
9	24965	KPH-475	109	84	96	111	94	96	92	94	98	98	101	99	104	92	101	99	99
10	24973	MR-8333	113	85	99	110	98	102	93	97	100	100	103	101	108	90	108	102	102
11	24977	PR-15103	118	85	102	110	91	101	90	95	98	96	104	100	103	87	103	97	98
12	24979	US-384	110	91	100	114	99	103	92	97	102	97	108	103	105	101	109	105	104
13	24980	PR-15104	107	84	96	112	100	105	96	100	103	100	106	103	112	92	110	105	104
14	HRI-174 (NCH-M)		110	90	100	113	96	104	93	99	102	96	107	101	108	97	107	104	103
15	NDR-359 (NCV-M)		107	88	98	106	95	103	93	98	99	103	108	105	108	92	103	101	103
16	ZCV		108	87	97	101	82	86	81	83	87	101	106	103	106	94	110	103	103
17	LCV		120	87	103	104	95	104	96	100	100	98	97	97	94	80	108	94	95
Exp Mean			106	88	97	105	90	95	88	92	95	94	101	97	103	88	101	97	97

Appendix 5 (contd): Days to 50% flowering of hybrids in IHRT-M, Kharif 2015

S. No	IET No.	Name	Zone VII													Overall mean	
			MTU	IIRR	WGL	BAY	MAH	TS mean	MND	BRM	KA mean	CBT	ADT	TN mean	KRK		Southern mean
Group I																	
1	24930	NK-17715	91	101	99	95	100	99	105	92	99	106	105	105	94	99	96
2	24931	RH-9000 Plus	93	100	99	100	97	99	104	99	101	107	97	102	95	99	98
3	24932	JRH-66	100	102	104	99	101	102	104	97	101	107	103	105	96	101	100
4	24933	Siri-2277 (Gold)	98	98	103	96	98	99	102	90	96	107	107	107	94	99	99
5	24934	NK-5251 Plus	95	99	101	98	100	99	104	92	98	107	105	106	93	99	98
6	24935	JRH-68	86	87	94	84	91	89	99	92	95	97	93	95	80	90	87
7	24936	RH-664 Imp Plus	91	98	101	98	99	99	107	98	102	108	100	104	95	99	98
8	24939	UPRH-106	85	95	97	93	100	96	98	91	94	100	95	97	94	95	94
9	24940	NPH-2012	92	98	97	96	99	97	102	101	102	102	100	101	96	98	95
10	24941	NS-5153	94	97	97	94	103	98	102	90	96	101	98	99	96	97	96
11	24942	UPRH-122	83	90	97	88	97	93	93	97	95	96	92	94		92	93
12	24943	NS-5156	94	97	97	97	101	98	105	103	104	106	100	103	93	99	96
13	24945	TMRH-104	98	94	97	93	99	96	98	90	94	101	96	98	83	95	95
14	24946	HN-4	99	101	95	92	101	97	99	103	101	97	92	95	96	97	96
15	24947	BLR-101	84	94	96	92	99	95	102	100	101	105	95	100	88	95	92
16	24948	TMRH-124	95	95	98	96	97	96	102	91	96	100	99	99	96	97	96
17	24949	BLR-102	95	99	98	97	100	99	105	89	97	107	101	104	93	98	96
18	24950	JKRH-2230	97	98		101	97	99	110	86	98	103	97	100	98	99	98
19	24951	VNR-218	92	100	97	101	98	99	99	85	92	99	94	96	95	96	98
20	24952	ADV-1503	94	98	107	97	100	100	109	88	98	103	99	101	94	99	96
21	24953	IRH-91-1	94	95	97	94	98	96	104	96	100	104	94	99	95	97	94
22	24955	MEPH-124	95	97	101	96	101	99	103	90	97	101	96	98	86	97	98
23	24956	IRH-103	96	96	101	96	99	98	100	92	96	101	91	96	95	96	98
24	24959	IIRRH-103	97	98	100	99	102	100	101	93	97	105	97	101	96	99	98
25	24960	IRH-104	92	96	98	99	101	99	99	105	102	97	104	100	98	99	98
26	24961	SRH-5201	96	100	97	101	100	99	105	100	102	106	100	103	96	100	97
27	24963	Bio-681	98	96	99	100	99	98	96	92	94	94	90	92	84	95	99
28	24964	IIRRH-104	97	93	97	94	99	96	98	98	98	98	91	94	95	96	96
29	24966	CPH-166	97	102		104	102	103	110	99	104	107	100	103	96	102	100
30	24967	Bio-680	95	98	98	93	100	97	92	98	95	99	97	98	95	96	97
31	24968	KPH-484	92	98	97	93	110	99	103	103	103	104	100	102	95	99	94
32	24969	MR-8222	97	102	99	96	103	100	109	102	105	107	108	107	95	102	97
33	24970	HRI-188	96	100	100	99	108	101	102	92	97	106	100	103	85	99	99
34	24971	IIRRH-105	95	95	99	94	109	99	99	93	96	99	93	96	93	97	96
35	24972	US-330	95	101	100	101	116	104	102	90	96	107	100	103	90	100	98
36	24974	PR-15101	89	101	101	102	117	105	105	90	97	107	101	104	94	101	100

S. No	IET No.	Name	Zone VII														Overall mean
			MTU	IIRR	WGL	BAY	MAH	TS mean	MND	BRM	KA mean	CBT	ADT	TN mean	KRK	Southern mean	
37	24975	US-335	91	102	99	100	109	102	104	90	97	109	102	105	96	100	97
38	24976	SPH-1065	90	98	98	96	113	101	104	95	99	108	100	104	91	99	95
39	24978	RRX-022	99	105	104	102	107	104	102	103	103	108	95	101	93	102	100
40	24981	NPH-242	94	97	99	97	104	99	101	92	96	107	101	104	95	98	97
41	24982	SPH-921	97	103	97	100	115	104	102	97	99	106	101	104	95	101	99
42	24983	US-337	95	100	99	97	114	102	99	97	98	105	97	101	97	100	98
43	24984	PR-15107	97	105	101	102	113	105	105	90	98	107	100	104	98	102	100
44	24985	RRX-024	92	101	97	93	115	101	101	97	99	105	101	103	92	99	95
45	24986	TNTRH-55	95	99	107	98	101	101	102	100	101	107	98	103	92	100	99
46	US-312 (NCH-ME)		97	100	98	100	119	104	101	92	96	104	99	101	91	100	98
47	MTU-1010 (NCV-ME)		88	93	96	90	105	96	100	104	102	101	93	97	94	96	93
Group II																	
1	24929	Sri-2244 (Gold)	102	105	108	104	102	105	107	95	101	108	101	105	96	103	103
2	24937	PRSH-9018	98	105	102	104	99	102	105	92	99	111		111	96	101	102
3	24938	NPH-2003	94	97	97	97	98	97	102	90	96	107	99	103	93	97	113
4	24944	PRSH-9003	97	103	104	104	106	104	107	90	98	108	99	103	83	100	102
5	24954	VNR-219	98	104	103	103	105	104	107	92	99	105	101	103	91	101	101
6	24957	GK-5030	100	103	108	100	100	102	109	90	99	108	100	104	93	101	102
7	24958	MEPH-125	100	103	107	102	104	104	108	97	102	106	97	101	92	101	101
8	24962	GK-5036	102	103	100	107	106	104	105	97	101	110	101	105	84	101	102
9	24965	KPH-475	99	103	104	102	101	102	109	99	104	108	100	104	95	102	101
10	24973	MR-8333	96	105	107	104	113	107	107	96	101	108	100	104	93	103	102
11	24977	PR-15103	101	100	107	99	116	105	104	98	101	109	105	107	92	103	101
12	24979	US-384	100	107	104	104	111	106	102	91	97	109	100	104	93	102	103
13	24980	PR-15104	104	107	108	104	110	107	110	98	104	111	100	106	98	105	104
14	HRI-174 (NCH-M)		97	103	103	104	102	103	106	83	95	110	102	106	95	100	102
15	NDR-359 (NCV-M)		94	103	100	102	101	101	107	90	98	108	99	103	94	100	100
16	ZCV		92	105	97	103	96	100	110	90	100	112	101	106	90	100	98
17	LCV		113	105	106	109	102	106	104	106	105	109	99	104	94	105	101
Exp Mean			95	99	100	98	103	100	103	95	99	104	98	102	93	99	98

Appendix 6: Quality characteristics of IHRT-Medium, Kharif 2015

S. No	Designation	IET No	HULL	MILL	HRR	KL	KB	L/B	Grain Type	Grain Chalk	VER	WU	KLAC	ER	ASV	AC	GC	Aroma
1	Siri-2244 (Gold)	24929	79.9	68.8	63.8	5.75	2.2	2.61	MS	VOC	5.3	270	10.4	1.8	4.7	24.72	49	NS
2	NK-17715	24930	81.2	70	62.5	6.45	2.22	2.9	LB	VOC	5.3	245	11.4	1.76	4.7	26.19	25	NS
3	RH-9000 Plus	24931	80	70.3	68	6.29	1.94	3.24	LS	VOC	5.6	230	10.7	1.7	4	24.17	27	NS
4	JRH-66	24932	79.3	70.6	67.9	6.41	2.22	2.88	LB	A	4.6	200	9.8	1.52	4.5	26.51	22	NS
5	Siri-2277 (Gold)	24933	81.4	69.5	60	6.53	2	3.26	LS	VOC	4	280	10.1	1.54	4.2	24.75	70	SS
6	NK-5251 Plus	24934	81	70.8	65.8	6.4	1.99	3.21	LS	VOC	4.7	220	10.6	1.65	4	23.96	52	MS
7	JRH-68	24935	78.8	64.8	36.6	6.72	1.94	3.46	LS	VOC	4.2	240	11.3	1.68	5.2	26.42	46	SS
8	RH-664 Imp Plus	24936	80.1	69.6	66.5	6.25	1.91	3.27	LS	VOC	4.8	235	11.2	1.79	5.6	21.03	40	NS
9	PRSH-9018	24937	81.3	72.1	63.4	5.94	2.11	2.81	MS	VOC	4.7	220	10.2	1.71	5.3	21.82	55	NS
10	NPH-2003	24938	81.4	69.6	64.9	6.16	1.98	3.11	LS	VOC	4.7	240	10.5	1.7	4.3	22.17	61	SS
11	UPRH-106	24939	80.7	68.1	54.8	5.58	2.04	2.73	MS	VOC	5.5	315	8.7	1.55	5	23.87	65	SS
12	NPH-2012	24940	81.7	70.1	66.3	6.52	2.11	3.09	LS	A	4.6	330	10	1.53	5	16.48	65	NS
13	NS-5153	24941	79.7	70.1	66.1	6.11	2.14	2.85	LB	VOC	5.6	130	10.7	1.75	4	23.34	39	NS
14	UPRH-122	24942	78.5	67.9	54.9	6.42	1.9	3.37	LS	VOC	5.5	150	10.6	1.65	4	27.33	24	NS
15	NS-5156	24943	81.5	70.3	64.5	6.68	1.95	3.42	LS	A	4.1	240	10.1	1.51	4.2	13.58	90	NS
16	PRSH-9003	24944	80.9	70.1	66.5	5.85	2.09	2.79	MS	VOC	4.6	250	10.4	1.77	4.5	22.05	48	NS
17	TMRH-104	24945	81.4	70.8	59.5	6.68	2.04	3.27	LS	VOC	5.3	295	10.7	1.6	6	23.11	53	MS
18	HN-4	24946	81.5	67.9	45	6.55	2.09	3.13	LS	VOC	5.6	305	10.5	1.6	3.5	24.84	50	MS
19	BLR-101	24947	79.8	70.7	66.3	6.71	2.19	3.06	LS	VOC	5.5	315	12.4	1.84	7	22.82	35	NS
20	TMRH-124	24948	79.6	68.8	65.2	5.71	1.95	2.92	MS	VOC	4.6	270	9.5	1.66	4.3	23.7	52	SS
21	BLR-102	24949	81.5	70.6	67.1	6.14	2.07	2.96	LB	A	4.1	310	9.6	1.56	5.6	19.85	65	SS
22	JKRH-2230	24950	81	69.2	63.1	6.17	2.09	2.95	LB	A	4.6	235	10.3	1.66	3.8	23.87	44	MS
23	VNR-218	24951	81.1	70.4	68.2	5.76	2.07	2.78	MS	A	5.2	310	10.4	1.8	7	26.51	27	SS
24	ADV-1503	24952	79.2	70.1	68.1	5.68	2.32	2.44	SB	VOC	4.1	145	10.1	1.77	3.3	27.01	29	NS
25	IRH-91-1	24953	81.8	69.4	57.4	6.51	1.78	3.65	LS	VOC	4.4	340	10.6	1.62	6	16.98	98	SS
26	VNR-219	24954	82.1	71.3	67.7	5.82	2.08	2.79	MS	VOC	4.8	240	9.5	1.63	4	22.9	56	NS
27	MEPH-124	24955	82.1	70.6	63.4	6.58	2.05	3.2	LS	VOC	5.3	250	10.5	1.59	3.8	22.76	80	MS
28	IRH-103	24956	80.4	70.6	67.1	6.83	2	3.41	LS	VOC	5.3	285	11.3	1.65	5	24.25	44	NS
29	GK-5030	24957	81.2	69.1	50.4	6.64	2.15	3.08	LS	VOC	4.7	285	10.4	1.56	4.4	24.11	87	NS
30	MEPH-125	24958	80.1	69.2	64.8	5.57	2.13	2.61	MS	VOC	4.1	240	10.2	1.83	5	25.49	41	NS
31	IIRRH-103	24959	79.6	70.6	68.2	6.11	2.18	2.8	LB	VOC	4.8	190	10.2	1.66	4.8	21.67	33	SS
32	IRH-104	24960	79.3	67.8	49	6.05	2.16	2.8	LS	VOC	5.6	335	11	1.81	7	26.81	22	NS
33	SRH-5201	24961	80.3	69.1	65.3	6.65	2.05	3.24	LS	VOC	5.4	310	10.5	1.57	6	14.49	93	NS
34	GK-5036	24962	82.3	71.6	68.4	5.46	2.09	2.61	MS	VOC	5.6	260	10.4	1.9	4	21.91	53	MS
35	Bio-681	24963	80.7	71.8	69.8	6.63	2.18	3.04	LS	A	4.8	295	11	1.65	7	23.52	57	NS
36	IIRRH-104	24964	79.6	69.9	65.5	5.74	2.05	2.8	MS	VOC	4.8	210	11.1	1.93	5.7	25.31	28	NS
37	KPH-475	24965	80.2	70.6	65.4	5.79	2.28	2.53	MS	VOC	4.1	195	9.7	1.67	4	25.13	39	NS
38	CPH-166	24966	82.1	67.6	58.6	5.45	1.97	2.76	MS	VOC	4.1	290	9.3	1.7	4	14.72	100	SS

S. No	Designation	IET No	HULL	MILL	HRR	KL	KB	L/B	Grain Type	Grain Chalk	VER	WU	KLAC	ER	ASV	AC	GC	Aroma
39	Bio-680	24967	80.5	69	56	6.88	2.32	2.96	LB	VOC	4.7	300	10.5	1.52	4.4	24.31	56	NS
40	KPH-484	24968	80.5	72.3	70.8	5.89	2.27	2.59	MS	OC	4.2	295	10.1	1.71	7	25.46	36	NS
41	MR-8222	24969	80.6	65	48.5	6.73	2	3.36	LS	VOC	5.4	280	10.4	1.54	5	15.84	100	NS
42	HRI-188	24970	80	68.8	63.8	5.29	2.07	2.55	MS	A	5.4	280	8.6	1.62	5	25.84	33	NS
43	IIRRH-105	24971	79.5	68.7	60.4	5.56	1.96	2.83	MS	VOC	4.8	295	10.3	1.85	5.3	26.13	43	NS
44	US-330	24972	79.6	67.9	64.6	6.21	2.05	3.02	LS	VOC	5.3	340	9.6	1.54	6	14.4	97	NS
45	MR-8333	24973	80.9	70.6	66.9	6.33	2.05	3.08	LS	VOC	5.4	290	10.8	1.7	3.9	21.47	68	SS
46	PR-15101	24974	80.9	68.8	62.7	6.19	2.15	2.87	LB	VOC	4.6	275	9.5	1.53	5.5	16.83	67	MS
47	US-335	24975	80.5	68.8	64.5	6.67	2.11	3.16	LS	A	4.6	250	10.5	1.57	4.6	14.1	100	SS
48	SPH-1065	24976	81.6	71.2	67.9	5.68	2.16	2.62	MS	VOC	4.7	245	10.8	1.9	5.9	20.5	46	SS
49	PR-15103	24977	81.9	71.5	67.5	6.51	2.01	3.23	LS	VOC	5.6	260	11.1	1.7	4	21.94	51	NS
50	RRX-022	24978	80.8	70	59.7	6.49	2	3.24	LS	VOC	5.4	310	11.2	1.72	5	22.05	35	NS
51	US-384	24979	80.6	69.5	63.7	5.76	2.29	2.51	MS	VOC	5.6	245	10.4	1.8	4.8	19.62	76	NS
52	PR-15104	24980	80.4	68.7	60.4	6.11	2.29	2.66	LB	VOC	4.6	210	10.5	1.71	4	13.93	71	NS
53	NPH-242	24981	80.1	69.4	60.2	5.76	1.99	2.89	MS	VOC	5.4	250	9.4	1.63	5.5	14.08	90	NS
54	SPH-921	24982	80.5	69.4	67.3	5.72	2.06	2.77	MS	VOC	4.2	245	10	1.74	5.1	21.85	41	MS
55	US-337	24983	80.1	69.3	62.9	6.33	2.05	3.08	LS	VOC	4.7	330	10.4	1.64	7	21.14	53	MS
56	PR-15107	24984	80.5	68.5	52.5	6.29	2.23	2.82	LB	VOC	4.7	335	8.5	1.35	5	22.14	63	MS
57	RRX-024	24985	79.7	66.1	50.2	6.65	1.99	3.34	LS	VOC	4.2	355	8.9	1.33	7	24.08	40	SS
58	TNTRH-55	24986	79.4	69.5	67.7	5.59	2.13	2.62	MS	VOC	5.6	250	9.8	1.75	5.5	26.37	48	NS
59	US-312 (NCH)		80.6	70.7	69.2	5.6	2.04	2.74	MS	VOC	5.6	245	10.3	1.83	5	22.44	46	SS
60	MTU-1010 (NCV)		78	65.6	44.1	6.19	2.01	3.07	LS	VOC	4.7	220	8.5	1.44	4	23.58	65	NS
61	HRI-174 (NCH)		81.5	70.4	62.3	6.18	2.1	2.94	LB	VOC	4.1	265	10.4	1.68	4	25.49	59	NS
62	NDR-359 (NCV)		80.2	72.2	66.7	6.47	2.47	2.64	LB	VOC	4	195	10.3	1.59	4	23.87	58	NS
63	PR-113/CR Dhan-201/ IR-64/ Akshayadhan/ Jaya (ZCV)		80.6	70.3	64.6	5.73	2.45	2.33	SB	VOC	4.8	305	8.9	1.55	7	25.02	22	NS
64	DRR Dhan-38 (LCV)		79.8	69.5	44.6	5.27	2.26	2.33	SB	VOC	4.8	250	10.1	1.91	5	26.48	31	NS

Hull: Hulling (%); Mill: Milling (%); HRR: Head rice recovery (%); KL: Kernel length (mm); KB: Kernel breadth (mm);L/B: Length and breadth ratio; Grain Chalk: Grain chalkiness; VER: Volume expansion ration; WU: Water uptake (ml); KLAC: Kernel length after cooking (mm); ER: Elongation ratio; AC: Amylose content (%); GC: Gel consistency; MS: Medium slender; LS: Long slender, LB: Long bold; SB: Short bold; VOC: Very occasionally present; A: Absent; NS: No scent; MS: Medium scent; SS: Strong scent;

Appendix 7: Grain Yield (Kg/Ha) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE III											Zone IV			ZONE V			
			CHN	RCI	BBN	CTK	CHP	OD Mean	MSD	ALH	BIO	UP Mean	Eastern Mean	TTB	ARD	NE Mean	JBP	SND	SKL	MH Mean
1	24987	ADV-15104	4571	3194	4444	4918	4067	4476	7635	4433	6843	6304	5273	5200		5200	6863	4635	3880	4257
2	24988	Bio-633	5714	1944	4762	5677	4539	4993	4526	2933	8526	5328	5240	5416		5416	8123	5838	4714	5276
3	24989	JGLH-1	5667	3056	4286	5360	6608	5418	6487	3833	6737	5686	5568	4997	4400	4699	8298	4813	4422	4618
4	24990	MR-8666	5952	2222	4603	5137	6354	5365	6446	4833	7185	6155	5787	5693	5290	5492	6896	5949	5549	5749
5	24991	HRI-187	5810	2194	4603	4817	6645	5355	5403	5233	7062	5899	5653	4339	4347	4343	6900	5793	4297	5045
6	24992	US-353	5619	2556	3651	4422	3758	3944	6404	5267	7263	6311	5198	5035	4624	4830	7009	5303	4422	4863
7	24993	PR-15108	5810	1278	5873	4773	6118	5588	4631	4400	7894	5642	5643	5240	4991	5116	9403	6061	5215	5638
8	24994	SPH-1003	5857	2889	4127	4760	6681	5189	3713	4133	7019	4955	5184	5317		5317	7676	5994	6091	6042
9	24995	SRH-5400	5667	2278	4127	5569	5664	5120	5382	3700	7012	5365	5303	6029		6029	5766	5303	5173	5238
10	24888	KPH-459*	5429	3250	4127	4719	4666	4504	6383	4100	7714	6066	5305	5216		5216	7034	4657	4255	4456
11	24156	28P09**	6333	1444	6667	5924	6808	6466	3484	4767	7792	5347	5968	5584	5336	5460	9349	5793	5632	5713
12	24896	SPH-6159*	5524	2222	4603	4476	4757	4612	4673	4633	6825	5377	5070	5051	4244	4648	5703	4300	3838	4069
13	24891	PR-14109*	6048	3000	5714	5854	6463	6010	6842	4700	6885	6142	6072	6099	6111	6105	9370	6350	5882	6116
14	24887	HRI-186*	5714	2111	3968	4323	5937	4742	6028	4767	7422	6072	5451	5909	4658	5284	5636	3944	4005	3974
15	24892	PR-14111*	5762	2778	4603	5021	5465	5029	7635	4200	6875	6236	5651	4992	4854	4923	5799	5348	4589	4968
16	24159	DRRH-92*	6143	2111	4603	5021	6427	5350	5778	4333	6638	5583	5563	5533	5458	5496	6992	5370	5340	5355
17	24893	PR-14112*	5714	2111	6032	5513	5846	5797	4714	4700	7252	5555	5682	5699		5699	7292	6150	6007	6079
18	24996	TNRH-280	5810	3139	4762	5056	5319	5046	6383	4533	7630	6182	5642	5709	4780	5245	6366	5459	4756	5107
19	DRRH-3 (NCH)			2667	3810	5392		4601	3963	5300	7055	5439	5104	5528		5528	9466	5771		5771
20	WGL-14 (NCV)		5857	1861	5238	4732	4394	4788	4798	4133	6642	5191	5113	4219	5333	4776	4385	4679	4756	4718
21	BPT-5204 (Old NCV)		5619	2722	3333	5019	4630	4327	4068	4667	5693	4809	4718	4933		4933	5724	4078	3838	3958
EXP MEAN			5731	2430	4664	5071	5557	5082	5494	4457	7141	5697	5445	5321	4956	5226	7145	5314	4833	5096
CD(0.05)			523.45	1769.57	883.15	327.46	261.56		248.72	655.13	468.46			595.04	669.3		835.12	267.97	385.46	
CV			5.54	44.13	11.42	3.91	2.85		2.74	8.91	3.98			6.78	8.01		7.08	3.06	4.83	
			**	ns	**	**	**		**	**	**			**	**		**	**	**	
D/S			02-07-15	20-06-15	13-07-15	06-06-15	15-07-15		25-06-15	20-06-15	24-06-15			29-06-15	13-07-15					
D/P			05-08-15	12-0815	17-08-15	15-07-15	10-08-15		28-07-15	15-07-15	24-07-15			27-07-15	07-08-15		10-06-15	30-06-15	16-06-15	
																	02-07-15	28-07-15	14-07-15	

The data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 7 (contd): Grain Yield (Kg/Ha) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE V (contd)				ZONE VI										ZONE VII		
			RPR	ADV	CH Mean	Central mean	KJT	RDN	SHR	ANK	MH Mean	NWG	NVS	DBI	GJ Mean	West mean	MTU	BPT	AP mean
1	24987	ADV-15104	2447	8670	5558	5299	6644	5183	4488	3177	4873	4847	6011	4401	5086	4964	3016	4413	3714
2	24988	Bio-633	3647	9627	6637	6390	7373	3942	4414	4186	4979	5137	5548	4749	5145	5050	4236	4038	4137
3	24989	JGLH-1	3720	7867	5794	5824	7151	5260	5549	4557	5629	5556	6514	4340	5470	5561	3085	6094	4589
4	24990	MR-8666	4383	10575	7479	6671	6430	4069	4327	4093	4730	5174	6079	4793	5349	4995	5110	6944	6027
5	24991	HRI-187	4183	8212	6198	5877	5185	5562	5691	5332	5443	4357	6325	4856	5180	5330	2988	5747	4367
6	24992	US-353	3177	6258	4717	5234	4896	5192	4963	4805	4964	3377	5333	4233	4314	4686	2760	5681	4220
7	24993	PR-15108	5403	8735	7069	6963	8800	4400	4951	4543	5674	5338	5198	4715	5083	5421	4388	6874	5631
8	24994	SPH-1003	4220	9216	6718	6639	6378	5312	4895	5406	5498	2832	5051	4850	4244	4961	4616	6324	5470
9	24995	SRH-5400	3262	9004	6133	5701	7003	5470	5735	4824	5758	4357	4514	4658	4510	5223	3714	4751	4233
10	24888	KPH-459*	4038	9249	6644	5847	9077	4927	5469	5838	6328	4248	3960	4959	4389	5497	3416	5144	4280
11	24156	28P09**	5207	8954	7080	6987	6602	4459	5358	4978	5349	4521	4616	4536	4557	5010	4712	6011	5362
12	24896	SPH-6159*	4137	6679	5408	4931	6551	4338	5154	4789	5208	3486	4587	5070	4381	4853	2638	6649	4644
13	24891	PR-14109*	5120	7819	6469	6908	7467	4883	5099	4192	5410	3540	4934	4477	4317	4942	5579	4975	5277
14	24887	HRI-186*	4141	9970	7055	5539	6187	4275	6691	4001	5289	3268	4884	4788	4313	4871	3411	5346	4379
15	24892	PR-14111*	4410	8670	6540	5763	7789	4270	4315	4681	5264	3813	4327	4553	4231	4821	5767	4689	5228
16	24159	DRRH-92*	4570	7813	6192	6017	8086	4060	4148	4282	5144	4902	5066	4458	4809	5000	4677	4867	4772
17	24893	PR-14112*	4890	7860	6375	6440	8232	3877	5179	3985	5318	3595	4437	4150	4061	4779	4336	6178	5257
18	24996	TNRH-280	4350	7904	6127	5767	6944	4497	5512	4092	5261	4194	3931	4529	4218	4814	4578	3535	4056
19	DRRH-3 (NCH)		4207	7590	5898	6758	4330	3834	4525	3532	4055	5338	4892	4767	4999	4460		4996	4996
20	WGL-14 (NCV)		4503	7338	5921	5132	7737	3329	4358	3619	4761	4031	4438	4078	4182	4513	4202	4206	4204
21	BPT-5204 (Old NCV)		4157	8203	6180	5200	5430	2847	4389	3210	3969	3268	4386	4231	3962	3966	4468	3272	3870
EXP MEAN			4199	8391	6295	5995	6871	4476	5010	4387	5186	4247	5001	4581	4609	4939	4085	5273	4701
CD(0.05)			934.46	981.48			1077.23	838.37	622.24	609.8		1288.85	514.86	367.22			221.85	1144.54	
CV			13.49	5.61			9.5	11.35	7.53	8.42		14.55	6.24	4.86			3.29	10.41	
			**	**			**	**	**	**		**	**	**			**	**	
D/S			20-06-15	17-06-15			20-06-15	15-06-15	12-06-15	24-06-15		18-06-15	12-06-15	12-06-15			03-07-15	21-08-15	
D/P			18-07-15	08-07-15			25-07-15	16-07-15	04-07-15	20-07-15		27-07-15	18-07-15	16-07-15			06-08-15	24-09-15	

The data of Ranchi (RCI) was not included in the analysis due to low yield and high CV.

Appendix 7 (contd): Grain Yield (Kg/Ha) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE VII (contd)													Overall mean	
			IIRR	WGL	BAY	MAH	RASI	TS mean	MND	BRM	SRS	KA Mean	CBT	GDL	TN mean		southern Mean
1	24987	ADV-15104	3314	3602	9447	5327	5785	5495	6131	3585	6591	5436	5817	5310	5564	5195	5178
2	24988	Bio-633	2729	3815	5929	5863	5752	4818	6564	3410	6113	5362	6195	7407	6801	5171	5358
3	24989	JGLH-1	4419	5390	6787	4840	7378	5763	6131	3922	5374	5142	5469	3867	4668	5230	5430
4	24990	MR-8666	4206	3502	7377	5383	6918	5477	4171	3782	6380	4777	7303	7591	7447	5722	5711
5	24991	HRI-187	4115	5674	7640	4653	6735	5764	8604	3508	6394	6169	7277	9916	8597	6104	5703
6	24992	US-353	3595	3699	7334	4263	6865	5151	6564	3613	5509	5229	5593	7281	6437	5230	5084
7	24993	PR-15108	3699	6666	7809	5433	7586	6239	8274	3845	5930	6016	7516	8338	7927	6363	6026
8	24994	SPH-1003	4295	6936	9622	5577	8315	6949	9801	3302	6625	6576	7619	9734	8677	6897	6009
9	24995	SRH-5400	3864	6680	7469	4710	8240	6193	5265	3365	4466	4365	6554	6475	6515	5463	5430
10	24888	KPH-459*	4362	6038	9784	5080	7646	6582	5972	3309	6512	5264	7038	5237	6137	5795	5613
11	24156	28P09**	4384	6126	7533	4210	8095	6070	6450	3617	6389	5485	7858	4428	6143	5818	5834
12	24896	SPH-6159*	3854	5453	9199	4913	8132	6310	7430	4373	6529	6111	6698	6865	6781	6061	5338
13	24891	PR-14109*	4109	5194	8346	6107	7466	6244	8912	5385	6528	6942	6603	8272	7437	6456	6101
14	24887	HRI-186*	2478	5309	9622	5557	6907	5975	5128	3246	4796	4390	6212	6430	6321	5370	5302
15	24892	PR-14111*	4308	3866	9077	5297	6379	5785	5835	3466	5774	5025	5037	6342	5690	5487	5388
16	24159	DRRH-92*	3869	6085	7971	5020	7606	6110	5698	3876	5679	5084	6439	3969	5204	5480	5478
17	24893	PR-14112*	3924	5070	9247	6283	7667	6438	8125	2598	7637	6120	5702	8699	7200	6289	5831
18	24996	TNRH-280	3255	4139	9492	7190	7224	6260	7088	4013	7193	6098	5167	6605	5886	5790	5515
19	DRRH-3 (NCH)				7480	5960	7740	7060	7749	3820	6361	5977	5055	6049	5552	6134	5558
20	WGL-14 (NCV)		3775	4259	6584	5093	5576	5058	3920	3225	4617	3921	6137	4148	5142	4645	4798
21	BPT-5204 (Old NCV)		3423	4297	6021	4560	5149	4690	2781	3162	4744	3562	5204	3087	4146	4181	4434
EXP MEAN			3799	5090	8084	5301	7103	5925	6504	3639	6007	5383	6309	6479	6394	5661	5470
CD(0.05)			1022.31	800.95	679.68	649.56	1102.81		1115.09	610.46	537.66		745.95	1086.93			
CV			16.31	9.54	5.09	7.43	9.41		10.39	10.17	5.42		7.16	10.17			
			*	**	**	**	**		**	**	**		**	**			
							ns			*							
D/S			26-06-15	08-07-15	19-06-15	27-06-15	19-06-15		03-08-15	10-06-15	03-07-15		12-06-15	07-07-15			
D/P			12-08-15	27-08-15	24-07-15	24-07-15	10-07-15		28-08-15	04-07-15	01-08-15		06-07-15	03-08-15			

The data of Ranchi (RC) was not included in the analysis due to low yield and high CV.

Appendix 8: Days to 50% flowering (DFF) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE III											Zone IV			ZONE V				
			CHN	RCI	BBN	CTK	CHP	OD Mean	MSD	ALH	BIO	UP Mean	Eastern Mean	TTB	ARD	NE Mean	JBP	SND	SKL	MH Mean	RPR
1	24987	ADV-15104	87	126	94	95	95	95	105	100	88	98	95	104	86	95	103	90	90	90	91
2	24988	Bio-633	98	132	101	106	100	102	103	98	100	100	101	117		117	85	100	100	100	102
3	24989	JGLH-1	93	124	95	104	95	98	119	100	94	104	100	109	90	99	110	89	93	91	92
4	24990	MR-8666	101	135	102	110	101	104	98	102	103	101	102	117	101	109	90	103	101	102	104
5	24991	HRI-187	93	128	96	100	95	97	111	103	94	103	99	113	90	102	111	95	94	95	98
6	24992	US-353	95	124	95	96	96	96	108	102	94	101	98	111	93	102	110	93	96	95	96
7	24993	PR-15108	102	132	102	108	100	103	108	104	101	105	104	118	98	108	87	102	108	105	107
8	24994	SPH-1003	97	126	95	98	94	96	96	104	93	98	97	112		112	109	93	97	95	96
9	24995	SRH-5400	97	128	95	95	96	95	110	103	93	102	98	109		109	108	87	93	90	94
10	24888	KPH-459*	96	127	98	104	96	99	114	105	99	106	102	116		116	111	95	95	95	102
11	24156	28P09**	103	132	102	112	104	106	103	104	105	104	105	118	101	110	89	103	108	106	107
12	24896	SPH-6159*	91	128	92	98	92	94	104	105	93	101	96	107	90	99	108	94	96	95	92
13	24891	PR-14109*	103	132	101	108	100	103	107	104	98	103	103	117	100	108	87	98	101	100	102
14	24887	HRI-186*	91	128	93	98	105	99	108	103	90	100	98	111	87	99	105	88	89	89	92
15	24892	PR-14111*	108	130	98	104	95	99	104	102	100	102	101	117	89	103	113	99	100	100	100
16	24159	DRRH-92*	93	133	94	100	95	96	112	104	91	102	98	111	91	101	106	95	95	95	92
17	24893	PR-14112*	96	127	97	102	97	99	115	100	101	105	101	114		114	112	97	100	99	99
18	24996	TNRH-280	88	126	95	98	93	95	114	103	95	104	98	113	93	103	107	92	92	92	94
19	DRRH-3 (NCH)			132	95	106		101	104	101	101	102	102	116		116	112	99		99	99
20	WGL-14 (NCV)		106	133	103	84	97	95	91	101	104	99	98	117	101	109	87	102	106	104	105
21	BPT-5204 (Old NCV)		105	132	107	86	106	100	115	105	110	110	105	122		122	94	108	109	109	112
Exp Mean			97	129	98	101	98	99	107	103	98	102	100	114	94	107	102	96	98	97	99

Appendix 8 (contd): Days to 50% flowering (DFF) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE V (contd)			ZONE VI										ZONE VII		
			ADV	CH Mean	Central Mean	KJT	RDN	SHR	ANK	MH Mean	NWG	NVS	DBI	GJ Mean	West mean	MTU	BPT	AP mean
1	24987	ADV-15104	88	89	93	101	103	86	98	97	98	98	92	96	97	95	94	94
2	24988	Bio-633	95	99	97	97	106	93	108	101	108	105	103	105	103	104	93	98
3	24989	JGLH-1	89	90	95	99	103	81	105	97	105	105	98	103	100	96	81	88
4	24990	MR-8666	101	103	100	107	110	97	110	106	114	112	104	110	108	103	95	99
5	24991	HRI-187	90	94	98	100	104	88	103	98	104	104	97	102	100	97	93	95
6	24992	US-353	89	92	97	98	105	89	102	98	103	103	92	100	99	98	88	93
7	24993	PR-15108	98	103	100	104	107	97	111	105	117	114	105	112	108	104	94	99
8	24994	SPH-1003	90	93	97	95	104	90	104	98	108	107	105	107	102	98	79	88
9	24995	SRH-5400	87	91	94	96	100	79	102	94	97	99	98	98	96	97	87	92
10	24888	KPH-459*	93	97	99	101	101	83	104	97	110	109	99	106	101	100	81	91
11	24156	28P09**	100	103	101	101	104	95	111	103	118	114	102	111	106	105	96	101
12	24896	SPH-6159*	88	90	95	100	98	85	103	97	108	105	102	105	100	96	82	89
13	24891	PR-14109*	99	100	97	110	98	93	112	103	113	114	94	107	105	104	107	106
14	24887	HRI-186*	87	89	92	91	99	81	99	92	104	102	103	103	97	96	99	98
15	24892	PR-14111*	98	99	102	102	104	93	108	102	112	114	103	110	105	102	91	96
16	24159	DRRH-92*	91	91	96	101	100	85	102	97	128	109	102	113	104	96	94	95
17	24893	PR-14112*	96	98	101	100	102	94	106	100	113	114	99	109	104	100	93	96
18	24996	TNRH-280	88	91	94	100	101	81	104	97	123	106	104	111	103	117	89	103
19	DRRH-3 (NCH)		98	98	102	103	103	94	107	102	114	114	97	108	105		82	82
20	WGL-14 (NCV)		100	102	100	99	107	97	114	104	124	114	95	111	107	109	99	104
21	BPT-5204 (Old NCV)		109	111	107	111	114	99	119	111	127	115	100	114	112	98	102	100
Exp Mean			94	96	98	101	103	89	106	100	112	108	100	107	103	101	91	95

Appendix 8 (contd): Days to 50% flowering (DFF) of hybrids in HRT-MS trial, Kharif 2015

S. No	IET No	Hybrid	ZONE VII (contd)														Overall mean
			IIRR	WGL	BAY	MAH	Rasi	TS mean	MND	BRM	SRS	KA Mean	CBT	GDL	TN mean	Southern Mean	
1	24987	ADV-15104	107	110	101	95	95	102	102	84	101	96	107	108	108	100	97
2	24988	Bio-633	112	112	116	97	102	108	104	88	106	99	114	108	111	105	103
3	24989	JGLH-1	108	111	106	111	107	109	93	90	97	93	102	99	100	100	99
4	24990	MR-8666	116	115	116	104	106	111	107	85	110	101	114	109	112	107	105
5	24991	HRI-187	110	110	109	111	99	108	100	89	104	97	107	109	108	103	101
6	24992	US-353	110	112	110	106	98	107	103	88	103	98	103	108	106	102	100
7	24993	PR-15108	112	113	115	105	103	110	106	90	108	101	113	109	111	106	105
8	24994	SPH-1003	111	109	106	100	99	105	102	90	104	99	109	107	108	101	100
9	24995	SRH-5400	108	112	108	95	97	104	92	84	95	90	99	98	98	98	97
10	24888	KPH-459*	109	111	113	107	98	108	95	88	98	94	105	101	103	101	101
11	24156	28P09**	116	115	115	104	107	111	109	88	105	101	114	109	111	107	106
12	24896	SPH-6159*	108	110	107	102	99	105	103	96	103	101	108	107	108	102	99
13	24891	PR-14109*	112	114	115	102	105	110	106	104	104	104	116	110	113	108	105
14	24887	HRI-186*	104	109	101	106	93	103	93	94	95	94	100	98	99	99	97
15	24892	PR-14111*	109	113	108	106	101	107	106	100	103	103	108	109	109	105	104
16	24159	DRRH-92*	111	111	108	107	100	107	103	91	99	98	101	101	101	102	100
17	24893	PR-14112*	111	111	110	109	102	109	105	86	107	99	108	108	108	104	103
18	24996	TNRH-280	107	110	111	101	96	105	102	101	99	101	101	100	101	103	100
19	DRRH-3 (NCH)				115	102	100	106	102	97	105	101	108	107	108	102	103
20	WGL-14 (NCV)		113	116	117	103	105	111	110	84	109	101	122	107	114	108	104
21	BPT-5204 (Old NCV)		120	131	120	111	113	119	114	95	112	107	123	113	118	113	110
Exp Mean			111	113	111	104	101	108	103	91	103	99	109	106	107	103	102

Appendix 9: Quality characteristics of HRT – MS trial, Kharif 2015

S. No	Designation	IET No	Hull	Mill	HRR	KL	KB	L/B	Grain Type	Grain Chalk	VER	WU	KLAC	ER	AC	GC	AROMA
1	ADV-15104	24987	80.9	69	61.8	5.32	1.86	2.86	MS	VOC	4.7	245	10.5	1.97	23.58	60	SS
2	Bio-633	24988	80.5	68.8	64.9	5.58	2.09	2.66	MS	VOC	4	290	9.7	1.73	16.39	75	SS
3	JGLH-1	24989	80.1	68.3	61.6	5.33	1.86	2.86	MS	VOC	4.8	305	9.7	1.81	22.76	43	MS
4	MR-8666	24990	80	69.3	67.2	4.97	1.82	2.72	MS	VOC	5.5	295	8.4	1.69	23.96	22	NS
5	HRI-187	24991	80	69.7	65	5.52	1.88	2.93	MS	VOC	5.5	295	9.4	1.7	23.97	47	SS
6	US-353	24992	79.2	69.1	65.1	5.26	1.85	2.84	MS	A	4.1	280	7.3	1.38	16.36	85	MS
7	PR-15108	24993	80.1	68.1	63.7	5.13	1.96	2.61	MS	VOC	5.5	235	8.5	1.65	24.17	22	NS
8	SPH-1003	24994	79.6	68.2	65.5	5.49	1.95	2.81	MS	VOC	4.7	180	10.6	1.93	24.5	48	NS
9	SRH-5400	24995	79.9	70.4	68.3	5.35	1.81	2.95	MS	VOC	4.6	300	8.5	1.58	25.52	22	NS
10	KPH-459*	24888	79	69.6	63.5	5.45	1.92	2.83	MS	VOC	4	290	9.6	1.76	24.81	40	NS
11	28P09**	24156	80	69.3	65.6	5.03	1.92	2.61	MS	VOC	5.3	230	8.2	1.63	24.9	43	NS
12	SPH-6159*	24896	78.5	68.7	66.2	5.13	1.83	2.8	MS	VOC	5.5	210	8	1.55	23.67	45	NS
13	PR-14109*	24891	81.3	71.2	64.1	5.15	1.91	2.69	MS	VOC	4.8	285	7.9	1.53	25.69	23	NS
14	HRI-186*	24887	79	68.1	60.6	5.2	1.97	2.63	MS	A	5.5	250	8.1	1.55	23.52	59	NS
15	PR-14111*	24892	80.1	69.5	61.1	5.24	1.9	2.75	MS	VOC	5.5	225	9.4	1.79	26.25	22	NS
16	DRRH-92*	24159	79.9	69.6	65.8	5.26	1.93	2.72	MS	VOC	5.5	200	8.9	1.69	24.14	43	NS
17	PR-14112*	24893	80.2	69.7	64.6	4.99	1.87	2.66	MS	VOC	4.8	250	8.6	1.72	24.34	47	NS
18	TNRH-280	24996	79.1	69.6	64.5	5.56	1.89	2.94	MS	VOC	4.6	250	10	1.79	21.06	23	MS
19	DRRH-3 (NCH)	-	80.1	70.2	67.3	5.26	2	2.63	MS	A	4.2	210	8.1	1.53	24.75	49	NS
20	WGL-14 (NCV)	-	78.7	70	67.6	5.24	1.89	2.77	MS	A	4.6	230	8.6	1.64	24.99	22	NS
21	BPT-5204 (Old NCV)	-	78.8	69.6	65.4	5	1.84	2.71	MS	A	4.8	235	8	1.6	24.34	40	NS

Hull: Hulling (%); Mill: Milling (%); HRR: Head rice recovery (%); KL: Kernel length (mm); KB: Kernel breadth (mm); L/B: Length and breadth ratio; Grain Chalk: Grain chalkiness; VER: Volume expansion ratio; WU: Water uptake (ml); KLAC: Kernel length after cooking (mm); ER: Elongation ratio; AC: Amylose content (%); GC: Gel consistency; MS: Medium slender; VOC: Very occasionally present; A: Absent; NS: No scent; MS: Medium scent; SS: Strong scent;