

For official use only

All India Coordinated Wheat & Barley Improvement Project

**PROGRESS REPORT
2013-14**

**Vol. VII
SOCIAL SCIENCES**

**Randhir Singh
Satyavir Singh
Anuj Kumar
Sendhil R
Indu Sharma**



DIRECTORATE OF WHEAT RESEARCH
(Indian Council of Agricultural Research)
PO BOX - 158, AGRASAIN MARG, KARNAL - 132 001



Correct Citation:

Anonymous 2014. Progress report of the All India Coordinated Wheat & Barley Improvement Project 2013-14 – SOCIAL SCIENCES. Eds: Singh R, Singh S, Kumar A, Sendhil R and Sharma Indu. Vol. VII. Directorate of Wheat Research, Karnal, India. P. 41.

**NO PART OF THIS REPORT SHOULD BE REPRODUCED
WITHOUT PRIOR PERMISSION OF THE PROJECT DIRECTOR**

Issued on the occasion of 53rd All India Wheat and Barley Research Workers' Meet, held at JNKVV, Jabalpur, Madhya Pradesh, 22-25 August, 2014.

ACKNOWLEDGEMENTS

Thanks to all the co-operators whose sincere assistance helped in successful execution of Front Line Demonstrations during 2013-14.

Appreciation and thanks are due to Dr. Ramesh Chand and Mr. Rajendra Singh in extension activities, compilation, analysis and preparation of the report; Mr. J. K. Pandey and Mr. Rajinder Kumar Sharma for their assistance in extension activities; Mr. Surender Dhanda, Mr. Sandeep Kumar and Mr. Amrit Pal Singh Virk for their help in typing this manuscript. We are thankful to Mr. P. Chandra Babu for the help rendered in smooth functioning of the computers required for analysis of data and preparation of the progress report.

Financial assistance provided by the Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi to coordinate wheat front line demonstrations is duly acknowledged.

Support provided by the Reprographic Unit under the overall supervision of Dr. Ajay Verma and work supervision under Dr. Suman Lata and Dr. Sendhil R. is duly acknowledged. The reprographic job done by Mr. Bhim Sain, Mr. Ishwar Singh, Mr. Desh Raj and Mr. Nandan Singh is worth mentioning.

Authors

CONTENTS

S.No.	Content	Pages
1.	Wheat Front Line Demonstrations (WFLDs)	1
2.	Centre wise distribution of WFLDs	2
3.	State wise distribution of WFLDs	4
4.	Zone wise distribution of WFLDs	4
5.	Centre wise performance of improved wheat varieties	5
6.	State wise performance of improved wheat varieties	6
7.	Variety wise performance of improved timely sown wheat varieties	7
8.	Variety wise performance of improved late sown wheat varieties	9
9.	Zone wise productivity under wheat FLDs	9
10.	Highest wheat variety yield attained in various zones	10
11.	Yield gain through bio-fertilizer	10
12.	Performance of improved durum/dicoccum varieties	11
13.	Performance of improved rainfed/restricted irrigated varieties	11
14.	Performance of zero tillage/happy seeder	12
15.	Performance of Rotavator	12
16.	Chemical control of yellow rust	13
17.	Performance under sprinkler irrigation	13
18.	Zone wise Coordinators' recommendations/ suggestions	13
19.	Farmers' perception about WFLDs	14
20.	Observation/ farmers' feedback during monitoring of FLDs	15
21.	Improved wheat varieties	28
22.	Zone wise popular wheat varieties	28
23.	Wheat FLDs at DWR Karnal centre	28
24.	Constraints analysis in different wheat producing zones of India	28
25.	Costs and Returns - Wheat FLDs vis-à-vis Check Plots	34
26.	Technology Outreach Programme	37
27.	Annexure-I : Categorywise Number of Wheat FLDs Farmers	i-vi
28.	Annexure –II: Guidelines for Conducting Wheat Front Line Demonstrations (FLDs) as the approved component of National Food Security Mission (NFSM) Scheme of the Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi. Applicable for the year 2013-14.	i-xvii
29.	Annexure –III: Revised Guidelines for Conducting Wheat and Coarse Cereals (Barley, Sorghum, Maize, Pearl Millet & Small Millets) Front Line Demonstrations (FLDs) as the approved component of National Food Security Mission (NFSM) Scheme of the Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi. Applicable for the year 2014-15.	i-xvii

Wheat Front Line Demonstrations

FRONT LINE DEMONSTRATIONS

Wheat Front Line Demonstrations (WFLDs) 2013-14

Inter alia, technological innovations and interventions in Indian agriculture raised the total food grains production to an all-time record of 264.38 million tonnes comprising 129.37 million tonnes of *Kharif* output and 135.01 million tonnes of *Rabi* output (Third Advance Estimates - 2013-14, DES, India). Of the *Rabi* crops, wheat production registered a historic 95.85 million tonnes from an area of 31.34 million hectares with an average national yield of 3059 kg/ha. For centuries, India holds the position of being the second largest wheat producing country and has a share of about 36 per cent to the country's total food grain production. Among others, research and investment on agriculture and extension coupled with farmers support in accepting and adopting the developed wheat production technologies helped to increase the production from a mere 12.26 million tonnes (1964-65) to a humongous 95.85 million tonnes (2013-14).

Front line demonstrations (FLDs) are one among the reasons for this stupendous increase in wheat productivity in the recent decades. Yet, it is well established from the results of the FLDs that there is a yield gap across wheat producing zones but in varying magnitudes. These gaps shall be minimized through identifying the location specific constraints at micro level and selecting need based interventions to increase the crop yield. The Directorate of Wheat Research has already made efforts on popularizing the micro level strategies to enhance the wheat productivity in Haryana. Despite this outreach, there is a need to focus on different categories of farmers through different programmes with more emphasis on seed replacement, Integrated Nutrient Management (INM), Integrated Crop Management (ICM), Integrated Pest Management (IPM), Weed Management, incorporation/retention of crop residue and soil health management.

Monitoring during the 2013-14 crop season identified some early incidence of yellow rust particularly in the north western plains zone (NWPZ). However, the preparedness of State Department of Agriculture in this region helped to contain the damage caused by the rust. The farm advisory services like SMS through IFFCO and C-DAC, and rigorous training of field level extension functionaries by the Directorate in NWPZ has also played a key role in taking contingent management measures, particularly against yellow rust. Awareness created through mass media on seed treatment, seed replacement, disease management and timely procurement of harvested produce helped to increase the farmers' livelihood and welfare. Procurement by different authorized agencies has also created a record in the recent past. However, scientific storage of the essential food commodity till the subsequent season with a minimum loss in quantity and quality warrants for some policy actions. The report highlights the coordination in conducting wheat FLDs, yield gain due to FLDs, costs and returns and constraints in implementation of the programme.

Allocation of Wheat Front Line Demonstrations

During the wheat crop season 2013-14, 600 Wheat Front Line Demonstrations (WFLDs) of one hectare each were allotted to 63 cooperating centres of which 564.8 were conducted through 60 cooperating centers. The technologies on improved wheat (*T.aestivum*, *T.durum* and *T. dicoccum*) varieties with complete package of practices, rotavator, zero tillage/happy seeder, bio-fertilizer, Sprinkler/drip irrigation and chemical control of yellow rust were demonstrated. These WFLDs covered 572.96 hectares area of 1147 farmers in 19 states. The maximum number of WFLDs were conducted in UP (90) followed by Rajasthan (50), Bihar (50), Punjab (40), Maharashtra (40), HP (31.4), Haryana (30), MP (30), Jharkhand (24.8), J&K (20), West Bengal (20), Gujarat (20), Chhattisgarh (20), Uttarakhand (20), Tamil Nadu (20), Delhi (19.6), Assam (15), Karnataka (14) and Nagaland (10). The detail of centre wise and state wise WFLDs is given in Tables 1 & 2.

Table 1 : Centre wise Distribution of Wheat Front Line Demonstrations (WFLDs) during Rabi 2013-14

S.No.	Zone / Name of Centre	WFLDs Allotted (1 WFLD = 1ha)	WFLDs Conducted (1 ha basis)	Area Sown (ha)	No. of Farmers/ Locations
	NHZ				
1.	VPKAS, Almora (Uttarakhand)	10	10	10.0	105
2.	CSKHPKV, HAREC, Bajaura, Kullu (HP)	5	5	5.0	19
3.	CSKHPKV, RWRC, Malan, Kangra (HP)	10	6.4	6.4	30
4.	CSKHPKV,PCRS, Berthin, Bilaspur (HP)	5	5	5.0	15
5.	CSKHPKV, HAREC, Dhaulakuan (HP)	10	10	10.0	25
6.	IARI, RS, Tutikandi, Shimla (HP)	5	5	5.0	17
7.	RR&RS, SKUAST-K, Khundwani, Anantnag (J&K)	5	5	5.0	11
8.	RARS, SKUAST-Jammu, Tandwal, Rajouri (J&K)	5	5	5.0	10
9.	KVK, Hengbung, Senapati, Manipur	5	not conducted	-	-
	NEPZ				
10.	NDUA&T, Faizabad (UP)	10	10	10.0	18
11.	CSAUA&T, Kanpur (UP)	10	10	10.0	25
12.	BHU, Varanasi (UP)	10	10	10.0	18
13.	KVK, Sohna, Sidharthnagar (UP)	10	10	10.0	10
14.	BCKV, Kalyani, Nadia (West Bengal)	10	10	10.0	44
15.	UBKV, Pundibari, Coochbehar, West Bengal	10	10	10.16	22
16.	KVK-Dimapur, Jharnapani, Medziphema, Nag	10	10	10.0	28
17.	RARS, AAU, Shillongani (Assam)	10	10	10.0	13
18.	KVK (AAU)-Darrang, Mangaldai, Darrang, Assam	5	5	5.0	18
19.	IARI, RS, Pusa, Samastipur (Bihar)	10	10	10.0	13
20.	KVK, Sokhodeora, Nawadah (Bihar)	10	10	10.0	10
21.	KVK, RAU, Hariharpur, Vaishali (Bihar)	10	10	10.0	25
22.	KVK, Adhaura, Kaimur, Bhabua (Bihar)	10	10	10.0	4
23.	KVK, Chanpura-Basaith, Madhubani (Bihar)	10	10	10.0	25
24.	BAU, Kanke, Ranchi (Jharkhand)	10	10	10.0	25
25.	KVK, Morabadi, Ranchi (Jharkhand)	10	10	10.0	25
26.	KVK, BAU, West Singhbhum (Jharkhand)	5	4.8	4.8	12
	NWPZ				
27.	KVK (SKUAST of Jammu), Rajhani, Kathua, Jammu	10	10	10.0	21
28.	PAU, Ludhiana (Punjab)	10	10	10.0	10

(Contd.)

S.No.	Zone / Name of Centre	WFLDs Allotted (1 WFLD = 1ha)	WFLDs Conducted (1 ha basis)	Area Sown (ha)	No. of Farmers/ Locations
	NWPZ				
29.	PAU, RRS, Gurdaspur (Punjab)	10	10	10.0	10
30.	KVK, Haveli Kalan, Rupnagar (Punjab)	10	10	10.0	10
31.	KVK, Usman, Amritsar (Punjab)	10	10	10.2	15
32.	RBS College, Bichpuri, Agra (UP)	10	10	10.0	12
33.	KVK, Baghara, Muzaffarnagar (UP)	10	10	10.0	10
	NWPZ				
34.	ZARS, Nagina, Bijnor (UP)	10	10	10.0	10
35.	KVK, Khajuri Bagh, New Gopal Nagar, Saharanpur (UP)	10	10	10.0	19
36.	GBPUA&T, Pantnagar, Udham Singh Nagar (Uttarakhand)	10	10	10.0	10
37.	IARI, New Delhi	10	10	10.0	23
38.	KVK (NHRDF), Ujwa, New Delhi	10	9.6	9.6	24
39.	DWR, Karnal (Haryana)	10	10	10.0	11
40.	Amity Centre for Extension Services, AUUP Campus, Sector-125, Noida (UP)	10	10	10.0	25
41.	CCSHAU, Hisar (Haryana)	10	10	10.0	25
42.	KVK, Bhiwani (Haryana)	10	10	10.0	25
43.	ARS, SKRAU, Durgapura, Jaipur (Rajasthan)	10	10	10.0	10
44.	KVK, Ajmer (Rajasthan)	10	10	10.0	20
	CZ				
45.	RCOA (MPUA&T), Udaipur (Rajasthan)	10	10	10.0	11
46.	ARS, MPUA&T, Banswara (Rajasthan)	10	10	10.0	25
47.	ARS, MPUA&T, Kota (Rajasthan)	10	10	10.0	10
48.	KVK, Sawai Madhopur (Rajasthan)	10	not conducted	-	-
49.	WRS, JAU, Junagarh (Gujarat)	10	10	10.0	10
50.	MWRS, SDAU, Vijapur, Mehsana (Gujarat)	10	10	10.0	23
51.	JNKVV, Jabalpur (MP)	10	10	10.0	08
52.	IARI, RWRS, Indore (MP)	10	10	16.35*	38
53.	KVK (JNKVV), Purushottampur, Panna (MP)	10	10	10.0	25
54.	KVK, RRS, IGKVV, Jagdalpur, Bastar (CG)	10	10	10.0	25
55.	IGAU, RARS, Sarkanda, Bilaspur (CG)	10	10	10.0	10
	PZ				
56.	PDKV, Akola (Maharashtra)	10	10	10.0	10
57.	ARS, Niphad, Nasik (Maharashtra)	10	10	10.0	10
58.	MAU, Parbhani (Maharashtra)	10	10	10.0**	21
59.	ARI, MACS, Pune (Maharashtra)	10	10	10.0	12
60.	UAS, Dharwad (Karnataka)	10	10	10.0	10
61.	BIRDS KVK, Tukkanatti, Gokak, Belgaum (Karnataka)	10	not conducted	-	-
62.	KVK, Badami Road, Bagalkot (Karnataka)	10	4	4.0	10
	SHZ				
63.	IARI, RS, Wellington (Tamil Nadu)	20	20	21.45*	32
	Total	600	564.8	572.96	1147

*- Area covered more than allotted which is restricted to area equal to allotted FLDs.

**-- the center has used old variety/variety released for other state/zone in some of the wheat FLDs.

The reasons for not achieving the target are non-availability of newly released varieties (3-5 years old) seed at local level. Due to the above reason, three centers could not conduct the FLDs and three centers conducted less than the allotment.

The wheat FLDs data received from the cooperating centers which were not reported properly as per FLDs guidelines were not included for analysis.

Table 2 : State wise Distribution of WFLDs during Rabi 2013-14

State	Allotted	Conducted	Area sown (ha)	No. of Farmers/ Locations
Uttarakhand	20	20	20.00	115
HP	35	31.4	31.40	106
J&K	20	20	20.00	42
Manipur	5	-	-	-
Nagaland	10	10	10.00	28
UP	90	90	90.00	147
West Bengal	20	20	20.16	66
Assam	15	15	15.00	31
Bihar	50	50	50.00	77
Jharkhand	25	24.8	24.80	62
Punjab	40	40	40.20	45
Delhi	20	19.6	19.60	47
Haryana	30	30	30.00	61
Rajasthan	60	50	50.00	76
Gujarat	20	20	20.00	33
MP	30	30	36.35	71
Chattisgarh	20	20	20.00	35
Maharashtra	40	40	40.00	53
Karnataka	30	14	14.00	20
Tamil Nadu	20	20	21.45	32
Total	600	564.8	572.96	1147

Table 3: Zone wise Distribution of WFLDs during Rabi 2013-14

Zone	Allotted	Conducted	Area sown (ha)	No. of Farmers/ Locations
NHZ	60	51.4	51.40	232
NEPZ	160	159.8	159.96	335
NWPZ	180	179.6	179.80	290
CZ	110	100	106.35	185
PZ	70	54	54.00	73
SHZ	20	20	21.45	32
Total	600	564.8	572.96	1147

Table 4 : Centre wise Performance of Improved Wheat Varieties 2013-14

Zone & Centre	Mean yield (q/ha)		% Gain
	Improved varieties	Check varieties	
NHZ			
Almora	28.11	15.03	87.03***
Bajaura	33.09	26.43	25.20***
Malan, Kangra	28.36	23.68	19.76***
Berthin, Bilaspur	28.49	22.45	26.90***
Shimla	22.67	21.67	04.61 ^{NS}
Khudwani, Anantnag	19.61	17.39	12.77***
Tandwal, Rajauri	30.64	23.55	30.11***
NEPZ			
Faizabad	38.49	34.18	12.61***
Kanpur	52.36	46.86	11.74***
Varanasi	40.40	37.40	08.02**
Sohna, Sidharthnagar	48.98	43.43	12.78***
Kalyani, Nadia	30.38	28.02	08.42***
Pundibari, Coochbehar	39.84	39.70	00.35 ^{NS}
Shillongani	22.25	18.78	18.48 ^{NS}
Darrang, Mangaldai	28.23	22.57	25.08***
IARI, Pusa	45.94	40.89	12.35**
Nawada	41.83	38.85	07.67***
Vaishali	36.49	31.90	14.39***
Kaimur, Bhabua	46.43	33.88	37.04***
Madhubani	31.81	27.14	17.21***
Kanke, Ranchi	23.88	18.06	32.23***
Morabadi, Ranchi	39.09	29.70	31.62***
West Singhbhum	28.95	22.78	27.09***
NWPZ			
Kathua-Jammu	37.10	26.45	40.26***
Ludhiana	60.02	60.26	-00.40 ^{NS}
Gurdaspur	46.83	42.91	09.14 ^{NS}
Ropar	51.23	50.67	01.11 ^{NS}
Amritsar	50.13	48.43	03.51 ^{NS}
Agra	54.00	46.50	16.13 ^{NS}
Muzaffarnagar	50.75	42.78	18.63***
Bijnor	44.16	42.70	03.42 ^{NS}
Saharanpur	57.83	56.56	02.25**
Pantnagar	51.36	48.72	05.42 ^{NS}
IARI, New Delhi	50.36	44.36	13.53**
KVK, Ujwa, Delhi	51.20	45.10	13.53**
DWR, Karnal	54.36	53.70	01.23 ^{NS}
Amity, Noida	52.12	46.11	13.03***
Hisar	53.68	52.28	02.68*
Bhiwani	60.00	60.80	-01.32 ^{NS}
Durgapura, Jaipur	49.99	42.36	18.01***
Ajmer	56.41	48.97	15.19***
CZ			
Udaipur	51.73	46.18	12.02*
Banswara	41.88	35.45	18.14***
Kota	52.63	47.88	09.92***
Junagarh	49.68	47.33	04.97 ^{NS}
Vijapur, Mehsana	40.29	37.68	06.93***
Jabalpur	31.03	28.73	08.01**
Indore	52.18	32.71	59.52***
Panna	35.18	28.41	23.83***
Jagdapur, Bastar	23.83	18.59	28.19***
Sarkanda, Bilaspur	31.49	27.03	16.50**
PZ			
Akola	22.51	18.21	23.61***
Niphad, Nasik	41.04	36.54	12.32***
Parbhani	28.59	25.59	11.72 ^{NS}
Pune	40.67	36.42	11.67 ^{NS}
Dharwad	36.25	33.10	09.52**
Bagalkot	32.10	27.30	17.58**
SHZ			
Wellington	24.96	-	-

*** Significant at 1 percent level, ** Significant at 5 percent level, * Significant at 10 percent level, NS- Non-significant

Centre wise yield gain over check at different centres in different wheat growing zones is given in table 4. The significant yield gain in NHZ was 87.03 per cent at Almora centre followed by Tadwal Rajouri (30.11 %), Berthin Bilaspur (26.90 %), Bajaura (25.20 %) Malan Kangra (19.76 %) and Khudwani Anantnag (12.77 %). In NEPZ, the yield gain varied from 7.67 per cent at Nawada, to 37.04 per cent at Kaimur Bhabhua. The improved wheat varieties yield gain was 32.23 % at Kanke Ranchi, 31.62 % at Morabadi Ranchi, 27.09 % at West Singhbhum, 25.08 % at Darrang Mangaldai, 17.21 % at Madhubani, 14.39% at Vaishali, 12.78% at Sohna Sidharthnagar and 12.61% at Faizabad. In NWPZ, the significant yield gain was highest at Kathua Jammu (40.26 %) followed by Muzaffarnagar (18.63%), Durgapura Jaipur (18.01%) and Ajmer (15.19%). In CZ, there was significant yield gain at Indore (59.52 %), followed by Jagdalpur Baster (28.19 %), Panna (23.83 %), Banswara (18.14 %), Sarkanda Bilaspur (16.50 %) and Udaipur (12.02 %). In PZ, the significant yield gain was 23.61, 17.58, 12.32 and 9.52 per cent at Akola, Bagalkot, Niphad Nasik and Dharwad centers, respectively. In SHZ the average yield of improved varieties under WFLDs was 24.96 q/ha at Wellington center.

Table 5 : State wise Performance of Improved Wheat Varieties under WFLDs during 2013-14

State	Mean yield (q/ha)		% Gain
	Improved	Check	
UP	49.73	45.68	08.87***
HP	28.76	23.63	21.71***
J&K	31.55	23.69	33.18***
Bihar	37.33	32.44	15.07***
Jharkhand	30.06	23.01	30.64***
Punjab	52.36	51.07	02.53 ^{NS}
Haryana	54.63	53.70	01.73 ^{NS}
Uttarakhand	40.35	32.76	23.17 ^{NS}
Delhi	50.54	44.52	13.52***
Gujarat	43.77	41.25	06.11*
MP	43.53	30.73	41.65***
Chhattisgarh	26.51	21.54	23.07***
Maharashtra	33.78	29.36	15.05*
Karnataka	34.18	30.20	13.18***
West Bengal	34.31	28.73	19.42***
Assam	25.84	21.05	22.76***
Rajasthan	50.59	44.02	14.93***
Tamilnadu	24.96	-	-

*** Significant at 1 percent level, ** Significant at 5 percent level, * Significant at 10 percent level, NS– Non-significant

Statewise yield gain over check in different states is given in table 5. All the improved varieties for different production conditions (timely sown, late sown, rainfed) have been included while calculating the yield gain over check/regional yield). The maximum yield gain was observed in MP (41.65%) followed by J&K (33.18%) Jharkhand (30.64%), Chhattisgarh (23.07%), Assam (22.76%), HP (21.71%), West Bengal (19.42%), Bihar (15.07%), Maharashtra (15.05%), Rajasthan (14.93%), Delhi (13.52%), Karnataka (13.18%), UP (08.87%) and Gujarat (06.11%).

Table 6: Variety wise Performance of Improved Timely Sown Wheat Varieties under WFLDs during 2013-14

Zone & Centre	Improved varieties	Mean yield (q/ha)	Check varieties	Mean yield (q/ha)	% Gain
NHZ					
Almora	VL 907	28.11	Daulatkhani	15.03	87.03***
Bajaura	HPW 349	30.40	VL 616	23.45	29.64 ^{NS}
Bajaura	HPW 349	28.70	Cheudhi Gehoon	22.80	25.88 ^{NS}
Bajaura	HPW 349	35.64	Raj 3777	27.85	27.97*
Malan	HPW 349	27.00	HPW 236	23.75	13.68 ^{NS}
Malan Kangra	HPW 349	30.60	HS 507	28.85	06.07 ^{NS}
Malan Kangra	HPW 349	23.70	VL 616	20.50	15.61 ^{NS}
Malan Kangra	HPW 349	36.00	VL 907	33.50	07.46 ^{NS}
Berthin Bilaspur	VL 907	26.77	HPW 155	22.64	18.24***
Berthin Bilaspur	VL 907	29.99	HPW 236	22.28	34.61***
Shimla	VL 907	26.00	VL 804	25.00	04.00 ^{NS}
Shimla	VL 907	18.00	HS 365	17.00	05.88 ^{NS}
Shimla	VL 907	24.00	Dharmori	23.00	04.35 ^{NS}
Khudwani	VL 907	19.61	SW 1	17.39	12.77***
Rajouri	HS 507	29.30	HS 240	22.10	32.58***
Rajouri	VL 907	31.21	HS 240	24.17	29.13***
NEPZ					
Faizabad	DBW 39	39.12	PBW 343	35.14	11.33**
Faizabad	KRL 213	36.00	PBW 154	29.80	20.81 ^{NS}
Faizabad	KRL 213	40.00	K 307	34.00	17.65 ^{NS}
Faizabad	KRL 213	35.00	PBW 343	32.00	09.38 ^{NS}
Kanpur	DBW 39	52.36	PBW 343	46.86	11.74***
Varanasi	DBW 39	41.67	PBW 343	38.33	08.71**
Varanasi	KRL 213	38.50	PBW 343	36.00	06.94 ^{NS}
Sohna Sidharthnagar	CBW 38	49.28	PBW 343	42.60	15.68*
Sohna Sidharthnagar	CBW 38	49.40	HD 2733	44.50	11.01 ^{NS}
Sohna Sidharthnagar	DBW 39	48.00	PBW 343	42.60	12.68 ^{NS}
Sohna Sidharthnagar	DBW 39	49.60	HD 2733	46.50	06.67 ^{NS}
Kalyani	DBW 39	30.38	UP 262	28.02	08.42***
Pundibari	DBW 39	41.12	PBW 343	39.70	03.58**
Shillongani	DBW 39	42.00	Molla	39.00	07.69 ^{NS}
Shillongani	CBW 38	28.50	Molla	18.80	51.60 ^{NS}
Shillongani	DBW 39	19.07	Sonalika	16.20	17.72***
Darrang	DBW 39	28.23	Sonalika	22.57	25.08***
Pusa Samastipur	CBW 38	44.93	HD 2733	42.00	06.98 ^{NS}
Pusa Samastipur	CBW 38	49.50	UP 262	37.00	33.78 ^{NS}
Nawada	CBW 38	41.30	PBW 154	37.62	09.78***
Vaishali	CBW 38	36.49	PBW 343	31.90	14.39***
Adhaura	CBW 38	46.43	HUW 234	33.87	37.08***
Madhubani	CBW 38	32.14	PBW 343	27.89	15.24***
Madhubani	CBW 38	31.65	UP 262	26.78	18.19***
Kanke Ranchi	CBW 38	23.88	Sonalika	18.06	32.23***
Morabadi Ranchi	CBW 38	39.24	Sonalika	29.63	32.43***
Morabadi Ranchi	CBW 38	38.58	UP 262	29.93	28.90***
West Singhbhum	CBW 38	28.95	Sonalika	22.77	27.14***
NWPZ					
Kathua , Jammu	HD 2967	37.09	PBW 550	26.45	40.23***
Ludhiana	HD 2967	61.53	DPW 621	60.47	01.75 ^{NS}
Gurdaspur	HD 2967	48.00	PBW 550	40.00	20.00 ^{NS}
Gurdaspur	HD 2967	57.50	DPW 621	55.00	04.55 ^{NS}
Ropar	HD 2967	51.30	DPW 621	51.35	-00.10 ^{NS}
Ropar	HD 2967	52.05	DBW 17	49.15	05.90 ^{NS}
Ropar	HD 2967	50.70	Burbat	47.60	06.51 ^{NS}

(Contd.)

Zone & Centre	Improved varieties	Mean yield (q/ha)	Check varieties	Mean yield (q/ha)	% Gain
Amritsar	HD 2967	52.80	DPW 621	51.20	03.12***
Agra	HD 2967	54.00	PBW 502	46.50	16.13 ^{NS}
IARI New Delhi	HD 2967	47.86	DBW 17	40.26	18.88 ^{NS}
Ujwa New Delhi	HD 2967	51.20	WH 711	45.10	13.53**
Noida	HD 2967	57.50	HD 2894	52.50	09.52 ^{NS}
Noida	HD 2967	53.75	PBW 343	48.13	11.68*
Noida	HD 2967	54.40	PBW 502	48.00	13.33***
Hisar	HD 2967	53.50	PBW 343	52.00	02.88 ^{NS}
Hisar	HD 2967	53.70	WH 711	52.30	02.68*
Durgapura	HD 2967	50.74	Raj 3077	42.60	19.11***
Durgapura	HD 2967	46.30	Raj 4037	42.20	09.72 ^{NS}
Durgapura	HD 2967	47.60	Raj 4079	40.60	17.24 ^{NS}
Ajmer	HD 2967	56.41	Raj 3077	48.97	15.19***
CZ					
Vijapur	GW 11	41.75	GW 496	38.70	07.88***
Indore	HI 1544	57.70	Lok 1	38.00	51.84***
Indore	HD 2987	45.50	Sujata	30.00	51.67 ^{NS}
Sarkanda Bilaspur	MP 3288	32.10	HW 2004	26.38	21.68**
Sarkanda Bilaspur	MP 3288	31.03	HI 1500	27.52	12.75 ^{NS}
PZ					
Akola	AKAW 4627	22.51	Lok 1	18.21	23.61***
Niphad	NIAW 1415	41.50	Ajit 302	37.10	11.86 ^{NS}
Niphad	NIAW 1415	39.90	Lok 1	35.42	12.65***
Niphad	NIAW 1415	42.90	Nirmal 10	37.75	13.64 ^{NS}
Parbhani	HI 1544	27.43	HD 2189	24.63	11.37 ^{NS}
Parbhani	HI 1544	33.23	Lok 1	29.45	12.84**
Pune	MACS 6222	40.83	Raj 4037	36.33	12.39 ^{NS}
Pune	MACS 6478	42.67	Raj 4037	39.33	08.49 ^{NS}
Dharwad	MACS 6222	36.30	DWR 162	32.10	13.08*
SHZ					
Wellington	COW (W) 1	23.56	-	-	-
Wellington	HW 5216	25.70	-	-	-

*** Significant at 1 percent level, ** Significant at 5 percent level, * Significant at 10 percent level, NS- Non-significant

The variety wise mean yield data has revealed that variety HPW 349 gave significantly higher yield (35.64 q/ha) at Bajaura in NHZ (Table 6). In NEPZ, the highest significant average yield was reported by DBW 39 at Kanpur (52.36 q/ha) followed by CBW 38 (49.28 q/ha) at Sohna Sidharthnagar, DBW 39 (41.67 q/ha) at Varanasi, DBW 39 (39.12 q/ha) at Faizabad centre. In NWPZ, variety HD 2967 yielded 56.41, 54.40, 53.75, 53.70, 52.80, 51.20 and 50.74 q/ha at Ajmer, Noida, Noida, Hisar, Amritsar, Ujwa-New Delhi, Durgapura Jaipur centers, respectively. In Ropar, there was no yield gain as the check variety DPW 621 was at par with the recently released variety HD 2967. In CZ, HI 1544 gave highest significant average yield (57.70 q/ha) at Indore centre followed by GW 11 (41.75 q/ha) at Vijapur centre and MP 3288 (32.10 q/ha) at Sarkanda Bilaspur center. In PZ, NIAW 1415 gave highest significant yield (39.90 q/ha) at Niphad centre followed by MACS 6222 (36.30 q/ha) at Dharwad, HI 1544 (33.23 q/ha) at Parbhani and AKAW 4627 (22.51 q/ha) at Akola center. At Wellington centre of SHZ, HW 5216 recorded the average yield of 25.70 q/ha followed by COW (W)-1 (23.56 q/ha).

Table 7 : Variety wise Performance of Improved Late Sown Wheat Varieties under WFLDs during 2013-14

Centre	Improved varieties	Mean yield (q/ha)	Check varieties	Mean yield (q/ha)	% Gain
NWPZ					
Amritsar	DBW 71	44.80	PBW 590	42.90	04.43*
Muzaffarnagar	DBW 71	50.75	DBW 16	42.78	18.63***
Noida	DBW 71	47.71	PBW 226	41.25	15.66***
Noida	DBW 71	50.00	PBW 373	45.00	11.11 ^{NS}
CZ					
Udaipur	Raj 4238	45.50	Lok 1	44.50	02.25 ^{NS}
Udaipur	Raj 4238	43.33	Raj 3765	37.00	17.11**
Banswara	Raj 4238	40.95	Raj 3077	36.50	12.19***
Kota	Raj 4238	51.00	Lok 1	46.50	09.68 ^{NS}
Kota	Raj 4238	51.75	Raj 3765	45.50	13.74 ^{NS}
Junagarh	Raj 4238	49.68	Lok 1	47.33	04.97 ^{NS}
Jabalpur	MP 3336	30.50	GW 173	27.60	10.51 ^{NS}
Jabalpur	MP 3336	30.50	Lok 1	29.20	04.45 ^{NS}
Jabalpur	Raj 4238	29.75	GW 173	27.75	07.21 ^{NS}
Jabalpur	Raj 4238	32.40	Lok 1	29.97	08.11**
Panna	Raj 4238	35.00	Lok 1	28.27	23.81***
Panna	Raj 4238	36.50	MP 4010	29.50	23.73 ^{NS}
Jagdapur	Raj 4238	23.83	Lok 1	18.59	28.19***
PZ					
Akola	AKAW 4627	22.51	Lok 1	18.21	23.61***

The late sown varieties mean yield data has revealed that variety DBW 71 gave significantly higher yield (50.75 q/ha) at Muzaffarnagar in NWPZ (Table 7). In CZ, the highest significant average yield was recorded by Raj 4238 at Udaipur (43.33 q/ha). In PZ, variety AKAW 4627 yielded significantly higher yield (22.51 q/ha) than check at Akola center.

Table 8a : Zone wise Productivity under WFLDs over Regional during 2013-14

Zone	Mean yield(q/ha)		% Gain
	WFLDs	Regional	
NHZ	27.94	19.08	46.44***
NEPZ	34.72	26.56	30.72***
NWPZ	51.38	43.51	18.09***
CZ	42.07	28.36	48.34***
PZ	33.64	26.75	25.76***
SHZ	24.96	-	-

*** Significant at 1 percent level

The yield gain due to improved varieties over regional was highest in CZ (48.34%) followed by NHZ (46.44%), NEPZ (30.72%), PZ (25.76%) and NWPZ (18.09%) (Table 8a).

Table 8b : Zone wise Productivity under WFLDs over Check during 2013-14

Zone	Mean yield(q/ha)		% Gain
	WFLDs	Check	
NHZ	27.94	22.03	26.83***
NEPZ	34.72	29.38	18.18***
NWPZ	51.38	47.25	08.74***
CZ	42.07	34.31	22.62***
PZ	33.64	29.64	13.50***
SHZ	24.96	-	-

*** Significant at 1 percent level

The yield gain due to improved varieties over check was highest in NHZ (26.83%) followed by CZ (22.62%), NEPZ (18.18%), PZ (13.50%) and NWPZ (8.74%) (Table 8b). Yield gap in the NEPZ and CZ need to be bridged if India has to meet its ever increasing food requirements. The specific problems faced by the farmers in these two zones are to be solved. Extension agencies have to use latest communication means to educate the farmers on technical matters.

Table 9 : Highest Wheat Variety Yield attained in Various Zones during 2013-14

Zone	Centre	Variety	Yield (q/ha)
NHZ	Bajaura	HPW 349	40.65
NEPZ	Kanpur	DBW 39	55.00
	Pusa Samastipur	CBW 38	55.00
NWPZ	Bhiwani	HD 2967	67.00
CZ	Indore	HI 8663 (d)	66.00
PZ	Pune	MACS 6222	50.00
SHZ	Wellington	HW 5216	34.10

The location specific highest varietal yield (Table 9) attained in a zone were HD 2967 (67.00 q/ha) at Bhiwani centre in NWPZ, HI 8663 (d) (66.00 q/ha) at Indore in CZ, DBW 39 (55.00 q/ha) at Kanpur and CBW 38 (55.00 q/ha) at Pusa Samastipur in NEPZ, MACS 6222 (50.00 q/ha) at Pune in PZ, HPW 349 (40.65 q/ha) at Bajaura in NHZ and HW 5216 (34.10 q/ha) at Wellington in SHZ.

Table 10 : Yield Gain through Bio-Fertilizer under WFLDs during 2013-14

Zone & Centre	100 % Inorganic + Bio-Fertilizer (Azotobactor+PSB)		100 % Inorganic Fertilizer		% Gain
	Variety	Mean Yield (q/ha)	Variety	Mean Yield (q/ha)	
NEPZ					
Shillongani	CBW 38	22.00	CBW 38	19.50	12.82 ^{NS}
NWPZ					
Bijnor	DBW 71	43.22	DBW 71	40.40	06.98 ^{NS}
Saharanpur	HD 2967	59.20	HD 2967	57.90	02.25 ^{NS}
Pantnagar	HD 2967	54.38	HD 2967	51.25	06.11 ^{NS}
IARI New Delhi	HD 2967	51.95	HD 2967	46.97	10.60 ^{NS}
DWR Karnal	HD 2967	53.64	HD 2967	52.61	01.96 ^{NS}
PZ					
Dharwad	UAS 415 (d)	36.20	UAS 415 (d)	34.10	06.16*

* Significant at 10 percent level, NS- Non-significant

Table 11 :Performance of Improved Durum/Dicoccum Varieties under WFLDs during 2013-14

Zone & Center	Improved variety	Mean yield (q/ha)	Check variety	Mean yield (q/ha)	% Gain
CZ					
Udaipur	HI 8713 (d)	58.00	HI 8498	51.33	12.99***
Banswara	HI 8713 (d)	42.63	Raj 3077	35.02	21.73***
Banswara	HI 8713 (d)	40.00	Raj 4037	35.50	12.68 ^{NS}
Kota	HI 8713 (d)	52.00	Lok 1	50.00	04.00 ^{NS}
Kota	HI 8713 (d)	54.50	Raj 4037	49.67	09.72**
Vijapur	GDW 1255(d)	38.21	GW 496	36.21	05.52***
Indore	HI 8663 (d)	62.00	Lok 1	37.50	65.33 ^{NS}
Indore	HI 8627(d)	49.33	Sujata	28.33	74.13***
PZ					
Niphad	WHD 948 (d)	41.63	Lok 1	37.42	11.25***
Niphad	WHD 948 (d)	40.40	Nirmal 10	35.50	13.80 ^{NS}
Pune	MACS 2971 (dicoccum)	40.00	DDK 1029	35.50	12.68*
Pune	UAS 415(d)	35.00	MACS 3125 (d)	30.00	16.67 ^{NS}
Bagalkot	WHD 948 (d)	32.10	DWR 162	27.30	17.58**

*** Significant at 1 percent level, ** Significant at 5 percent level, * Significant at 10 percent level, NS- Non-significant

FLDs on Bio-fertilizer (Azotobactor & PSB) along with 100 % inorganic fertilizer as compared to check (100% recommended dose of Inorganic fertilizer) showed that the yield gain was non-significant at most of the centers. In PZ, there was significant yield gain of 06.16 per cent at Dharwad center.

Table 12 : Performance of Improved Rainfed/Restricted Irrigated Varieties under WFLDs during 2013-14

Zone & Center	Improved variety	Mean yield (q/ha)	Check variety	Mean yield (q/ha)	% Gain
NHZ					
Almora	VL 907	28.11	Daulatkhani	15.03	87.03***
Bajaura	HPW 349	30.40	VL 616	23.45	29.64 ^{NS}
Bajaura	HPW 349	28.70	Cheudhi Gehoon	22.80	25.88 ^{NS}
Bajaura	HPW 349	35.64	Raj 3777	27.85	27.97*
Malan	HPW 349	27.00	HPW 236	23.75	13.68 ^{NS}
Malan	HPW 349	30.60	HS 507	28.85	06.07 ^{NS}
Malan	HPW 349	23.70	VL 616	20.50	15.61 ^{NS}
Malan	HPW 349	36.00	VL 907	33.50	07.46 ^{NS}
Berthin Bilaspur	VL 907	26.77	HPW 155	22.64	18.24***
Berthin Bilaspur	VL 907	29.99	HPW 236	22.28	34.61***
Shimla	VL 907	26.00	VL 804	25.00	04.00 ^{NS}
Shimla	VL 907	18.00	HS 365	17.00	05.88 ^{NS}
Shimla	VL 907	24.00	Dharmori	23.00	04.35 ^{NS}
Khudwani	VL 907	19.61	SW 1	17.39	12.77***
Rajouri	HS 507	29.30	HS 240	22.10	32.58***
Rajouri	VL 907	31.21	HS 240	24.17	29.13***
CZ					
Indore	HD 2987	45.50	Sujata	30.00	51.67 ^{NS}
Sarkanda Bilaspur	MP 3288	32.10	HW 2004	26.38	21.68**
Sarkanda Bilaspur	MP 3288	31.03	HI 1500	27.52	12.75 ^{NS}
PZ					
Niphad	NIAW 1415	41.50	Ajit 302	37.10	11.86 ^{NS}
Niphad	NIAW 1415	39.90	Lok 1	35.42	12.65***
Niphad	NIAW 1415	42.90	Nirmal 10	37.75	13.64 ^{NS}
Parbhani	HI 1544	27.43	HD 2189	24.63	11.37 ^{NS}
Parbhani	HI 1544	33.23	Lok 1	29.45	12.84**
SHZ					
Wellington	HW 5216	25.70	-	-	-

*** Significant at 1 percent level, ** Significant at 5 percent level, * Significant at 10 percent level, NS- Non-significant

In case of improved durum varieties, the variety HI 8713 (d) gave a significant average yield of 58.00 q/ha at Udaipur centre in CZ followed by the same variety HI 8713 (d) (54.50 q/ha) at Kota center. WHD 948 (d) gave a significant average yield of 41.63 q/ha at Niphad followed by same variety WHD 948 (d) (32.10 q/ha) at Parbhani center in PZ. Variety MACS 2971 (dicocum) gave a significant average yield of 40.00 q/ha at Parbhani centre in PZ (Table 11).

In NHZ, at Bajaura center, improved rainfed variety HPW 349 yielded 35.64 q/ha which was significantly higher than the check varieties, followed by VL 907 (31.21 q/ha) at Rajouri, VL 907 (29.99 q/ha) at Berthin Bilaspur, HS 507 (29.30 q/ha) at Rajouri, VL 907 (28.11 q/ha) at Almora, VL 907 (26.77 q/ha) at Berthin Bilaspur and VL 907 (19.61 q/ha) at Khudwani Anantnag centre. In CZ, HD 2987 variety gave 45.50 q/ha yield which was non-significant and MP 3288 variety gave significant yield of 32.10 q/ha at Sarkanda Bilaspur center. In PZ, NIAW 1415 variety gave significant average yield of 39.90 q/ha at Niphad followed by HI 1544 (33.23 q/ha) at Parbhani center (Table 12).

Table 13 : Performance of Zero Tillage /Happy seeder under WFLDs during 2013-14

Zone & Centre	Improved varieties	Zero Tillage Mean yield (q/ha)	Conventional Tillage Mean yield (q/ha)	% Gain
NEPZ				
Shillongani	CBW 38	22.00	18.50	18.92 ^{NS}
Nawada	CBW 38	42.36	40.07	05.71***
NWPZ				
Ludhiana	HD 2967	59.60	59.13	00.79 ^{NS}
Gurdaspur	HD 2967	37.75	35.00	07.86 ^{NS}
Saharanpur	HD 2967	54.50	53.50	01.87 ^{NS}
Pantnagar	HD 2967	46.12	44.50	03.64 ^{NS}
Ropar (Happy seeder)	HD 2967	50.73	52.97	-04.23**

** - Significant at 5 percent level, * Significant at 10 percent level, NS– Non-significant

Zero tillage gave significant yield gain of 5.71% at Nawada center in NEPZ. There was increase in zero tillage yield under WFLDs over check at all other centers but it was non-significant. In case of happy seeder, the yield gain was negative and significant (Table 13). There was patchy germination in some parts of the FLD plot.

Table 14 : Performance of Rotavator under WFLDs during 2013-14

Zone & Centre	Improved varieties	Rotavator Mean yield (q/ha)	Conventional Tillage Mean yield (q/ha)	% Gain
NWPZ				
Ludhiana	HD 2967	59.20	60.95	-02.87 ^{NS}
Gurdaspur	HD 2967	50.00	46.25	08.11 ^{NS}
Bijnor	DBW 71	45.10	45.01	00.20 ^{NS}
Saharanpur	HD 2967	57.82	56.50	02.34**
Pantnagar	HD 2967	53.29	50.24	06.07 ^{NS}

** - Significant at 5 percent level, * Significant at 10 percent level, NS– Non-significant

The performance of rotavator technology under WFLDs has shown positive impact at most of the centers, except Ludhiana. It recorded significant yield gain of 2.34 per cent at Saharanpur center. The yield gain at other three sites was non-significant.

Table 15 : Chemical Control of Yellow Rust under WFLDs during 2013-14

Zone & Centre	Improved varieties	FLD Mean yield (q/ha)	Check Mean yield (q/ha)	% Gain
NWPZ				
Ropar	HD 2967	51.50	48.50	06.19 ^{NS}
DWR Karnal	HD 2967	55.63	55.63*	00.00

*yellow rust did not appear in the demonstrated field.

To test the alternate fungicides such as Bayleton and Triadimefon, WFLDs were organized at two centers. At Ropar, due to effective control, 6.19% yield gain was recorded, whereas at Kalesar village site of DWR Karnal, yellow rust did not appear.

Table 16 : Performance under Sprinkler irrigation under WFLDs during 2013-14

Zone & Centre	Improved varieties	Sprinkler Irrigation Mean yield (q/ha)	Flood Irrigation Mean yield (q/ha)	% Gain
NWPZ				
Bhiwani	HD 2967	60.00	60.80	-01.32 ^{NS}

For effective and efficient use of water demonstration on sprinkler irrigation irrigation was organized at Bhiwani center. There was no significant yield due to sprinkler irrigation, but it is visible that we can produce similar yield with less use of water. Therefore, such technologies have great future in view of the declining water table across the country.

Zone wise Coordinators' Recommendations/Suggestions for WFLDs

The zone specific suggestions are given below.

NHZ: The number of FLDs should be enhanced and budget for Front Line demonstrations should be increased. The funds should be released in time.

NEPZ: Funds for conducting FLDs should be increased. FLDs should be allotted timely and the funds for FLDs should be released timely. Seed for FLDs should be supplied timely by DWR Karnal every year. Late sown variety with low water requirement and varieties with high yielding potential along with resistance to yellow rust should be promoted under FLDs. Seed and other inputs like, fertilizer, plant protection chemical, weedicides, diesel for irrigation etc. should be given under FLD programme to cover the total demonstration cost.

NWPZ: Number of FLDs should be increased and funds should be released in time. Good quality seed should be supplied. Funds under TA grant need to be increased. Timely and more funds are required for conducting FLDs. Please give more support and inputs to the farmers.

CZ: The funds for wheat FLDs should be increased and released in time to meet the required expenditure, organize the farmers' day and perform the other activities timely. Due to the shortage of irrigation water and low holding capacity of farmers, the area under wheat FLDs need to be reduced from 1.0 hectare to 1.0 acre for the Junagarh area. The type of wheat FLDs should be finalized in accordance with suggestions of the cooperating center's scientists and regional requirement of newly released variety/technology. FLDs Should be continued for replacement of variety. Short duration variety is required for Jagdalpur Bastar center.

PZ : FLDs allotment may please be issued well in time. Recently developed variety of the state should be given to the farmers under FLDs programme. Sowing should be done by seed drill. More number of FLDs are required at Dharwad center. Timely supply of seed is very much essential as the sowing period is between second fortnight of October to first fortnight of November.

SHZ: The seed and funds should be supplied timely.

Farmers' perception about WFLDs

- The farmers appreciated the new wheat production technologies demonstrated through front line demonstrations. Improved varieties performed better, gave more yields than the check varieties. New varieties have good grain /seed quality, disease resistance, uniform and good crop growth and crop stand, lodging resistance, long compact ear head, high grain and straw yield which provided good returns to the farmers. There was negligible weed infestation and no serious disease was observed.
- The zero tillage technology saves time, labour, money and energy.
- Bio-fertilizers (Azotobactor and Phosphorus Solubilizing Bacteria) are free living organisms which fix atmospheric nitrogen and improve the solubility of phosphorus in soil by saving the energy.
- Neighboring farmers responded positively about FLDs and would like to grow the improved variety and they have asked for improved varieties seed from the FLD farmer.
- More financial support is to be provided under the FLD programme.
- Wheat FLD is an effective method of transfer of technology. Regular availability of improved varieties will certainly enhance wheat productivity along with farmers' profit.

Observations/Farmers' Feedback during Monitoring of Front Line Demonstrations (FLDs) at different Cooperating centers during wheat crop season 2013-14.

Front Line Demonstrations (FLDs) Monitoring Report of Malan-Kangra, Bajaura-Kullu and Berthin-Bilaspur centers.

Monitoring Center : RWRC, CSKHPKV, Malan, Kangra (HP)

Monitoring Dates : 07.03.2014 and 08.03.2014

Monitoring Team

1. Dr. Satyavir Singh, Principal Scientist (Agricultural Extension), DWR, Karnal
2. Dr. S.K. Rana, Principal Plant Pathologist-cum-PI (Wheat), RWRC, CSKHPKV, Malan, Kangra (HP)
3. Dr. Vijay Rana, Senior Scientist (Plant Breeding), RWRC, CSKHPKV, Malan, Kangra (HP)
4. Dr. Sandeep Manuja, Senior Scientist (Agronomy), RWRC, CSKHPKV, Malan, Kangra (HP)

The team visited RWRC, CSKHPKV, Malan, Kangra center on 7th & 8th March, 2014. The technology i.e. improved or newly released wheat variety (NRWV) with complete package of practices was demonstrated at farmers' fields. Wheat variety HPW 349 was demonstrated and the check varieties were Local, Sonalika, HS 507, S-308, VL 829, HPW 236 and HPW 155. The following observations and suggestions were made through visit of the wheat FLDs farmers' fields (villages-Thana and Bangoli on 07.03.2014 and villages-Malan, Lenjher, Lakha-Mandal, Kharot, Sughar, Bandla, Ladoh and Bhiara on 08.03.2014).

- The wheat crop of FLD variety HPW 349 was free from diseases.
- In a field near to FLD, in village Thana, variety Raj 3765 was severely infested by yellow rust.
- Line sowing was practiced in most of the visited wheat FLD fields.
- Infestation of *weeds* was more in the adjoining farmers' fields. The weeds observed were *Phalaris minor* (Mandusi), *Cyprus rotundus* (Motha), *Chenopodium album* (Bathua) and *Avena ludoviciana* (Jangali Jai).

Monitoring Center : HAREC, CSKHPKV, Bajaura, Kullu (HP)

Monitoring Dates : 09.03.2014 and 10.03.2014

Monitoring Team

1. Dr. Satyavir Singh, Principal Scientist (Agricultural Extension), DWR, Karnal
2. Dr. Gurudev Singh, Scientist (Agronomy), HAREC, CSKHPKV, Bajaura, Kullu (HP)
3. Dr. Naval Kishore, Scientist (Plant Breeding), HAREC, CSKHPKV, Bajaura, Kullu (HP)

The monitoring team visited CSKHPKV, HAREC, Bajaura, Kullu centre on 9th & 10th March, 2014. The technology demonstrated was improved or newly released wheat variety (NRWV) with complete package of practices at farmers' fields. Wheat variety HPW 349 was demonstrated and the check variety was Local. The following observations and suggestions were made after visiting wheat FLDs at farmers' fields (village-Tatardi on 09.03.2014 and villages - Kharka, Sanghan, Bhalyani, Panarasa and Bassan on 10.03.2014).

- The wheat crop of FLD variety HPW 349 was free from diseases.
- Infestation of weeds was more in the adjoining farmers' fields. The weeds species observed were *Poa annua* (Midow grass), *Lolium temulentum* (Ubban), *Chenopodium album* (Bathua), *Avena ludoviciana* (Jangali Jai), *Coronopus didymus* (Wild carrot), *Stelaria media* (Chickweed), *Fumaria parviflora* (Pit papra), *Veronica persica* and *Ranunculus arvensis* (Corn buttercup) etc.
- Line sowing was practiced in the wheat FLD field at village Bassan with the self made hand driven wheel plough.
- The land is fragmented and land holdings are very small. It is difficult to conduct FLDs at one place.

Monitoring Center : KVK, CSKHPKV, Research Sub-Station, Berthin, Bilaspur (HP)

Monitoring Date : 11.03.2014

Monitoring Team

1. Dr. Satyavir Singh, Principal Scientist (Agricultural Extension), DWR, Karnal
2. Dr. Akhilesh Singh, Principal Scientist (Plant Pathology), KVK, Berthin, Bilaspur (HP)
3. Dr. Sanjay Kumar, Extension Specialist (Agronomy), KVK, Berthin, Bilaspur (HP)

The team visited KVK, CSKHPKV, Research Sub-Station, Berthin, Bilaspur center on 11th March, 2014. The technology i.e. improved or newly released wheat variety (NRWV) with complete package of practices was demonstrated at farmers' fields. Wheat variety VL 907 was demonstrated and the check varieties were HPW 155 and HPW 236. The following observations and suggestions were made through visit of the wheat FLDs farmers' fields (village-Doon, Duhak, Kharota and Malari on 11.03.2014).

- The wheat crop of FLD variety VL 907 was free from diseases.
- Weed infestation was negligible or very less in the wheat FLD fields.
- Infestation of *weeds* was more in the adjoining farmers' fields. The weeds observed were, *Avena ludoviciana* (Wild Oat/Jangali Jai) and *Chenopodium album* (Bathua).
- The farmers of the Berthin area practice the sowing of mustard (sarson) mixed with wheat crop.
- The wheat FLD field of VL 907 variety was free from yellow rust (farmer Shri Roop Lal, Village-Doon, PO-Berthin, Tehsil-Jhandutta, District-Bilaspur). In the FLD's neighbouring field (farmer Shri Roshan Lal), the yellow rust was observed in few plants (50S - 60S) of wheat variety DPW 621-50. The seed of DPW 621-50 was provided to the farmer by the State Department of Agriculture, Himachal Pradesh.
- In a trial at research farm of the Research Sub-Station, Berthin (Bilaspur), the wheat crop of variety HS 240 was infested with yellow rust (30S - 40S) which was sown under the RKVY project entitled " Management of yellow rust of wheat".

Common Observations/Feedback at the farmers' fields at Malan, Bajaura and Berthin centers.

- Most of the FLD plots were located near the pucca road and a few were located away from the Pucca road to enable the technology transfer to the farmers of remote villages.
- Weed infestation was negligible or very less in the FLD fields.
- The demonstration of improved wheat variety had good germination, more tillering, good crop stand and good crop health.
- There was no display board at FLDs sites.
- The farmers expected more yield from the improved variety than the old or Local varieties.
- FLD is recognized as an effective method of transfer of improved wheat production technology.
- The farmers appreciated the advisory service and technical assistance given by the FLD coordinators.
- The neighbouring farmers of the FLD field asked for the seed of new varieties (HPW 349 and VL 907) from FLD farmer for the next year.
- The amount of Rs. 100/- per hectare earmarked for "Visit of scientists for hiring of Taxi/POL etc." is very less for the cooperating centre and it should be increased for visiting/monitoring the wheat FLDs at regular intervals.
- The amount of financial assistance under National Food Security Mission (NFSM) for wheat FLDs @ Rs. 5000/- per hectare is very less; it should be increased due to increased cost of inputs (seed, fertilizer, herbicide, pesticide etc.) to cover the total cost of cultivation of wheat crop.
- More number of FLDs should be allotted.

Front Line Demonstrations (FLDs) Monitoring Report of Jaipur and Ajmer centers

Monitoring Team

Dr. Randhir Singh, Principal Scientist & PI (Social Sciences), DWR, Karnal

Shri A. Ansari, Statistical Investigator, Directorate of Millets Development, Jaipur

Dr. Sudesh Kumar, Agriculture Research Station of Jobner University, Jaipur

Dr. Rakesh Sharma, SMS (Agronomy) KVK, Tankarda, Chomu, Jaipur

Prof. Dinesh Arora, KVK, Ajmer

Wheat Front Line Demonstrations Monitored

15th March 2014, Jaipur (Rajasthan)

1. Shri Suwa Lal Saini, Govind Garh, Chomu, Jaipur.
2. Shri Tofan s/o Shri Radhey Shyam Meena, Dhodhsar, Chomu, Jaipur.
3. Shri Shimbhu s/o Shri Kana Ram Meena, Dhoblai, Chomu, Jaipur.
4. Shri Surendra s/o Shri Chhotu Ram, Mandi Ki Dhani, Kalwar Road, Jaipur.
5. Smt. Padama w/o Shri Chhotu Ram, Mandi Ki Dhani, Kalwar Road, Jaipur.
6. Shri Prahlad Sharma s/o Shri Ramkishan, Dungari Hingonia, Jaipur.

16th March 2014, Ajmer (Rajasthan)

1. Shri Dinesh, Village Dantra, Ajmer.
2. Shri Nemi Chand, Village Dantra, Ajmer.
3. Shri Mangla, Village Dantra, Ajmer.
4. Shri Jeevan s/o Shri Dhularam, Village Dantra, Ajmer.
5. Shri Ramratan s/o Shri Prabhu, , Village Dantra, Ajmer.
6. Shri Kishan Singh S/o Shri Madan Singh, Village Dantra, Ajmer.
7. Shri Gopal S/o Shri Kishna Ram, Village Dantra, Ajmer.

Observations

1. The wheat variety HD 2967 was sown in all the front line demonstration plots, crop was at grain filling stage and good in condition.
2. Crop yield would be higher in demonstration plot of wheat variety HD 2967 compared to the check plot.
3. Due to hailstorm/rain, the crop was affected in some of the plots in Ajmer district. There would be loss of 5-10% in production due hailstorm/rain.
4. There was no display board on the demonstration site due to lack of money with the cooperating centres.
5. The cooperating centres supplied only seed as a critical input due to lack of money, hence, farmers did not apply any herbicide, which would result in yield loss. However, farmers have undertaken manual weeding for weed control. The major weeds prevailed in the visited area were wild oat (*Avena ludoviciviana*), Motha (*Cyperus rotundus*), Bathua (*Chenopodium album*), Gajar Ghas (*Fumaria parviflora*), Hirankhuri (*Convolvulus arvensis*), Krishananeel (*Angallis arvensis*).
6. The cooperating centres could not manage the demonstrations on the road side due to late arrival of seed.
7. Monitoring of front line demonstrations need to be done properly by the cooperating centres for which funds need to be enhanced.

Front Line Demonstrations (FLDs) Monitoring Report of CSAUA&T, Kanpur.

Monitoring Dates : 24.03.2014

Monitoring Team

Dr. Anuj Kumar, Sr. Scientist (Agricultural Extension), DWR, Karnal

Dr. Javed Bahar Khan, Assistant Professor, Plant Pathology, CSAUA&T, Kanpur

Dr. Jitendra Kumar Singh, Assistant Professor (Entomology), CSAUA&T, Kanpur

The team visited CSAUA&T center on 24 March, 2014. The technology i.e. improved or newly released wheat variety (NRWV) with complete package of practices was demonstrated at farmers' fields. Wheat variety DBW 39 was demonstrated and the check varieties were PBW 343, Deva and Halna.

Wheat FLDs Monitored on 24.03.2014

Sri K. K. Singh, Village: Sona, Block: Sarsaul, District: Kanpur Nagar

Sri Chetan Kumar Singh, Village: Sona, Block: Sarsaul, District: Kanpur Nagar

Sri Chandra Kumar Singh, Village: Sona, Block: Sarsaul, District: Kanpur Nagar

Sri Shiv Kumar Singh, Village: Sona, Block: Sarsaul, District: Kanpur Nagar

Sri R. C. Prajapati, Village: Sona, Block: Sarsaul, District: Kanpur Nagar

Sri Jagdish Narayan, Village: Bhailamau, Block: Sarsaul, District: Kanpur Nagar

Sri Ram Shankar Kushwah, Village: Bhailamau, Block: Sarsaul, District: Kanpur Nagar

Sri Babu Kushwaha, Village: Bhailamau, Block: Sarsaul, District: Kanpur Nagar

Observations

The wheat crop of FLD variety DBW 39 was free from insects, pests and diseases. In a field near to FLD, in village Sona, variety HUW 234 was severely infested by brown rust. Broadcasting method of sowing was practiced in most of the visited wheat FLD fields. Infestation of *weeds* was more in the adjoining farmers' fields. The weeds observed were *Phalaris minor* (Mandusi), *Cyprus rotundus* (Motha) and *Chenopodium album* (Bathua).

Common Observations/Feedback at the farmers' fields at CSAUA&T Kanpur center.

- Most of the FLD plots were located near the pucca road and a few were located away from the Pucca road to enable the technology transfer to the farmers of remote villages.
- Weed infestation was not recorded in the FLD fields.
- The demonstration of improved wheat variety had good germination, more tillering, good crop stand and good crop health.
- There was no display board at FLDs sites but farmers shown flash card of the technology.
- The farmers expected more yield (appx. 6 t/ha) from demonstrated variety.
- FLD is recognized as an effective method of transfer of improved wheat production technology.
- The farmers appreciated the advisory service and technical assistance given by the FLD coordinators.
- FLD has been organized in association with a progressive farmers group in the area
- Farmers were telling that they will pull the seed after harvesting and distribute to other members of the group next year.
- The amount of Rs. 100/- per hectare earmarked for "Visit of scientists for hiring of Taxi/POL etc." is very less for the cooperating centre and it should be increased for visiting/monitoring the wheat FLDs at regular intervals.
- The amount of financial assistance under National Food Security Mission (NFSM) for wheat FLDs @ Rs. 5000/- per hectare is very less; it should be increased due to increased cost of inputs (seed, fertilizer, herbicide, pesticide etc.) to cover the total cost of cultivation of wheat crop.
- More number of FLDs should be allotted.

Front Line Demonstrations (FLDs) Monitoring Report of Pusa-Samastipur, Hariharpur-Vaishali and Sokhodeora-Nawada centers.

Monitoring Centre: IARI, Regional Station, Pusa Samastipur (Bihar)

Monitoring Date : 25.03.2014

Monitoring Team :

- 1 Sh. J.K. Pandey, Assistant Chief Technical Officer, DWR, Karnal
- 2 Dr. Uday Singh Pal, T A, Directorate of Rice Development, Patna (Bihar)
- 3 Dr. C. B. Singh, Sr. Scientist (Agronomy), IARI, Regional station, Pusa Samastipur (Bihar)
- 4 Dr. Ashish Kumar Gupta, Sr. Scientist (Plant Pathology), IARI, Regional Station, Pusa Samastipur (Bihar)
- 5 Dr. Mohammed Hasim, Scientist (Agronomy), IARI, Regional Station, Pusa Samastipur (Bihar)

The team visited the Centre and FLDs (Wheat) fields. The technologies i. e. Improved wheat variety, Improved wheat variety with Zero tillage, Improved wheat variety with Bio fertilizer with complete package of practices were demonstrated at Farmer's field. Wheat variety CBW 38 was demonstrated and check variety was HD 2733 & UP 262.

The following observations and suggestions were made through visit of the wheat FLDs farmer's field of the centre.

- The wheat crop of FLDs were free from disease but in the field of Md. Imran Sadri, vill. Shahpur Faizalpur Bhagauni (Block-Tajpur) Leaf Rust traces were found.
- Almost all the fields were free from weeds but few fields were infested with Parthenium, Cannabis sativa (Bhang) & *Phalaris minor* (Mandusi).
- Adjoining Farmer's fields were infested with *Phalaris minor* (Mandusi) & Cannabis sativa (Bhang).
- The crop stand & health was very good.
- The demonstrated sites were easily approachable.
- Neighbouring farmer's demanded to increase the numbers of beneficiaries of FLD (Wheat).
- The farmers were very happy with this variety/ technology and showed interest for further sowing of the variety & adopt the other technology like zero tillage/biofertilizer.
- During the visit we asked about the benefit of zero tillage technology & some of the farmers very much aware about it & explained it very nicely.
- In this area maximum farmers apply two irrigations in wheat and few farmers apply only one irrigation.
- Good linkage between cooperating centre and farmers.

Monitoring Centre: KVK, Hariharpur, Vaishali (Bihar)

Monitoring Date : 26.03.2014

Monitoring Team :

- 1 J K Pandey, Asstt. Chief Technical Officer, DWR, Karnal
- 2 Dr. Uday Singh Pal, T A, Directorate of Rice Development, Patna (Bihar)
- 3 Dr. Sudhir Das, Programme Co-ordinator,
Krishi vigyan Kendra (RAU), Hariharpur, Vaishali (Bihar)
- 4 Dr. Anupma Kumari, Scientist (Agronomy),
Krishi Vigyan Kendra (RAU), Hariharpur, Vaishali (Bihar)

The team visited to the centre and Farmer's field of FLDs (Wheat). At this monitoring centre, the only improved variety technology (NRWV) with complete package of practices were demonstrated in all the farmers field (FLDs). The wheat variety was CBW 38 AND Check variety was PBW 343 .

The following observations and suggestions were made through visit of the wheat FLDs farmers field of the centre.

- The crop stand & health is very good.
- The wheat crop of FLDs was free from disease.
- Almost all the fields are free from weeds.
- Adjoining Farmer's fields infested with *Phalaris minor* (Mandusi) & Cannabis sativa (Bhang).
- The demonstrated sites were easily approachable.
- Neighbouring farmer's demand to increase the nos. of beneficiaries of FLD (Wheat).
- The farmers were very happy with this variety (CBW 38) & showed interest for further sowing of the variety.
- we have requested to Farmers to share seed (CBW 38) & experiences about it to other farmers.
- There was no display of board at FLD Sites.

Monitoring Centre: KVK, Sokhodeora, Nawada (Bihar)

Monitoring Date : 27.03.2014 and 28.03.2014

Monitoring Team :

- 1 J K Pandey, Asstt. Chief Technical Officer, DWR, KARNAL
- 2 Dr. Uday Singh Pal, T A, Directorate of Rice Development, Patna (Bihar)
- 3 Er. S. K. Mishra, Programme Co-ordinator,
Krishi Vigyan Kendra Gram Nirman Mandal, Sokhodeora, Nawada (Bihar)
- 4 Shri Kaushalendra Kumar, Agriculture Co-ordinator, Nawada (Govt. Of Bihar).

The team visited to the centre and Farmer' field of FLDs (Wheat). At this monitoring centre, the only improved variety technology (NRWV) with complete package of practices were demonstrated in all the farmers field (FLDs). The wheat variety was CBW 38 and check variety was PBW 154.

The following observations and suggestions were made during visit of the wheat FLDs farmer's field of the centre.

- The wheat crop stand & health is excellent.
- The wheat crop of all the FLDs was free from disease & weeds.
- The demonstrated sites were on the side of pucca road.
- All the FLDs were well maintained & boards were properly displayed.
- Neighbouring farmer's demand to increase the numbers of beneficiaries of FLD (Wheat).
- All the the farmers were very happy with this variety (CBW 38)/ZT & showed interest for further sowing of the variety including adoption of zero tillage technology.
- We advised to Farmers to share seed (CBW 38) & experiences about seed & technology to other farmers.
- The Linkage between farmers and programme co-ordinator was very good. Farmers were taking keen interest in FLDs (Wheat).
- The farmers appreciated advisory services & technical guidance rendered by the Programme co-ordinator.

Overall observation/feedback at Farmers' fields of IARI, Regional Station, Pusa, Samastipur, KVK, Hariharpur, Vashali and KVK, Sokhodeora, Nawada.

- The farmers appreciated advisory services & technical guidance rendered by the FLDs (Wheat) co-ordinators.
- The demonstration of improved wheat variety have good tillering, very good crop stand & crop health and good impacts of other technologies.
- All the farmers were having perception that the FLD is an effective and proper method of Transfer of Technology for wheat production.
- The fellow & neighbouring farmers of the FLDs were asking about the seed for next growing season.
- The amount for visits/ monitoring of scientist for hiring vehicle/POL etc. is very less for co-operating centre.
- The neighbouring farmers were requesting for more number of FLD may be allotted.

Front Line Demonstrations (FLDs) Monitoring Report of Agharkar Research Institute (ARI), MACS, Pune and Agriculture Research Station, Niphad, Nasik (Maharashtra) centers.

Monitoring Team

Sh. Rajendra Singh, Senior Technical Officer, Directorate of Wheat Research, Karnal.
Sh. Vinay Kumar, S.T.A., Directorate of Cotton Development, Mumbai, Maharashtra.

The following Scientists and Officers joined the team at Pune center.

Dr. S.C. Mishra, Senior Wheat Breeder & Incharge, Genetics Group, ARI, Pune, Maharashtra.

Dr. B.K. Honrao, Wheat Pathologist, ARI, Pune, Maharashtra.

Sh. V.D. Surve, Technical Officer, ARI, Pune, Maharashtra.

Sh. A.M.Chavan, Technical Officer, ARI, Pune, Maharashtra.

6th March 2014, Pune (Maharashtra)

The team visited Agharkar Research Institute, Pune (Maharashtra) center on 6th March, 2014. The technologies like improved or newly released wheat varieties (NRWV) with complete package of practices were demonstrated at farmers' fields. Improved Wheat varieties MACS 6222, MACS 6478 (*T. aestivum*), UAS 515 (*T. durum*) and MACS 2471 (*T. dicoccum*) were demonstrated and the check varieties were Raj 4037, HD 2189, MACS 3125 (*T. durum*) and DDK 1029 (*T. dicoccum*). The following observations and suggestions were made through visit of all farmers' wheat FLD's fields in **Taluka Indapur**- Sh. Vilas Pandharinath Gholave of village Bhavaninagar, Sh. Kalidas Annaso Ingawale of village Songaon, Sh. Somnath Narayan Kumbhar of Village Songaon. **Taluka Baramati**- Sh. Bausaheb Khandu Lakade of village Karanje, Sh. Pravin Tanajirao Sorte of village Magarwadi, Sh. Dattatraya Tanaji Shendkar of village Magarwadi, Sh. Suryakant Vitthalrao Lakade of village Hol (8th Phata), Sh. Subhash Maruti Dhurve of village Sortewadi, Sh. Dattataya Shankar Sorte of village Sortewadi, Sh. Navnath Jagannath Magar of village Hol (8th Phata) and Sh. Shashikant Vilasrao Jedhe of village Wanewadi. **Taluka Phaltan**- Sh. Vilas Mugutrao Kakade of village Rawadi of Pune District.

- The wheat FLD plots were located near the Pucca road and few were located away from the Pucca road to enable the technology reaches the interior side farmers of the villages.
- The wheat FLD crop was free from diseases.
- Line sowing was practiced in all the visited FLD fields.
- Wheat FLD fields were free from any weeds.
- Weed infestation was more in adjoining farmers' fields.
- Display boards were beautifully displayed on all FLD sites.
- The performance of all FLD fields were excellent.
- Neighboring farmers of Wheat FLD plots were much interested to grow improved varieties of wheat in their land and would like to have the seeds from the FLD farmers.
- Some farmers have shown the interest to adopt *T. dicoccum* wheat varieties keeping in view the nutritive and medicinal values of dicoccum wheat in Diabetes and control of Cholesterol level.
- Farmers were very happy to see the performance of the FLD plots. They showed their interest to grow new improved wheat varieties in their fields in future.
- The cooperation and coordination between wheat farmers and Incharge of center and other officers was very good.
- The demonstrated improved new wheat varieties have very good germination, more tillering, uniform and good crop stand, no lodging, good crop health, disease resistance, compact earhead, more number of grains in earhead, bold and lustrous grains, high grain and straw yield which provided good returns to the farmers than the check varieties grown in adjoining fields.

- The farmers expected more yield from the improved varieties than the old or local varieties.
- FLD is recognized as an effective method of transfer of improved wheat production technology.
- The farmers appreciated the advisory service and technical assistance given by the FLD coordinators.
- The amount of rupees 100/ per hectare earmarked for “visit of Scientists for hiring of Taxi/POL etc.” is very less for the cooperating center, it should be increased for visiting/monitoring of the wheat FLDs at regular intervals.
- The amount of financial assistance under National Food Security Mission (NFSM) for wheat FLDs @ rupees 5000/ per hectare is very less; it should be increased due to increased cost of inputs (seed, fertilizers, weedicides, pesticides etc.) to cover the cost of cultivation of wheat crop.
- The wheat seed for conducting FLDs should be arranged and provided by the Directorate of Wheat Research, Karnal.
- More number of FLDs should be allotted.

8th-9th March 2014, Niphad, District-Nasik (Maharashtra)

Monitoring Team

Sh. Rajendra Singh, Senior Technical Officer, Directorate of Wheat Research, Karnal.
Sh. Vinay Kumar, S.T.A., Directorate of Cotton Development, Mumbai, Maharashtra.

The following Scientists and State Officers joined the team at Niphad center.

Dr. K.P. Deolankar, Wheat Agronomist, Agriculture Research Station, Niphad, Nasik, Maharashtra.

Sh. Deoji Borse, Technical Officer, O/o District Supdt. Agriculture Officer, District Dhule, Maharashtra.

Sh. Bhalchandra Desale, Taluka Agriculture Officer, Shirpur, District Dhule, Maharashtra.

The team visited Agriculture Research Station, Niphad center on 8th-9th March, 2014. The technologies like improved or newly released wheat varieties (NRWV) with complete package of practices were demonstrated at farmers’ fields. Improved Wheat Varieties NIAW 1415, WHD 948 (*T. durum*) were demonstrated and the check varieties were Lok-1, Ajit 302, Nirmal-10 and Mohan Wonder. The following observations and suggestions were made through visit of all farmers’ Wheat FLD’s fields in Taluka Shirpur, District Dhule, Sh. Vinayak Kautik Deware, Sh. Pradip Vasudev Vani, Sh. Revannath Dhondur Patil, Sh. Shantaram Mansaram Borse, Sh. Chothmal Bhagchand Jain, Sh. Somji Uttam Koli, Sh. Devji Uttam Koli, and Smt. Annapurna Devaji Koli of village Waghadi. Sh Nandusing Jagansing Rajput of village & Taluka Shirpur, Sh Dilip Dagadu Patel of village Bharwade.

- The wheat FLD plots were located near the Pucca road and few were located away from the Pucca road to enable the technology reaches the interior side farmers of the villages.
- The wheat FLD crop was free from diseases.
- Line sowing was practiced in all the visited FLD fields.

- Weed infestation was negligible or very less in the wheat FLD fields.
- The cooperation and coordination between farmers and Wheat In charge of center was very good.
- Weed infestation of *Partheniam* grass were more in adjoining farmers' fields.
- Neighboring farmers of Wheat FLD plots were much interested to grow improved varieties of wheat in their land and would like to have the seeds from the FLD farmers.
- There were no display boards in FLD sites due to insufficient funds.
- The performances of all FLD fields were very good.
- The demonstrated improved new wheat varieties have very good germination, more tillering, uniform and good crop stand, no lodging, good crop health, disease resistance, compact ear head, more number of grains in earhead, bold and lustrous grains, high grain and straw yield which provided good returns to the farmers than the check varieties grown in adjoining fields.
- The farmers expected more yield from the improved varieties than the old or local varieties.
- Front Line Demonstration (FLD) is recognized as an effective method of transfer of improved wheat production technology.
- All the FLD farmers treated the wheat seeds with Bio-fertilizers (Azotobactor and Phosphorus Solubilizing Bacteria), the free living organisms which fix atmospheric nitrogen and improve the solubility of phosphorus in soil by saving the energy.
- The farmers appreciated the advisory service and technical assistance given by the FLD coordinators.
- .
- The amount of rupees 100/ per hectare earmarked for “visit of Scientists for hiring of Taxi/POL etc.” is very less for the cooperating center, it should be increased for visiting/monitoring the wheat FLDs at regular intervals.
- The amount of financial assistance under National Food Security Mission (NFSM) for wheat FLDs @ rupees 5000/ per hectare is very less, it should be increased due to increased of cost of inputs (seed, fertilizers, weedicides, pesticides etc.) to cover the cost of cultivation of wheat crop.
- More number of FLDs should be allotted.
- A Field Day was organized on 8th March 2014 at wheat FLD site in village - Shirpur, District - Dhule. A number of farmers assembled in the field of the FLD farmer and a Kisan Goshthi was organized in which the queries of the farmers were replied on the spot. Farmers were very happy to see the performance of the FLD plots. They showed their interest to grow new improved wheat varieties in their fields in future.

**Monitoring of Wheat FLDs at Dharwad, Bagalkot and Wellington Centres
Monitoring Period from 10.03.2014 to 16.03.2014**

**Monitoring Center : Dharwad
Monitoring Team**

1. Dr. R. Sendhil, Scientist, Social Sciences Unit, DWR, Karnal
2. Dr.V. Rudra Naik, Professor and Head, FLD Coordinator,
Dr.Sanjaya Rajaram Wheat Laboratory, University of Agricultural Sciences, Dharwad
3. Shri. S.S. Kagi, Technical Officer, Directorate of Oilseeds Development, Hyderabad

Technologies like improved or newly released bread wheat variety (MACS 6222) and INM with bio-fertilizer (Azospirillum and PSB) were demonstrated at farmers' field.

Similar to last crop year, MACS 6222 was demonstrated against DWR 162 as an improved bread wheat variety. Further, UAS 415 was demonstrated against DWR 185 for INM with bio-fertilizer (Azospirillum and PSB). The following observations were made during the overall monitoring and discussion with FLD farmers' viz., Shri.Basavannappa Mallappa Ballur, Shri.Mallappa and Shri.Thimmareddy, by the Dharwad centre monitoring team.

- FLD plots were selected across Dharwad, Bagalkot, Belgaum and Gadag district. All the monitored plots were closer to the pucca road so that the technology demonstrated shall be visible to other farmers.
- As per the discussion with the farmers it was known that line sowing using seed drill was practiced in all the fields. Around 120kg of seed was used per hectare which is more than the recommended seed rate.
- Farmers said that the test varieties resulted in good germination and uniform crop growth with more tillers and grains per spike.
- Harvesting was done in all the monitored plots. However, the harvested stalks have been threshed with a precaution of expected rainfall in a couple of days. Farmers expect a yield around 16-20 q/acre.
- The demonstration for INM with bio-fertilizer application shall not give precise results as the genotype selected for test and check varied which should be invariably same. Hence, they can be rejected for further analysis.
- Farmers said that they have not done seed treatment and not applied any other plant protection chemicals.
- None of the farmers applied fertilizers as per the recommended dose. Shri.Mallappa said that he applied 2 bags of Urea and 2 bags of DAP per hectare and Shri.Thimmareddy applied 1 bag of Urea and 1 bag of DAP per acre. They are not aware of the level of nutrients in each bag.
- Shri.Mallappa said that he has given around 8 irrigations to the wheat crop (maximum six irrigations are advisable under optimum water availability).
- Unanimously FLD farmers alarmed that the current year wheat price will be marginally down in comparison to 2012-13 as they expect a good output.
- Farmers valued the demonstrations of new wheat production technologies via FLDs as the improved wheat varieties performed better and gave more yields than the local check varieties. They appreciated the technical assistance and advisory offered by the Dharwad centre. They are interested to continue wheat cultivation even if the assistance from FLDs is stopped.

Monitoring Centre : Bagalkot

Monitoring Team

1. Dr. R. Sendhil, Scientist, Social Sciences Unit, DWR, Karnal
2. Dr.K.B. Yadahalli, Pathologist (SMS), Krishi Vigyan Kendra, Bagalkot
3. Shri. S.C. Angadi, Soil Scientist (PA), Krishi Vigyan Kendra, Bagalkot
4. Shri. S.S. Kagi, Technical Officer, Directorate of Oilseeds Development, Hyderabad
5. Dr.V Rudra Naik, Professor and Head, FLD Coordinator, Dr.Sanjaya Rajaram Wheat Laboratory, University of Agricultural Sciences, Dharwad

Newly released wheat variety WHD 948 (d) was demonstrated against DWR 162 which is susceptible to rusts. The following observations were made during the overall

monitoring and discussion with Smt.Sridevi Handral. Shri.SS.Kagi monitored FLD plots of Shri.Suresh T Deshtota, Shri.Basavraj, Shri.Shankar P.Deshtota, Shri.Yallappa R.Deshtota, Shri.Mahesh Satteppa and Shri.Ramesh Satteppa from Terdal village.

- Ten FLD plots were selected across Bagalkot district. The monitored plot (Smt.Sridevi Handral) was adjacent to the main road so that the technology demonstrated shall be visible to other farmers.
- The crop in field is almost matured and nearing the harvest. However, in few field area, lodging was noticed which is attributed to the past storm.
- Few off-type plants were also noticed in the field.
- As per the discussion with the farmer it was known that 40kg/acre was used as a seed rate and broadcasted across the FLD plot.
- Farmer said that the test variety (WHD 948) was resistant to rust unlike the check variety (DWR 162).
- Fertilizer was not applied as per the recommended dose. Two bags of urea and 2 bags of DAP along with 1 bag of soil conditioner were applied for both test and check plots comprising 1.5 acres (FLD Plot: 1 acre and Check Plot: 0.5 acre)
- Expecting a yield around 10-12 q/ac for WHD 948 and 8q/ac for DWR 162 through manual harvesting.
- Seed treatment was not done and not applied any plant protection chemicals.
- Four irrigations were given to the wheat crop.
- The expected yield (20 q/ac) from FLDs conducted in Terdal village has been identified or bookmarked for highest production award by the State Department of Agriculture despite lodging of crops due to untimely rain. Farmers opined that the test variety (WHD 948) is susceptible to lodging in comparison to the check variety, DWR 162. Sowing was done by hand dibbling (around 18 labourers) and there is no incidence of pests and diseases. Fertilizers were not applied at recommended doses.
- Technical assistance and advisory offered by the Bagalkot KVK was appreciated and the farmer is interested to continue wheat cultivation in the coming years.

Monitoring Centre : Wellington

Monitoring Team

1. Dr. R. Sendhil, Scientist, Social Sciences Unit, DWR, Karnal
2. Dr. P. Jayaprakash, Senior Scientist, FLD Coordinator Wellington Centre, IARI Regional Station, Wellington

Newly released wheat varieties like COW (W) 1, HW 1098 and HW 5216 were demonstrated by the Wellington centre across eight districts giving a wide coverage to the farmers. Following were the observations recorded during the overall monitoring of wheat FLDs and discussion with Shri.M.Srinivasan, Shri.P.Ramkumar and Shri.B.Ranganathan.

Shri.B.Ranganathan followed line sowing (25 cent or 0.25 acre @ 10kg seeds) and intercropped with Amla. The crop stand was good with more tillers. However, he faced rodents and peacock problem.

- He gave around 10 irrigations and didn't apply any chemical fertilizer or plant protection chemicals barring rodent damage for which he applied Celphos (Aluminium phosphide).
- Only manures were applied @ 2000 kg FYM, 50 kg neem cake, 1 kg Azospirillum, 1 kg PSP, 2 kg VAM and 1 kg *Pseudomonas* for 25 cent.
- The FLD plot is being harvested and threshed manually while monitoring and he expected around 300-250 kg/ 25 cent.
- The FLD plot of Shri.M.Srinivasan at Udumelpet was harvested and he reported weeds as a menace and cumbersome to manage.
- He broadcasted seed @ 20kg per acre and irrigated his field 3 times.
- Urea @ 0.75 bag, DAP @ 0.66 bag and MOP @ 0.66 bag were applied per acre.
- He got around 1560kg/acre and expects to sell @ INR 3000/60kg bag (or INR 5000/Quintal).
- Shri.P.Ramkumar sown wheat as an intercrop in coriander field. His FLD plot was completely damaged due to lack of irrigation and poor management of the farmer.
- Despite the marketing constraints, FLD farmers acknowledged the FLD Coordinator for popularizing wheat variety in their area and two of the three farmers shown interest to continue wheat production for their home consumption.

Suggestions by FLD Coordinators' and Farmers for betterment of the programme

- Early allotment of FLDs and release of fund for better conduct of FLDs.
- Further, funds should reach the operation center before the start of the crop season so that FLDs can be planned and organised in time and efficient way.
- Seeds should be timely supplied and sown for getting better yield.
- The SFCI has supplied 3.2q seed of HW 5216 which was very helpful for conducting FLDs by the Wellington centre. This station is not suitable for seed production because of bird damage and hence the local demand of seed cannot be met. In future also SFCI support is requested for the better conduct of FLDs.
- More grants may be allotted for travel/monitoring as the places/FLD sites are far off from the main FLD centres.
- Monitoring of FLDs before the crop harvest (Mid-February) is desirable.
- The grant per FLD has to be increased. Fertilizers and other major physical inputs should be covered.
- Farmers demand for assured market to sell their harvested produce. They need a proper procurement system as MSP is not operational. Government should procure the produce at a remunerative price. However, the market price is much higher than the MSP announced by the Central Government.

Table 17 : Improved Wheat Varieties Planted in Various Zones in WFLDs

Zone	Varieties
NHZ	HPW 349, VL 907, HS 507
NEPZ	DBW 39, CBW 38, KRL 213
NWPZ	HD 2967, DBW 71
CZ	MP 3288, HI 1544, GW 11, Raj 4238, MP 3336, GDW 1255 (d), HI 8627 (d), HI 8663 (d), HI 8713 (d)
PZ	MACS 6222, AKAW 4627, NIAW 1415, HI 1544, MACS 6478, WHD 948 (d), UAS 415 (d), MACS 2971 (dicoccum)
SHZ	COW (W)-1, HW 5216

Table 18: Zone wise Distribution of Popular Wheat Varieties

Zone	Popular Wheat Varieties
NHZ	Local, HPW 155, HPW 184, Raj 3765, Raj 3777, PBW 550, PBW 502, HS 240, HS 295, VL 616, VL 892, VL 829, HPW 236, HPW 249, Daulat Khani, VL 907, HS 375, HS 507, SW 1, Sonalika, Kanaku, DPW 621-50, HD 2967
NEPZ	PBW 154, PBW 373, K 307, PBW 343, UP 262, HD 2733, PBW 502, Local, Sonalika, Halna, NW 2036, NW 1014, NW 1067, Dewa, K 9107, Mahi, HD 2643, HD 2985, Molla, PBW 550.
NWPZ	PBW 343, Raj 3765, Raj 3077, Raj 1482, DBW 17, PBW 550, PBW 502, WH 711, HD 2967, DPW 621-50, HD 2851, WH 542, HD 2932, DBW 16, DBW 14, WH 283, WH 147, HD 2733, WH 1105, DPW 621, PBW 373, Barbat, Raj 4079, Raj 4037, PBW 226, PBW 590, UP 2565, UP 2338
CZ	Lok 1, Raj 3765, Raj 4037, Raj 3077, GW 322, GW 273, GW 496, Sujata, MP 4010, Sarbati, WH 147, C 306, HI 1544, GW 366, HI 1500, HI 8498 (d)
PZ	Lok 1, HD 2189, DWR 162, NIAW 34, Mohan Wonder, Ajit 302, NIAW 301, DWR 185, Nirmal 10, Gold 23
SHZ	COW (W)-1

Wheat Front Line Demonstrations at DWR, Karnal Centre

During 2013-14, the WFLDs of HD 2967 variety were conducted in ten hectares area in the villages namely Gandhinagar, Garhi Sadhan, Khanpur, Chhapper in district Karnal and villages namely Urjani and Kalesar in Yamunanagar district. Bio-fertilizer, Chemical control of yellow rust and varietal demonstrations were conducted with a complete package of practices.

Constraints analysis in different wheat producing zones of India during 2013-14

There has been continuous increase in wheat production in recent years, and during last crop season 2013-14 it has touched all time high production level of 95.85 million tons (Third advance estimate). There is a variation in yield levels among different states, farmers and farms leading to yield gap in different states and different zones. There are many reasons of this yield gap which need to be addressed for sustainable wheat production. Through constraint analysis effort has been made to identify constraints impeding wheat production in different parts of the country.

Methodology

An inventory of constraints impeding wheat production in the country was developed after thorough review of literature and taking experts' opinion. Data were collected on a well designed pre-structured questionnaire mailed to all the coordinating centres conducting wheat Front Line Demonstrations. The responses were collected on a three point continuum viz; Most Serious, Serious and Not Serious constraints. The scores were assigned as 3, 2, 1 for the most serious, serious and not serious constraints, respectively. Based on total score the average score for each constraint was calculated to ascertain seriousness of each constraint and finally ranking was done.

Northern Hills Zone (NHZ)

In northern hills zone (Table 15), small land holdings, yellow rust, high cost of inputs, non availability of seeds of newly released varieties, imbalance use of fertilizers, late sowing, lack of knowledge among farmers about recent technologies, lack of facility of canal irrigation water, untimely rain/ erratic rainfall/ weather vagaries, poor soil fertility, *Phalaris minor*, *Avena ludoviciana* (Jangali Jai), lack of irrigation facilities, poor quality seeds, *Chenopodium album* (Bathua) were some of the major constraints perceived by the farmers.

Table 19 : Constraints of NHZ

n= 84

Constraints	Score	Rank
Small land holdings	203	I
Yellow rust	193	II
High cost of inputs	180	III
Non-availability of seed of newly released variety	169	IV
Imbalanced use of fertilizer	165	V
Late sowing	163	VI
Lack of knowledge among farmers about recent technologies	163	VI
Low organic matter	162	VII
Lack of facility of canal irrigation water	158	VIII
Untimely rain/ erratic rainfall/ weather vagaries	154	IX
Poor soil fertility (NPK)	154	IX
<i>Phalaris minor</i>	153	X
<i>Avena ludoviciana</i> (Jangali Jai)	152	XI
Lack of irrigation facilities	143	XII
Poor quality seeds	142	XIII
<i>Chenopodium album</i> (Bathua)	137	XIV

North Eastern Plains Zone (NEPZ)

Realizing the potential of north eastern plains zone, all categories of constraints need to be addressed immediately for achieving the targets of second green revolution. Among major constraints of this zone, yellow rust was ranked first followed by loose smut, powdery mildew, Karnal bunt, aphid, termite, Lack of knowledge among farmers about recent technologies, stem borer. In NEPZ too infestation of wheat field with weeds such as *Phalaris minor*, *Cyprus rotundus* (Motha), *Chenopodium album* (Bathua), *Avena ludoviciana* (Jangali Jai), *Malva parviflora* (Chughra), *Convolvulus arvensis*

(Hirankhuri), *Rumex dentatus* (Jangali Palak) were also perceived as major constraints. Farmers need to be educated and trained on weed management strategies in future to tackle weed problem.

Table 20: Constraints in NEPZ

n= 238

Constraints	Score	Rank
Yellow rust	443	I
Loose smut	385	II
Powdery mildew	331	III
Karnal bunt	328	IV
Aphid	315	V
Termite	308	VI
Lack of knowledge among farmers about recent technologies	267	VII
Stem borer	258	VIII
<i>Phalaris minor</i>	253	IX
<i>Cyprus rotundus</i> (Motha)	219	X
<i>Chenopodium album</i> (Bathua)	213	XI
<i>Avena ludoviciana</i> (Jangali Jai)	213	XII
<i>Malva parviflora</i> (Chughra)	198	XIII
<i>Convolvulus arvensis</i> (Hirankhuri)	198	XIII
<i>Rumex dentatus</i> (Jangali Palak)	183	XIV

North Western Plains Zone (NWPZ)

In NWPZ, *Phalaris minor* (Mandusi), non-availability of electricity, high cost of inputs, non-availability of seed of newly released variety, low price of wheat, small land holdings, *Chenopodium album* (Bathua), non availability of labour, lack of facility of canal irrigation water, erratic power supply, high temperature at maturity, yellow rust, poor quality seeds, low organic matter, termite and imbalanced use of fertilizer were perceived as major constraints in this zone.

Table 21 : Constraints of NWPZ

n= 212

Constraints	Score	Rank
<i>Phalaris minor</i>	427	I
Non-availability of electricity	425	II
High cost of inputs	421	III
Non-availability of seed of newly released variety	384	IV
Low price of wheat	382	V
Small land holdings	380	VI
<i>Chenopodium album</i> (Bathua)	377	VII
Non availability of labour	372	VIII
Lack of facility of canal irrigation water	367	IX
Erratic power supply	365	X
High temperature at maturity	361	XI
Yellow rust	353	XII
Poor quality seeds	346	XIII
Low organic matter	337	XIV
Termite	336	XV
Imbalanced use of fertilizer	332	XVI

Central Zone (CZ)

In central zone, high temperature at maturity, high cost of inputs, water stress, *Phalaris minor*, *Avena ludoviciana* (Jangali Jai), non availability of labour, low organic matter, Zn deficiency, lack of irrigation facilities, *Cyprus rotundus* (Motha) were major constraints.

Table 22: Constraints in CZ

n= 134

Constraints	Score	Rank
High temperature at maturity	242	I
High cost of inputs	238	II
Water stress	232	III
<i>Phalaris minor</i>	224	IV
<i>Avena ludoviciana</i> (Jangali Jai)	220	V
Non availability of labour	211	VI
Low organic matter	201	VII
Zn deficiency	198	VIII
Lack of irrigation facilities	196	IX
Erratic power supply	191	X
<i>Cyprus rotundus</i> (Motha)	188	XI
Small land holdings	188	XI
Imbalanced use of fertilizer	185	XII
Lack of knowledge among farmers about recent technologies	179	XIII
<i>Convolvulus arvensis</i> (Hirankhuri)	175	XIV

Peninsular Zone (PZ)

In peninsular zone, low price of wheat, poor quality of fertilizers, high temperature at maturity, poor quality seed, non availability of seed of newly released variety and erratic power supply were the major constraints faced by wheat growers.

Table 23: Constraints in PZ

n= 59

Constraints	Score	Rank
Low price of wheat	108	I
Poor quality fertilizers	102	II
High temperature at maturity	94	III
Poor quality seeds	91	IV
Non-availability of seed of newly released variety	91	IV
Erratic power supply	85	V
Water stress	84	VI
Lack of irrigation facilities	83	VII
Problem in marketing of wheat	83	VII
Late sowing	81	VIII
Non-availability of electricity	80	IX
Rodents	80	IX
Non availability of nitrogenous and phosphatic fertilizers	79	X
Low organic matter	79	X

Southern Hills Zone (SHZ)

In SHZ, the major constraints were high temperature at maturity, declining water table, untimely rain, birds, yellow and loose smut.

Table 24: Constraints in SHZ

n= 34

Constraints	Score	Rank
High temperature at maturity	56	I
Declining water table	54	II
Untimely rain/ erratic rainfall/ weather vagaries	40	III
Birds	39	IV
Yellow rust	35	V
Loose smut	35	V
Powdery mildew	35	V
Karnal bunt	35	V
Aphid	35	V
Termite	35	V
Stem borer	35	V
Leaf folder	35	V
Lack of knowledge among farmers about recent technologies	35	V
<i>Phalaris minor</i>	35	V
<i>Cyprus rotundus</i> (Motha)	35	V
<i>Chenopodium album</i> (Bathua)	35	V

Overall constraints

The overall constraint analysis revealed that yellow rust is the most serious constraint in the country during 2013-14 rabi season followed by *Phalaris minor*, high cost of inputs, loose smut, non-availability of seed of newly released variety, low price of wheat, small land holdings, bathua, non availability of labour, lack of knowledge among farmers about recent technologies, erratic power supply, high temperature at maturity, poor quality seeds, low organic matter, termite and imbalanced use of fertilizer. Except biotic constraints such as yellow rust, *Phalaris minor*, loose smut, *Chenopodium album* and termite other constraints were administrative in nature which require immediate intervention by Government to increase wheat production in the country.

Table 25: Overall constraints

Constraints	Score	Rank
Yellow rust	443	I
<i>Phalaris minor</i>	427	II
High cost of inputs	421	III
Loose smut	385	IV
Non-availability of seed of newly released variety	384	V
-Low price of wheat	382	VI
Small land holdings	380	VII
<i>Chenopodium album</i> (Bathua)	377	VIII
Non availability of labour	372	IX
Lack of knowledge among farmers about recent technologies	267	X
Erratic power supply	365	XI
High temperature at maturity	361	XII
Poor quality seeds	346	XIII
Low organic matter	337	XIV
Termite	336	XV
Imbalanced use of fertilizer	332	XVI

**Costs and Returns - Wheat FLDs
vis-à-vis Check Plots**

Costs and Returns - Wheat FLDs vis-à-vis Check Plots

Success of any crop production technology depends on its economic feasibility and profitability which in turn relies on the income generating capacity and its cost structure. In this section, costs and returns analyses of FLDs of latest technologies that are tested in farmers' field during 2013-14 have been attempted. Economic viability of a technology is the most important and visible indicator for its acceptance and adoption, which could be arrived at by estimating the expenses incurred at different operations and market value of the benefits derived from the technology. Generally in any economic study, total costs are discussed under two categories *viz.*, variable costs and fixed costs, the widely adopted norm. Nevertheless, variable costs alone are reckoned to be the cost incurred by the adopters ignoring the fixed costs. The profit and loss too are worked out accordingly. But in any economic analysis of farm business, the fixed costs should be taken into consideration to arrive at total costs and thereby to compute the net income. However, in the present analysis only operational or variable costs were considered to know the profitability of technology adoption. Operational costs include expenses on labour employed to perform different cultural operations and expenses incurred on material inputs *viz.*, seeds, FYM, fertilizers, plant protection chemicals *etc.* The returns over variable costs give an idea of profitability accrued to the farmer after meeting all the working expenses. Profits were worked out for FLDs and Check plots for a better comparison. Cost of production was also estimated to know the cost incurred in producing a unit quantity of output. Returns per rupee of investment were also worked out to know the profitability in cultivation.

Data Collection

Primary data were collected by the cooperating centres from the selected farmers who were allotted with FLDs. Personal interview method has been adopted with the aid of pre-tested schedules designed exclusively for the purpose evaluating the technologies disseminated through FLDs. The data collected pertained to the agricultural year 2013-2014 and were compiled at the Directorate of Wheat Research for further analysis. Every effort was made by the FLD coordinators to collect realistic data from the sample farmers and unrealistic data from the centres were deleted.

Estimation of Costs and Returns

Perusal of Table 21 indicates that on an average, FLDs produce better returns in comparison to check varieties. In the case of Tamil Nadu (SHZ), the costs and returns from wheat check varieties were not estimated as wheat was not grown in the selected farm where the FLDs were conducted.

Table 21. Costs and Returns from Wheat during 2013-14

Particulars	Cost of Cultivation (₹/ha)						Returns per ₹ invested		Cost of Production (₹/Qt)	
	Operational Costs		Gross Returns		Profit		FLD	Check	FLD	Check
	FLD	Check	FLD	Check	FLD	Check				
State										
Assam	22646	22289	52475	42712	29829	20423	2.32	1.92	910	1093
Bihar	22042	21983	66884	58469	44841	36485	3.03	2.66	591	674
Chhattisgarh	16033	14675	49789	41481	33756	26806	3.11	2.83	634	729
Delhi	35193	33728	103498	91153	68305	57424	2.94	2.70	704	775
Gujarat	19299	19285	74931	71435	55632	52150	3.88	3.70	440	467
Haryana	26855	24479	101085	100842	74230	76363	3.76	4.12	476	437
Himachal Pradesh	34661	33172	65461	52952	30801	19780	1.89	1.60	1241	1440
Jammu & Kashmir	18396	17596	50855	38754	32459	21158	2.76	2.20	571	713
Jharkhand	36440	31226	48341	41834	11902	10608	1.33	1.34	1254	1383
Karnataka	29368	29018	78639	69568	49272	40550	2.68	2.40	864	967
Madhya Pradesh	17028	15908	84637	52766	67609	36857	4.97	3.32	399	521
Maharashtra	25722	22886	74369	66338	48647	43452	2.89	2.90	727	757
Punjab	23765	24330	94355	92236	70591	67906	3.97	3.79	469	496
Rajasthan	35566	31652	99313	86404	63748	54752	2.79	2.73	710	714
Tamil Nadu	10682	NE	62462	NE	51780	NE	5.85	NE	439	NE
Uttar Pradesh	30244	29815	103544	92800	73301	62985	3.42	3.11	614	660
Uttarakhand	20587	21007	64776	52321	44189	31314	3.15	2.49	557	878
West Bengal	31944	31164	69352	46648	37408	15484	2.17	1.50	947	1091
Zone										
CZ	23261	21305	79111	61677	55850	40371	3.40	2.89	554	616
NEPZ	27803	25806	65845	54290	38042	28484	2.37	2.10	844	947
NHZ	28053	26670	59348	46726	31294	20056	2.12	1.75	1015	1218
NWPZ	28431	27940	94456	86953	66026	59014	3.32	3.11	565	627
PZ	27883	27146	70268	60971	42385	33825	2.52	2.25	823	900
SHZ	10682	NE	62462	NE	51780	NE	5.85	NE	439	NE
Technology										
Bio-fertilizer	29600	28538	97629	92863	68028	64325	3.30	3.25	588	606
Bio-fertilizer (Durum)	35296	35296	76175	71893	40879	36597	2.16	2.04	975	1036
Durum	31305	30559	93203	72048	61899	41489	2.98	2.36	706	836
Rotavator	27125	28232	102345	99943	75219	71711	3.77	3.54	501	534
Improved Wheat Variety	25596	24997	71555	61163	45959	36166	2.80	2.45	733	849
Zero Tillage	21695	24012	81844	79002	60150	54989	3.77	3.29	501	590
Chemical control of yellow rust	23191	22538	94790	94442	71599	71904	4.09	4.19	426	419
Happy seeder	20800	23700	92503	96103	71703	72403	4.45	4.05	410	448
Sprinkler	39360	32360	123840	125500	84480	93140	3.15	3.88	660	536
All Categories										
India	26349	25741	75878	65845	49529	40103	2.88	2.56	716	819

Note: NE indicates that check varieties were not grown and hence costs and returns were not estimated.

A significant difference in returns per rupee of investment was noticed between FLD and check plots across states, zones and technologies. Among states, Tamil Nadu registered the highest returns per rupee of investment (₹ 5.85), followed by Madhya Pradesh and Punjab. It is evident from the table that per hectare profit in FLDs among states was highest in Haryana (₹ 74230), followed by Uttar Pradesh (₹ 73301) and Punjab (₹ 70591). However, profit from check was more in Haryana relative to FLD which is

due to higher cost of sprinkler demonstration conducted by the KVK, Bhiwani (Haryana). Interestingly, operational costs in Punjab and Uttarakhand were lower in FLDs than check plots. The possible reason was in Punjab, demonstration of improved varieties reduced the cost on weedicides and insecticides. Similarly in the case of Uttarakhand, demonstration of zero tillage had a significant impact on cost reduction of FLDs conducted by the Pantnagar centre. Estimates of cost of production indicated that the cost incurred in producing a unit quantity of output was less in traditional wheat growing states and zones with the exception of Tamil Nadu due to the likelihood of getting more yield. Among wheat growing zones, returns per rupee of investment was highest in SHZ due to less operational costs in raising the crop. Wheat is not a main crop of SHZ and it is grown generally with a fewer irrigations. Fortunately the crop season has encountered a good monsoon which resulted in a good yield. CZ also realized a good return per rupee of investment which is mainly due to the incentives offered during procurement in addition to the support price given by states like Madhya Pradesh.

Among wheat production and protection technologies, happy seeder and chemical control of rust gave a good profit. However, the results were not consistent across sites owing to testing of particular technology in different locations of diverse soil properties. Among technologies, sprinkler irrigation conducted by the KVK, Bhiwani (Haryana) resulted in higher operational costs due to its establishment charges. Overall, on an average, an Indian farmer by adopting a new wheat variety or production/protection technology will get ₹ 2.88 per rupee of investment in his/her farm. Further, ₹ 716 have to be spent to produce a quintal of wheat through adoption of a new wheat variety or production/protection technology in comparison to ₹ 819 which is estimated from check varieties.

Overall, the analyses on costs and returns indicated that profit per hectare from FLDs was more than the check varieties establishing the fact that FLDs carry the successful technologies from lab to land. However, the present estimates are only the indicators for comparison for the current year without giving room for concrete conclusions. It may not have a complete relevance to the previous year estimates as the demonstrations were conducted in different sites/locations and mostly not repetitive in nature. Further, the difference in profits estimated from wheat cultivation is subject to farm-farmer-region specific conditions as it varies from one another.

Technology Outreach Programme

Technology Outreach Programme

Training Organized

- Six ARS probationers had undergone Field Experience Training (FET) for a period of 21 days from 19 August 2013 to 8 September 2013 at DWR, Karnal.
- Four days training on “Gujarat rajya mein gehoon ki vigayanuk kheti” from 18-21 November 2013 for 56 farmers of Banaskantha district of Gujarat, at DWR, Karnal.
- One day training-cum-visit programme on “Wheat cultivation” for the 42 farmers of Junagarh on 30 November 2013 at DWR, Karnal.
- Organized training cum awareness programme for farmers under DWR-ICAR-ICARDA Project (3.6 Barley) in Chimanpura, Chomu, district Jaipur, Rajasthan on 15 March 2014 in collaboration with SAB Millers.
- Organized training cum awareness programme for farmers under DWR-ICAR-ICARDA Project (3.6 Barley) in Gurusar, Bathinda (Punjab) on 27 March 2014 in collaboration with UB, Patiala.
- One day training programme on product making for 25 farmers of Pune district, Maharashtra on 26 February 2014 at DWR, Karnal

Organized Kisan Mela/ Farmers’ Day/Seed Day/Awareness Programme

- Innovator cum seed day was organized on 15 October 2013. More than five hundred farmers participated in this programme. Dr RS Paroda, Chairman, Haryana Farmers’ Commission, & Former DG, ICAR & Secretary DARE was the chief guest. Seed was provided to the farmers at reasonable price.
- Organized Kshetriya Kisan Mela at Yamunanagar on 25 September 2013 in collaboration with State Department of Agriculture, Haryana. More than 2000 farmers participated.
- Organized farmers’ awareness programme on PPV &FR at Kalesar, Yamunanagar on 28 January 2014.
- Organized farmers’ day at Kalesar, Yamunanagar on 28 January 2014.

Exhibition organized/ participated

- Organized exhibition on the occasion of Innovator-cum-seed day at Directorate on 15 September 2013.
- Organized and participated in exhibition at Kshetriya Kisan Mela at Yamunanagar on 25 September 2013 in collaboration with state Department of Agriculture, Haryana. More than 2000 farmers participated.
- Participated in the district level Kisan Mela held at Jat College Ground, Kaithal on September 28, 2013. A large number of farmers visited DWR, Stall. The farmers’ queries were replied.
- Participated in the exhibition organised by state Department of Agriculture, Haryana on January 19, 2014 during Rajya Stariya Kisan Mela (State Level Farmers’ Fair) held at Government Polytechnic Ground Jhajjar.
- Participated in Buffalo Mela held at CIRB, Hisar on February 01, 2014.
- Participated in exhibition at Sugarcane Mela at SBI Regional station, Karnal on 5 February 2014.
- Participated in exhibition at Krishi Vasant 2014 held at CICR, Nagpur on 9-13 February 2014.
- Participated in Pusa Krishi Vigyan Mela (February 26-28, 2014) by IARI, New Delhi.
- Participated in the exhibition organized during Progressive Punjab Agriculture Summit-2014 held during 16-19 February, 2014 at Fateh Burj, Baba Banda Singh Bahadur War Memorial, Chappar Chiri, SAS Nagar, Mohali, Punjab.
- Participated in exhibition at Rashtriya Dairy Mela in NDRI, Karnal during 25-28 February 2014.
- Participated in exhibition at Rabi Kisan Mela at CSSRI, Karnal on 10 March 2014.

TV/Radio Talk

- “Phone In” live TV talk on 7th November 2011 from Delhi Doordarshan in Krishi Darshan program.
- TV talk on wheat front line demonstrations and PPV&FR in Krishi Darshan, Delhi Doordarshan on 3 February 2014.

Lectures Delivered by

- “Extension skill for faster adoption of DSR and others CA based RCTs” at CCSHAU, Uchani on 23rd May during training organized by CCSHAU, Hisar at RRS, Uchani from 23 September to 2 October 2013.
- Invited Guest speaker at Farmers’ workshop during 9th International Agriculture Horticulture Expo 2013 at New Delhi.
- Lecture delivered to 50 ADOs of Haryana on 31 May 2013 at DWR, Karnal.
- “Wheat Production Technologies” in Mela organized by State Department of Agriculture, Sambhal, UP on 29 September 2013.
- “Factor affecting in adoption of technology and positive attitude” and Factor affecting in adoption of technology and capacity buildings.” On 6th, 12th December 2013, Lecture at EEI Nilokheri.
- “Wheat cultivation” on 19 December 2013 at Farm field School, Gondar (Karnal).
- Lecture to PGDAEM trainees on course AEM 203. Project management in agriculture extension. In HAMETI, Jind on 4 January 2014
- Lecture in Farm Field School at Village Gondar (Karnal) on 18 March 2014.
- Delivered two lectures on December 10, 2013 at EEI Nilokheri on ‘WTO - Genesis and Perspectives’, and ‘WTO vis-à-vis Indian Agricultural Economy’.
- Lecture on ‘Project management in agricultural extension’ at HAMETI, Jind on January 3, 2014.
- Role of women in accelerated adoption of DSR and avenues for multi disciplinary and multi institutional collaborations on 24 May, 2014 at CCSHAU, Uchani during training workshop on “Principle and Practices of Direct Seeded Rice” during 21-30 May, 2014 organised by CCSHAU, Hisar; PAU, Ludhiana and University of Adelaide, Australia.
- Role of women in accelerated adoption of DSR and avenues for multi disciplinary and multi institutional collaborations on 26.09.2014 at CSSRI, Karnal during training workshop on “Principle and Practices of Direct Seeded Rice” during 23.09.2014 to 2.10.2014 organised by CCSHAU, Hisar, PAU, Ludhiana and University of Adelaide, Australia.
- Lecture on weed and yellow rust management at village Chaura on 29.10.2013.

- Delivered Lectures at EEI, Nilokheri in different training programmes
 - On 4.09.2014 Wheat: An important and nutritional crop
 - On 10.09.2014 and 11.12.2013 Impact of WTO on wheat farming and Protection of plant varieties.
 - On 22.08.2014, 28.10.2014 and 31.01.2014 Extension management and Extension management in ICAR
 - On 10.10.2014, 22.11.2013, 05.02.2014, 04.03.2014 and 13.03.2014 E-communication and Writing for farm families

Meeting Attended

- Strategic meeting to enhance the wheat production in Uttarakhand at Dehradun on 21 October, 2013.
- Stakeholder meeting to facilitate seed delivery and contract farming of barley on 28 September, 2014.
- Scientific Advisory Committee at KVK, Panipat on 17 September, 2013.
- Awareness wheat and barley Varieties campaign at Hisar on 26 January 2014.
- Meeting on FLD with Agriculture Commissioner, DAC, GOI, New Delhi on 17 September 2014.

Foreign Visit /Abroad

Dr Randhir Singh Visited Dhaka (Bangladesh) under BMZ and CSISA project during 5 -9 October 2013.

Award and Recognition

- Got Second prize in Exhibition organized by SBI Regional Station, Karnal on 5 February 2014.
- Awarded first prize in exhibition at Rashtriya Dairy Mela in NDRI, Karnal from 25-28 February 2014.
- Dr Randhir Singh was the nodal person for Haryana for Krishi Vasant 2014 at CICR, Nagpur held during 9-13 February 2014. Collected the literature and video films from horticulture, dairy, agriculture, fisheries and veterinary departments and sent to IARI, IVRI, CIFE, CARI and NDRI to produce enough material for the farmers.

Fellowship Granted

- Sendhil R won the Competitive Travel Grant for Economists from Low Income or Lower-Middle Income Countries (LI-LMI Travel Grant) offered by the Agricultural & Applied Economics Association (AAEA) Trust and has been invited to Minneapolis, US for presenting a paper on “Performance and Relevance of Wheat Futures Market in India - An Exploratory Analysis” during July 27-29, 2014.

Best Paper Presentation Award

Dr. Satyavir Singh received *Best Paper Presentation Award* for presenting the research paper entitled “Factors Affecting Wheat Yield in Saharanpur District of Western UP” in the National Seminar-2013 on “Social Dimensions of Extension Education in Holistic Development of Rural Livelihood” organised by ISEE, New Delhi during 26-27 April, 2013 at CBG Agriculture PG College, Bakshi Ka Talab, Lucknow (UP).

Visit Coordination during 2013-14

No. of visitors	Date	Nature of visit and plan	Organization
12 Farmers	04.04.2013	ATMA Project	Office of The Dy. Director, Jabalpur, MP.
15 Farmers	17.04.2013	-	Bilaspur (HP)
57 Students	18.05.2013	Student's Exposure visits of Punjab & Haryana	DAV, College Ajmer & Bikaner. Swami Keshwanand Agri. University, Bikaner (Raj.)
85 Students	18.05.2013	Student Exposure Visit	G.H. School, Khunja Kothi, Jind, District Jind Haryana)
15 Farmers	27.05.2013	R.K.V.Y. (A.G.K.P.)	Village-Sanderpur, Block-Lakhan Majra, District-Rohtak, (Haryana)
15 Farmers	27.05.2013	R.K.V.Y. (A.G.K.P.)	Village-Garhi Sampla, Block-Sampla, District-Rohtak Haryana)
55 Students	31.05.2013	Student Exposure Visit	M.S. Senior Secondary School, Jhansa, District Kurukshetra, (Haryana)
53 ADOs	31.05.2013	Exposure visit of Agri. Dev. Officers under FTC	HAMETI, Jind, (Haryana)
82 Students	01.06.2013	Student Exposure Visit	M.S. Senior Secondary School, Jhansa, Kurukshetra, (Haryana)
21 Trainees	15.06.2013	ICAR, Summer School training, CSSRI Karnal	ICAR Summer school 21 days training programme held at CSSRI, Karnal (Haryana)
15 Farmers	24.06.2013	R.K.V.Y.	K Sampla, District Rohtak (Haryana)
20 Farmers	05.09.2013	ATMA Project, Bharatpur, Rajasthan	District Bharatpur (Rajasthan)
37 Farmers	09.09.2013	Exposure visit	Bhadrak, Odisha
14 Students	22.09.2013	Exposure visit	NDRI, Karnal
36 Farmers	23.09.2013	Exposure visit	Ganjam , Odisha
94 B.Sc. (Ag) Students	03.10.2013	Student Exposure Visit	Agriculture College and Research Institute Madurai, (T.N.)
32 Students (12 th Biology)	05.10.2013	Student Exposure Visit	Various schools of Karnal (Haryana)
82 B.Sc (Ag) Students	07.10.2013	Student Exposure Visit	Agriculture College and Research Institute Madurai, (T.N.)
31 Farmers	09.10.2013	NABARD Bharatpur (Raj.)	Jan Sewa Samiti, NABARD, Bharatpur (Rajasthan)
105 Students (B.Sc. Ag.)	25.10.2013	Student Exposure Visit	Tamilnadu Agriculture University
52 Farmers (22 Women & 30 Men)	26.10.2013	Exposure visit	Dharwad, Karnataka
34 Farmers	26.10.2013	Exposure visit (ATMA)	Pratapgarh (UP)
30 Farmers	26.10.2013	Exposure visit (ATMA)	Kullu Block(HP)
25 B. Sc. (Biotech)	7.11.2013	Exposure Visit	DAV College Amritsar
19 Trainees	13.11.2013	Under Central Govt. Scheme (ACABC)	Center for Agriculture and Rural Development, New Delhi,
36 Farmers	16.11.2013	Exposure visit (ATMA)	ATMA Project, District-Raigarh, (Orissa)
40 Farmers	30.11.2013	Exposure visit (ATMA)	Sardarbag, Taluka Una, District Junagarh (Gujarat)
22 Farmers	12.12.2013	Exposure visit	Ambuja Cement Foundation ,Bathinda (Punjab)
30 Farmers	19.12.2013	Exposure visit (ATMA)	Office of The Project Director, Hanumangarh (Raj.)
47 Farmers	21.12.2013	Exposure visit	Dy. Director Of Agriculture (Training) Godhara, District Panchmahal (Gujarat)
20 Farmers (Women)	26.12.2013	Exposure visit	Samajik Utthan Sansthan, Bharatpur (Raj.)
35 Farmers	26.12.2013	Exposure visit (ATMA)	Project Director, ATMA, Alwar (Rajasthan)
36 Officers	03.01.2014	Trainees	FMDI, IFFCO Gurgaon (Haryana)
50 Farmers	11.01.2014	Exposure visit	Dy. Director Of Agriculture (Training) Godhara, District Panchmahal (Gujarat)
47 Farmers	31.01.2014	Exposure visit (RKVY)	Deputy Director Agri (Extn.) Sikar District Sikar(Rajasthan)
28 Farmers	01.02.2014	Exposure visit (ATMA)	Department of Agriculture, Jhunjhunu (Rajasthan)
20 Trainees	05.02.2014	Under T&V	CCS,HAU, Regional Station Karnal(Haryana)
50 Farmers	16.02.2014	Exposure visit (ATMA)	Jalgaon (Maharashtra)
35 Farmers	18.02.2014	Exposure visit (ATMA)	Sri Ganganagar, Rajasthan
10 Farmers	19.02.2014	Exposure visit (ATMA)	Bhopal, M.P.
45 Farmers	26.02.2014	Exposure visit (ATMA)	Bharatpur, Rajasthan
32 Farmers	28.02.2014	Exposure visit (ATMA)	GHumla, Jharkhand
42 Farmers	01.03.2014	Exposure visit (ATMA)	Raipur Durg(Chhatisgarh)
20 Farmers	6.03.2014	Exposure visit (ATMA)	Dhaulpur, Rajasthan
30 Students	12.03.2014	Exposure visit	YS Parmar University of Horticulture and Forestry, Solan, HP.
12 Students	13.03.2014	Exposure visit	KUK, Kurukshetra, Haryana
20 Trainees	14.03.2014	Through SBI, Hisar (Haryana)	SBI, Hisar (Haryana)
5 Farmers	22.03.2014	Exposure visit	Monga, Punjab
13 Farmers	27.03.2014	Exposure visit	Office of the Block agriculture Office, Uklana, Hisar(Haryana)
	14.02.2014		Dr. K.D. Kokate DDG (Extn.)

Participation of Scientists in Seminars/Symposia/Conferences/Workshops

Seminar/Symposia/Conference/Workshop attended		
Dr Randhir Singh	International conference on Impact of Technological Tools on Food security under Global Warming Scenario at Shobhit University Meerut.	11-12May, 2013.
	“Path way of gender equity led climate smart farming learning from stakeholder”. Organized DWR along with CCAFs and CIMMYT.	7 th June, 2013
	BGRI International workshop held at Taj hotel, New Delhi	18-22 August, 2013
	Launching Workshop “ ICARDA-ICAR partner Grant Agreement on partnership with CRP Dryland Cereals/Barley product line at DWR, Karnal	24 Oct, 2013
	52nd All India Wheat and Barley Research workers’ meet held at CSAUA&T, Kanpur, Uttar Pradesh	September 01-04, 2013
Dr. Satyavir Singh	National Seminar-2013 on “Social Dimensions of Extension Education in Holistic Development of Rural Livelihood” organized by ISEE, New Delhi at CBG Agriculture PG College, Bakshi Ka Talab, Lucknow (UP).	April 26-27, 2013
	Meeting on Progress of Wheat FLDs and to Finalize Programme of Wheat FLDs for the year 2013-14 at Krishi Bhawan, New Delhi held under the Chairmanship of Agriculture Commissioner, DOAC, MOA, New Delhi	April 29, 2013
	State Level Seminar on Agro-Ecology and Farmers at Panchayat Bhawan, Karnal organized by Haryana Vigyan Manch.	June 26, 2013
	52nd All India Wheat and Barley Research workers’ meet held at CSAUA&T, Kanpur, Uttar Pradesh	September 01-04, 2013
	“Envolving strategies for enhancing wheat production with special reference to management of wheat rust” at Kisan Bhavan, Sector-14, Panchkula, Haryana.	October 05, 2013
	“Agriculture Capacity Building : A New Paradigm” on the occasion of Global Agri Connect-2013 conference-cum-Exhibition held at IARI, New Delhi.	October 25-27, 2013
	Special Scientific Advisory Committee Meeting of KVK Ujha, Panipat.	January 09, 2014
Dr Anuj Kumar	Workshop on “ Pathways of Gender Equity Led Climate Smart Farming: Learning from Stakeholders” organised by CCAFS, CIMMYT and DWR at DWR, Karnal.	7 th June, 2014
	“The 50 Pact Conference” at NAAS complex, New Delhi, organized by CIMMYT, ICAR and BISA.	16-17 August, 2014
	Workshop on “Precision Conservation Agriculture for improving wheat Production in South Asia during at DWR Karnal organized by IPNI, CIMMYT and DWR under BMZ project.	26-27 November, 2013
	International Conference on ‘ Extension Educational Strategies for sustainable agricultural development: A global perspective at UAS Bangalore and presented paper on “ Impact of Resource Conservation Technologies of Wheat in Haryana”	5-8 December, 2013
Dr Sendil R	‘27th National Conference on Agricultural Marketing’ at UAS Dharwad. Oral presentation on "Is wheat futures market relevant to small scale production system in India?"	18-20 Dec, 2013
	Participated in the National Fund for Basic, Strategic and Frontier Application Research in Agriculture (NFBSFARA) awareness building and sensitization workshop held at NDRI, Karnal. Attended 52 nd All India Coordinated Wheat & Barley Research Worker’s Meet held at Chandra Shekhar Azad University of Agriculture & Technology, Kanpur.	06-07 Sept, 2013 1-4 September, 2013

ANNEXURE-I

**Category wise number of Wheat Front Line
Demonstrations (FLDs) Farmers during 2013-14**

Annexure-I : Categorywise Number of Wheat FLDs Farmers during 2013-14

S.N.	Name of Centre	Allocation		Achievement		Achievement Men, Area in ha, (No. of Farmers)				Achievement Women, Area in ha, (No. of Farmers)				Men Area(ha) (No. of Farmers)	Women Area(ha) (No. of Farmers)	Total Area(ha) (No. of Farmers)
		No. of FLDs	Area under FLDs (ha)	No. of FLDs	Area under FLDs (ha)	SC	ST	OBC	Gen	SC	ST	OBC	Gen			
	NHZ															
1.	VPKAS, Almora (Utarakhand)	10	10	10	10	0.28 (3)	-	0.08 (2)	6.4 (39)	1.26 (28)	-	0.12 (2)	1.86 (31)	6.76 (44)	3.24 (61)	10 (105)
2.	CSKHPKV, HAREC, Bajaura, Kullu (HP)	5	5	5	5	-	-	-	4.3 (16)	-	-	-	0.7 (3)	4.3 (16)	0.7 (3)	5 (19)
3.	CSKHPKV, RWRC, Malan, Kangra (HP)	10	10	6.4	6.4	0.6 (3)	0.2 (1)	1.0 (5)	3.8 (17)	-	0.2 (1)	0.2 (1)	0.4 (2)	5.6 (26)	0.8 (4)	6.4 (30)
4.	CSKHPKV, PC RS, Berhin, Bilaspur (HP)	5	5	5	5	0.6 (2)	-	-	3.4 (10)	-	-	-	1.0 (3)	4.0 (12)	1.0 (3)	5 (15)
5.	CSKHPKV, HAREC, Dhaulakuan (HP)	10	10	10	10	0.8 (2)	-	7.6 (19)	0.4 (1)	-	-	1.2 (3)	-	8.8 (22)	1.2 (3)	10 (25)
6.	IARI, RS, Tutikandi, Shimla (HP)	5	5	5	5	0.25 (1)	-	-	4.75 (16)	-	-	-	-	5.0 (17)	-	5.0 (17)
7.	RR&RS, SKUAST-K, Khundwani, Anantnag (J&K)	5	5	5	5	-	-	-	5.0 (11)	-	-	-	-	5.0 (11)	-	5.0 (11)
8.	RARS, SKUAST-Jammu, Tandiwal, Rajour (J&K)	5	5	5	5	-	1.5 (3)	0.5 (3)	2.5 (5)	-	-	-	0.5 (1)	4.5 (9)	0.5 (1)	5.0 (10)
9.	KVK, Hengbung, Senapati, Manipur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

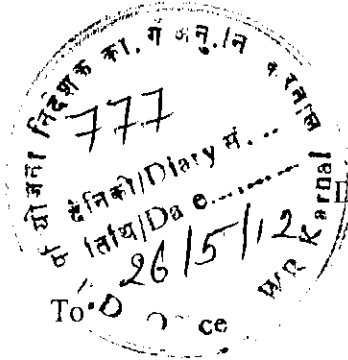
22.	KVK, Adhaura, Kaimur, Bhabua (Bihar)	10	10	10	10	-	1.6 (1)	-	8.4 (3)	-	-	-	-	-	-	-	10 (4)	-	10 (4)
23.	KVK, Chapura-Basath, Madhubani (Bihar)	10	10	10	10	0.4 (1)	-	2.0 (6)	7.2 (18)	-	-	0.4 (1)	9.6 (24)	0.4 (1)	-	-	10 (25)		
24.	BAU, Kanke, Ranchi (Jharkhand)	10	10	10	10	-	7.2 (18)	0.4 (1)	0.8 (2)	-	1.6 (4)	-	8.4 (21)	1.6 (4)	-	-	10 (25)		
25.	KVK, Morabadi, Ranchi (Jharkhand)	10	10	10	10	-	5.6 (14)	4.4 (11)	-	-	-	-	10 (25)	-	-	-	10 (25)		
26.	KVK, BAU, West Singhbhum (Jharkhand)	5	5	5	4.8	-	4.8 (12)	-	-	-	-	-	4.8 (12)	-	-	-	4.8 (12)		
	NWPZ																		
27.	KVK (SKUAST of Jammu), Rajhansi, Kathua, Jammu	10	10	10	10	-	1.6 (2)	2.8 (5)	5.2 (13)	-	-	0.4 (1)	9.6 (20)	0.4 (1)	-	-	10 (21)		
28.	PAU, Ludhiana (Punjab)	10	10	10	10	-	-	-	10 (10)	-	-	-	10 (10)	-	-	-	10 (10)		
29.	PAU, RRS, Gurdaspur (Punjab)	10	10	10	10	-	-	-	10 (10)	-	-	-	10 (10)	-	-	-	10 (10)		
30.	KVK, Haveli Kalan, Rupnagar (Punjab)	10	10	10	10	2 (2)	-	1 (1)	7 (7)	-	-	-	10 (10)	-	-	-	10 (10)		
31.	KVK, Usman, Amritsar (Punjab)	10	10	10	10.2	1 (1)	-	-	9.2 (14)	-	-	-	10.2 (15)	-	-	-	10.2 (15)		
32.	RBS College, Bichpuri, Agra (UP)	10	10	10	10	-	-	5.4 (6)	4.6 (6)	-	-	-	10 (12)	-	-	-	10 (12)		

33.	KVK, Baghara, Muzaffarnagar (UP)	10	10	10	10	-	-	6 (6)	3 (3)	-	-	-	1 (1)	-	9 (9)	1 (1)	10 (10)
34.	ZARS, Nagina, Bijinor (UP)	10	10	10	10	1	-	3 (3)	6 (6)	-	-	-	-	-	10 (10)	-	10 (10)
35.	KVK, Khajuri Bagh, New Gopal Nagar, Saharanpur (UP)	10	10	10	10	2 (5)	-	6.8 (11)	1.2 (3)	-	-	-	-	-	10 (19)	-	10 (19)
36.	GBPUA&T, Pantnagar, Udham Singh Nagar (Uttarakhand)	10	10	10	10	-	-	-	10 (10)	-	-	-	-	-	10 (10)	-	10 (10)
37.	IARI, New Delhi	10	10	10	10	1.6 (4)	-	1.6 (4)	6.4 (14)	-	-	0.4 (1)	-	-	9.6 (22)	0.4 (1)	10 (23)
38.	KVK (NHRDF), Ujwa, New Delhi	10	10	9.6	9.6	1.2 (3)	-	4 (10)	4.4 (11)	-	-	-	-	-	9.6 (24)	-	9.6 (24)
39.	DWR, Karnal (Haryana)	10	10	10	10	2 (2)	-	4 (5)	4 (4)	-	-	-	-	-	10 (11)	-	10 (11)
40.	Amity Centre for Extension Services AUUP Campus 125, Noida (UP)	10	10	10	10	1.6 (4)	-	8 (20)	0.4 (1)	-	-	-	-	-	10 (25)	-	10 (25)
41.	CCSHAU, Hisa (Haryana)	10	10	10	10	-	-	-	10 (25)	-	-	-	-	-	10 (25)	-	10 (25)
42.	KVK, Bhiwani (Haryana)	10	10	10	10	2 (5)	-	-	8 (20)	-	-	-	-	-	10 (25)	-	10 (25)
43.	AKS, SKRAU, Durgapura, Jaipur (Rajasthan)	10	10	10	10	1 (1)	2 (2)	3 (3)	3 (3)	1 (1)	-	-	-	-	9 (9)	1 (1)	10 (10)
44.	KVK, Ajmer (Rajasthan)	10	10	10	10	1.5 (3)	-	8 (16)	0.5 (1)	-	-	-	-	-	10 (20)	-	10 (20)

	CZ																		
45.	RCOA (MPUA&T), Udaipur (Rajasthan)	10	10	10	10	2 (2)	2 (2)	3 (4)	1 (1)	1 (1)	1 (1)	-	8 (9)	2 (2)	10 (11)				
46.	ARS, MPUA&T, Banswara (Rajasthan)	10	10	10	10	0.8 (2)	2.4 (6)	0.4 (1)	-	2 (5)	4.4 (11)	-	3.6 (9)	6.4 (16)	10 (25)				
47.	ARS, MPUA&T, Kota (Rajasthan)	10	10	10	10	3 (3)	2 (2)	5 (5)	-	-	-	-	10 (10)	-	10 (10)				
48.	KVK, Sawai Madhopur (Rajasthan)	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
49.	WRS, JAU, Junagarh (Gujarat)	10	10	10	10	-	-	2 (2)	7 (7)	-	-	1 (1)	9 (9)	1 (1)	10 (10)				
50.	MWRS, SDAU, Vijapur, Mehsana (Gujarat)	10	10	10	10	1.8 (3)	0.8 (2)	3.0 (7)	4 (10)	-	-	0.4 (1)	9.6 (22)	0.4 (1)	10 (23)				
51.	JNKVV, Jabalpur (MP)	10	10	10	10	-	2 (2)	2 (2)	6 (4)	-	-	-	10 (8)	-	10 (8)				
52.	IARI, RWRS, Indore (MP)	10	10	10	10	0.3 (1)	0.2 (1)	10.3 (23)	5.55 (13)	-	-	-	16.35 (38)	-	16.35 (38)				
53.	KVK (JNKVV), Purushottampur, Panna (MP)	10	10	10	10	0.8 (20)	0.4 (1)	4.4 (11)	4 (10)	-	-	0.4 (1)	9.6 (24)	0.4 (1)	10 (25)				
54.	KVK, RRS, IGKVV, Jagdalpur, Bastar (CG)	10	10	10	10	-	10 (25)	-	-	-	-	-	10 (25)	-	10 (25)				
55.	IGAU, RARs, Sarkanda, Bilaspur (CG)	10	10	10	10	-	3 (3)	3 (3)	-	-	1 (1)	2 (2)	6 (6)	4 (4)	10 (10)				

ANNEXURE-II

**Guidelines
for Conducting Wheat Front Line Demonstrations
(FLDs) as the approved component of National Food
Security Mission (NFSM) Scheme of the Department
of Agriculture & Cooperation, Ministry of Agriculture,
Government of India, Krishi Bhawan, New Delhi.
Applicable for the year 2013-14**



No.3-17/NFSM-2012
Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation,

Krishi Bhawan, New Delhi
Dated: May 22, 2012

1. The Director, Directorate of Wheat Research (ICAR),Karnal (Haryana)
2. The Director, Indian Institute of Pulses Research, Kanpur (U.P.).
3. Project Director, Directorate of Rice Research, Hyderabad (A.P.)

Subject: Allocation of FLD for the year 2012-13

Sir,

The Crops Division of DAC has allotted FLDs on Wheat, Rice and Pulses under National Food Security Mission (NFSM) for the year 2012-13. For successful implementation of FLD Programme by ICAR implementing Institutions/Agencies, the following instructions may be taken into consideration:

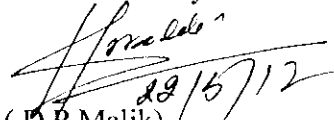
- i) The gain of FLD should also be present in economic term in the report.
- ii) Success stories of FLD should be documented and submitted to DAC and respective State Agriculture Departments.
- iii) The FLD for the year 2012-13 will be organized in a cluster approach of at least 10 ha. each.
- iv) The Seed Bank through FLDs at the cluster level should be created by encouraging the beneficiaries.
- v) The various issues discussed in the meeting held on 27th April, 2012 under the chairmanship of Agriculture Commissioner may be taken into consideration in implementation of FLD Programme (minutes of the meeting enclosed).
- vi) The concerned Directorate should organized FLD in all major respective crop growing states across the country.
- vii) FLDs on different technological interventions like, varietal, INM, IPM, method of sowing, use of farm machinery, alkanity, salinity, drought resistant varieties etc. should be focused.
- viii) Annexures I, II, III and IV should be filled up and to be submitted to DAC as per guideline of FLDs.
- ix) The varietal trial should be conducted as per guidelines of FLD i.e. variety released, identified/ notified within three years.
- x) There should be active involvement of KVK, Research Centre and State Agriculture Department in conducting of FLD in respective state.
- xi) The list of beneficiaries should be placed on the website of respective FLD implementing Institutions/Agency with a linkage to NFSM website.
- xii) The guidelines issued for implementation of FLD programme must be followed.

Encl: 1. Guidelines

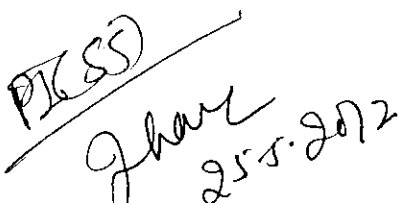
2. Minutes of the meeting

of FLDs held on 27.4.2012

Yours faithfully


(D.P. Malik) 29/5/12

Additional Commissioner (Crops)


25.5.2012

OPERATIONAL GUIDELINES FOR FRONT LINE DEMONSTRATIONS UNDER NFSM

.....

Front Line demonstrations (FLDs) is a unique approach to provide an direct interface between researcher and farmers as the scientists are directly involved in planning, execution and monitoring of the demonstrations for the technologies developed by them and get direct feedback from the farmers' field about the crops like wheat, rice and pulses production in general and technology being demonstrated in particular. This enables the scientists to improvise upon the research programme accordingly. In FLDs, the subject matter scientists provide technological inputs to extension scientists to organize the demonstrations. Thus, FLDs provide an opportunity to researchers and extension personnel for understanding the farmer's resources and requirement to fine tune and/or modify the technologies for easy adaptability at farmers' fields.

The FLDs for Rice, Wheat and pulses are approved component of National Food Security Mission (NFSM). The FLDs are conducted by the ICAR/SAUs system. The ICAR Institutes i.e. Directorate of Rice Research, Hyderabad, Directorate of Wheat Research, Karnal and Indian Institute of Pulse Research, Kanpur are the nodal Institutions for organizing the FLDs on rice, wheat and pulses, respectively.

1. FRONTLINE DEMONSTRATIONS

- 1.1 Frontline Demonstration is a form of applied research through ICAR/SAUs system on latest notified/released varieties along with full package of practices on selected farmers' fields with a view to demonstrate the potentiality of the technologies to (a) participating farmers (b) neighboring farmers and other agencies; (c) to analyze the production (d) performance of the technologies for scientific feed back.

2. OBJECTIVES

- 2.1 To demonstrate improved Crop Production Technologies of Rice, Wheat and Pulses on the farmers' fields;
- 2.2 To popularize the newly notified and improved varieties/technologies for varietal diversification and efficient management of resources.
- 2.4 To bring synergy among planers, researchers, farmers and industry for parable interface through seminars/symposium on emerging themes of importance in the field of Rice, Wheat and Pulses production for deciding strategies for development of these crops.

3. SELECTION OF TECHNOLOGY

- 3.1 The need and necessity of demonstration should invariably be based on the emerging issues. The DAC will in advance communicate the desired technologies/thematic areas on which the FLDs to be conducted and the concerned ICAR institutes in consultation with SAUs and other stakeholders should develop a comprehensive plan for organizing the demonstrations.
- 3.2 There will be a committee under chairmanship of Director of Research of concerned State Agriculture University which will decide the technology to be demonstrated. The other members of the committee will be Director of Extension, Joint Directors/Heads of Departments of Crop Production/Agronomy, Plant Breeding and Plant Pathology. The technology so decided should be discussed along with the results of the station trials in Annual Workshops and the technical programme should be finalized well in advance.
- 3.3 The Technology programme should take care of the availability of seed of improved varieties /hybrid, drought resistance varieties, method of sowing, IPM, INM, micro irrigation, farm machines etc. to be demonstrated. The seed agencies and the manufacturers should also be taken on board for deciding the FLDs.
- 3.4 The varieties which are within 3 years (5 years for problem areas viz; Hills Saline, Alkaline Soils etc.) period from the date of notification/release/identification should only be included in the demonstration purpose and those varieties in the border lines should be avoided.
- 3.5 The details of the technical programme should be communicated by first week of April for kharif crops and by first week of August for winter crops to Crops Division of DAC to convey the administrative approvals. The plan of FLD will be approved by a committee comprising of:

Agriculture Commissioner	Chairman
Joint Secretary (Crops)	Member
Additional Commissioner (Crops)	Member
Directors (DWR/DRR/IIPR)	Member
Directors (DWD/DRD/DPD)	Member
Deputy Commissioner (Seeds)	Member
Deputy Commissioner (Machinery)	Member
Deputy Commissioner (Crops)	Member-Secretary

4. SELECTION OF SITE AND BENEFICIARY

- 4.1 The site of demonstrations should be at a place easily accessible and at central point to attract large number of audience/farmers for more impact, easy monitoring and feedback.
- 4.2 The technology selected for demonstration should be of paramount importance and preferably with a farmer.
- 4.3 To create better and visible impact of a technology the demonstrations may be conducted in **cluster approach of at least 10.0 hectares**. One demonstration at individual farmer should never be less than 0.4 hectare and not exceeding to one hectare.
- 4.4 Number of demonstrations of a particular variety and package of practices should be decided keeping in view the scientific requirement for reliability and validated of the results.
- 4.5 Demonstrations may be conducted on farming situations for scientific interpretation.
- 4.6 Participatory approach may be followed in conducting demonstrations associating (i) farm scientists (ii) extension workers and (iii) demonstrating farmers, so that we have effective implementation leading to better adoption and diffusion of technology.
- 4.7 Other equal size plots of the demonstrating farmers or the equal size of plot of neighboring farmers in the same farming situation may be considered as check or control plots for objective comparison of the results.
- 4.8 Selection of the site should be decided in consultation with Department of Agriculture of the concerned State and should be such that it is easily accessible to farmers of neighbouring villages and extension workers coming from different parts of the district. The demonstrating farmers should be progressive one with leadership quality and who is easily approachable by other farmers & extension workers.
- 4.9 Special attention towards soil problems like acidity, alkalinity, micro-nutrients deficiency, soil borne pests and diseases should be tackled before taking up the Frontline demonstrations. Identify broad based farming situations and conduct only limited number of FLDs with more emphasis on the quality of FLDs implementation.
- 4.10 Identification of FLDs beneficiaries shall be carried out by the Implementing Centres as per the requirement/aptitude of the farmers to conduct the Demonstrations. Preference for FLDs should be given to the Socio-economically backward/Small Marginal/ST/SC/OBC/ women shall be given at the time of the identification of FLD beneficiaries.

5. SIZE OF FLDS

- 5.1 The size of one demonstration will be 0.40 hectare to one hectare depending upon the size of plot available with small and marginal/women farmers who will be given preference in the selection of beneficiaries
- 5.2 The assistance for demonstrations will be decided upon the area. The rate of assistance is Rs.7500/ for Rice, Rs.5000/- for Wheat and Rs.5000/- for Pulses per demonstration of one ha. respectively.

6. IMPLEMENTING AGENCY

- 6.1 Frontline Demonstrations will be organized by ICAR Institute through their Centers/Krishi Vigyan Kendras (KVKs under ICAR system) and State Agriculture Universities, reputed and registered NGOs.
- 6.2 Directorate of Rice Research, Hyderabad will be the nodal institute for organizing the FLDS on Rice; Directorate of Wheat Research, Karnal for wheat and Indian Institute of Pulses Research, Kanpur for pulses.

7. PLANNING FOR THE DEMONSTRATION

- 7.1 A local survey may be conducted to (a) ascertaining the socio-economic conditions of the farmers; (b) farming situations under which the crop is grown; and (c) the existing level of adoption of technologies and the productivity. This will serve as a broad benchmark for future planning demonstrations work and evaluation.
- 7.2 Agro-economic constraint analysis should be done of the representative farmers sample to identify the critical factors/inputs for the adoption of technologies by the farmers require support for such inputs
- 7.3 Advance planning may be done for the demonstration so that all the critical inputs are arranged in time.
- 7.4 Orientation training may be organized for half a day for all the participating persons about all aspects of technologies and methodologies including aims and objectives of the demonstrations so that there is uniform clarity of purpose for better working relating and linkages.

8. APPROVAL OF TECHNICAL PROGRAMME

- 8.1 The details of physical and financial targets (Agency-wise and location-wise) for laying out the FLDs on Rice and Kharif Pulses to be organized by participating centres may be communicated to the Crops Division of Department of Agriculture & Cooperation, Ministry of Agriculture, Delhi latest by 30th April for rice and millets and 30th August for wheat and rabi pulses.
- 8.2 The in-principle approval for the conduct of FLDs will be communicated to the concerned ICAR institutes in April for all the crops by the Department to facilitate them to arrange the required inputs and also the selection of beneficiary farmers.

9. IMPLEMENTATION

- 9.1 Prior to the launching of the demonstrations, all participating agencies/persons may be informed well in advance about the date and venue (demonstrating farmers on the demonstration and are invited to participate). On occasion, the neighbouring farmers may also be invited. They should be educated about the details of the technologies and objectives of the FLDs. Sowing of the crops, may be done in the presence of participating persons.
- 9.2 All the important farm operations may be carried out by the demonstrating farmers under the close supervision and guidance of the scientist' in-charge of FLDs. The concerned scientist(s) may record observations of all important events so that the results could be interpreted.
- 9.3 When the demonstrations plot is at maturity, the field day may be organized where neighbouring farmers including farm women and extension workers are invited. A question-answer hour i.e buzz session (between the scientists, farmers and extension workers) may be organized.
- 9.4 The information pertaining to different technological interventions adopted at Check plot and FLD plot must record to evaluate the technological gap.
- 9.5 The concerned scientist is expected to keep records of various expenses incurred on various inputs used for the demonstrations plot(s) and check plot (s) for deriving cost benefits.
- 9.6 After the harvesting and threshing the yield (grain & straw/stalk etc.) may be recorded for demonstration plot and check plot.

10. MONITORING

- 10.1 Monitoring is required on continuous and regular basis through visits to FLD plots, recording observations, getting the feed back from the farmers and extension workers.
- 10.2 The Scientist in Charge of the FLDs in SAUs and ICAR Institute should ensure to make regular visits of the demonstration plot to have proper feedback on the impact of the technology.
- 10.3 Monitoring teams comprising of Senior Scientists/Officers of the ICAR system/SAUs, Ministry of Agriculture and the State Department will make visits to such demonstration plots for getting direct feedback and offering suggestions and guidance.
- 10.4 The committee comprising of scientist of the University, concern Project Director/Coordinator, ADG (FFC), ICAR, Additional Commission (Crops) and Director, Dte. of Rice, Wheat and Pulses Development as representative from the Department of Agriculture & Cooperation, M/o Agriculture, Government of India. The committee will review progress of FLDs periodically at least twice during the crop season. The periodical progress report will be submitted by ICAR to the Ministry.
- 10.5 The results and feedback as obtained by the monitoring teams/others should be complied by the Concerned Crop Development Directorates to be submitted to Agriculture Commissioner. The reports on physical and financial progress will be submitted directly to Agriculture Commissioner of this Department with a copy to the Director, Directorate of Rice, Wheat and Pulses Development, Patna, Ghaziabad and Bhopal regularly by 10th of every subsequent month.
- 10.6 It is also requested to kindly arrange to introduce a more effective system to develop closer coordination between State functionaries of various input units/other State Officials, extension unit of State Agricultural Universities and Panchyati Raj Institutions in implementing of the Programme. Details of such coordination exercise/meeting should include in the periodic physical report.

11. REPORTING AND DOCUMENTATION

- 11.1 The results of the demonstrations may be properly documented, reported and circulated among all the concerned personnel of the State Department of Agriculture, demonstrating farmers etc.
- 11.2 A success story may be published in popular extension journals(widely circulated in the state) for the benefits of other farmers preferably in local languages.
- 11.3 Full report of FLDs so conducted by ICAR/SAUs be sent to Ministry of Agriculture, Department of Agriculture & Cooperation by Project Directorate/Coordinator well before the Annual Workshop and is also presented in the Workshop.
- 11.4

12. FUNDING PATTERN

- 12.1 Frontline Demonstrations on the basis of above guidelines would be conducted in different Eco-system through Crop Directorate/Coordinating Unit of Indian Council of Agricultural Research/State Agricultural Universities in the potential areas of the country. The funds for the demonstrations so organized by the ICAR/SAUs would be provided by the Government of India from the funds available in National Food Security Mission. For such demonstrations, funds shall be provided directly to the concerned Director//Project Director and the pattern of assistance would be Rs.7500 for Rice, Rs.5000 for wheat and Rs.5000 for pulses per demonstration of one hectare or actual of the cost, whichever is less.. The detailed item-wise break-up of the expenditure for organizing a Frontline Demonstration on one hectare of rice, wheat and pulses is given as under:

S.N.	Component	Amount (Rs.)		
		Rice	Wheat	Pulses
1	Cost of critical inputs (seeds/fertilizers/manures/PP chemicals/ herbicides) to supplement the cultivation charges	6750	4250	4250
2.	Organization of Field Day	300	300	300
3.	Display board and publicity material (posters/pamphlets/leaflets etc.)	150	150	150
4.	Visit of scientists excluding TA/DA, but hiring of Taxi/POL etc.	200*	200*	200*
5.	Contingencies/typing of results/ minutes etc.	100	100	100
	Total	7500	5000	5000

* Nodal FLD implementing Institute/Directorate may retain 50 percent of the amount for effective monitoring of FLDs across the country.

- 12.2 Funds earmarked for FLDs may be made available to the concerned SAUs/Scientist well before the start of the sowing season by concerned Directorate/Project Directorate of ICAR.
- 12.3 FLD on newly released varieties should include the package of improved production technologies. The expenditure in excess of the approved norm per hectare if any, should be incurred by the beneficiary-farmer. Therefore, the FLDs only those farmers who are willing to provide critical resources should be identified.
- 12.4 In order to monitor the programme, the following information may be furnished by concerned Director/Project Director to the concerned Crop Development Directorate under intimation to Crops Division of Department of Agriculture & Cooperation:

Rice		
Sl.No.	Activity Milestone	Scheduled date for submission of reports
1.	Name and full addresses of the selected farmers, varieties used, area sown under the Demonstration and Technology demonstrated	Kharif- 15 th July, Rabi- 15 th November
2.	Crop stand and appropriate date for visit by the FLD monitoring team	Kharif- 15 th September Rabi- 15 th December
3.	Tentative dates for organization of Farmer's Day	Kharif- 30 th September Rabi- 25 th February
4.	Report and complete data about FLDs conducted	Kharif- 15 th December Rabi- 15 th May
Wheat		
1.	Name and full address of the selected farmers, varieties used, area sown under the Demonstration and Technology demonstrated	15 th December
2.	Crop stand and appropriate date for visit by the FLD monitoring team	15 th January
3.	Organization of Farmer's Day	30 th January
4.	Report and complete data about FLDs conducted	15 th May

Pulses- Kharif		
1.	Name and full addresses of the selected farmers, varieties used, area sown under the Demonstration and Technology demonstrated	Kharif 15 th July
2.	Crop stand and appropriate date for visit by the FLD monitoring team	Kharif- 15 th September
3.	Tentative dates for organization of Farmer's Day	Kharif- 30 th September
4.	Report and complete data about FLDs conducted	Kharif- 15 th December
Pulses-Rabi		
1.	Name and full address of the selected farmers, varieties used, area sown under the Demonstration and Technology demonstrated	15 th December
2.	Crop stand and appropriate date for visit by the FLD monitoring team	15 th January
3.	Organization of Farmer's Day	30 th January
4.	Report and complete data about FLDs conducted	15 th May

ANNEXURE-I

DETAILED INFORMATION OF INDIVIDUAL FRONT LINE DEMONSTRATION (FLD)

Details of beneficiaries of FLDs during Kharif/Rabi/summer of year _____

- (1) Name & Complete address of the Implementing Centre :-
- (2) Website/E-mail ID :
- (3) Fax No.
- (4) Name of Crop
- (5) Name of variety/hybrid
- (6) Location
- (7) District
- (8) state

S.N.	Name of beneficiary with address and Phone number	Category (SC/ST/OBC/Gen) & Gender (Male/Female)	Area of FLD (ha)	Pattern of Financial Assistance												Technology demonstrated	Field day/ Kisan Ghosti	Follow visits of scientist
				Seed		NPK		Micro-nutrients		Weedicides/pesticides		Quantity	Value	Quantity	Value			
				Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value					

Signature of beneficiary

Signature with Seal
Scientist In charge
Implementing Centre

Signature with Seal
Director/Project Coordinator

ANNEXURE-II

**Monthly/Quarterly/Final physical and financial progress report of FLDs during
Kharif/Rabi/Summer of Year _____**

- (1) Name & Complete Address of the Implementing Centre :
- (2) Website/E-mail ID :
- (3) Fax No.
- (4) Name of Crop

No.	Physical				Financial (Rs.)	
	Allocation		Achievement		Allocation	Achievement
	No. of FLDs	Area under FLD	Number of FLDs	Area under FLD		
Men						
SC						
ST						
OBC						
Gen						
Women						
SC						
ST						
OBC						
Gen.						
Total						

Signature with Seal

Director/Project Coordinator

ANNEXURE-III

**Results of FLDs conducted at various locations on farmer's field during
Kharif/Rabi/summer of year _____**

(1) Name & Complete Address of the Implementing Centre :

(2) Website/E-mail ID :

(3) Fax No.

(4) Name of Crop

Implementing Center/ location	Grain yield (kg./ha.)				Fodder yield (kg./ha.)	
	Average yield of concerned State	Average yield of concerned district	Yield under improved practice of FLD	Yield under farmer's practice	Yield under improved practice of FLD	Yield under farmer's practice

Signature with Seal

Director/Project Coordinator

ANNEXURE -IV

ASSESSMENT OF TECHNOLOGY GAP FOR CHECK PLOT AND FLD PLOT

Interview schedule: Socio-Economic Profile of FLD/ check plot farmer

Name of the farmer:	
Address of the farmer:	
Education level:	
Name of KVK or other research station near FLD or check plot	
Number of visit of farmers to KVK or research station	
Number of training attended at KVK or research station	
Size of operational Land Holding	
Area under irrigation	
Area under Rain fed	
FLD conducted on irrigated/rainfed /shallow/lowland/ upland etc.	
Source of Irrigation : tube well /well/pond/canal/other	
Testing of soil: Yes/No	
The farmer has tested soil before FLD	
Place of soil testing/SAU/ICAR/ state Agril Department/ Public undertaking/ others	
Name of nutrients deficit in soil	
Name of prevalent crop-rotation followed at farm	
Name of farm machineries on the farm	
Name of person from implementing agency present at the plot at the time of estimate of yield to record it accurately.	

ANNEXURE -IV
ASSESSMENT OF TECHNOLOGY ADOPTION AND GAP

Items	Farmer's practice (Check plot)	Recommended Practice (FLD plot)
Source of seed Govt. agencies/public undertaking/others		
Name the varieties cultivated		
Other varieties most commonly adopted by the farmers		
Name of Hybrid rice if grown on the farm		
Seed Rate(Kg/Ha)		
Seed treatment with water Yes/No		
Age of seedlings are transplanted in the field		
Seed treatment with fungicides/ others, dose of fungicides/others		
Raising of nursery in case of rice by dry or wet method and raised bed or flat bed		
Quantity and type of NPK fertilizers and manures used in nursery of rice?		
Name and quantity of Plant Protection measures used in rice nursery		
Method of transplanting of rice		
No. of hills per unit area in case of rice.		
No. of plants per hill in case of rice.		
Spacing of row to row and plant to plant		
Method of Field Preparation for transplanting. i.e use of rotavator/other machinery		
Use of Gypsum /Lime: Quantity (Kg/ha.)		
Doses of NPK fertilizers applied		
Name and quantity of use of bio-fertilizers		
Quantity of vermi-compost applied		
Number of doses of N applied: single /double /others		
Name and quantity of micro nutrients applied in field		
Type of irrigation: flood/micro irrigation		
Number of irrigation applied in the field		
Method of weeding: mechanical/ chemical/ manual/others		
Weeding of crop by hand weeder/rotary weeder /cono weeder/ powered weeder		
Name and quantity of herbicides applied		
Name of common insects		
Name of common diseases		
Name and quantity of pesticides for the control of pests		
Number of sprayers of insecticides		
Name and quantity of insecticides of diseases.		
Number of sprayers of insecticides		
Biological control of insects-pests and diseases		
Harvesting of crop is done by manual/ mechanical/ others		
Name of machine used for harvesting		
Threshing of crop is done by manual/ mechanical /other		
Name of machine used for threshing		

Minutes of the Meeting of Frontline Demonstration (FLDs) Programme under the Direct Funded Component of Macro Management of Agriculture for 2012-13 held under the Chairmanship of Agriculture Commissioner on 27.04.2012.

The meeting was chaired by Shri V. Venkatachalam, Special Secretary cum Agriculture Commissioner, DAC, List of participants is appended below:-

1. Representative/ Project Coordinator of Rice, small millets and pearl millet highlighted the findings of FLDs conducted during the year 2011-12 in brief.
2. Agriculture Commissioner asked the implementing agency to identify at least two high yielding varieties generally accepted by the farmers. He also suggested to develop area specific package and practices of cultivation of identified varieties.
3. Joint Secretary (Crops) desired that for implementing FLD programme, the beneficiaries should be identified from progressive as well as low resource base categories. He also desired the DRR to conduct FLDs' in all major growing States including Punjab & Haryana particularly on resource conservation technology.
4. The seeds for varietal demonstration of FLDs should be available with the cooperating centre from the ICAR Research Centres / State Agriculture Universities.
5. OSD to Agriculture Commissioner suggested that the FLD should be organised in a cluster approach by cooperating centre of implementing agencies.
6. The Project Coordinator of small Millets should include Proso Millets in FLD programme.
7. In case of Small Millets, through FLD programme seed bank should be developed to meet the seed availability of the improved varieties. The critical inputs supply to the beneficiaries should be decided as per FLD programme by the cooperating centres for effective implementation of programme.
8. All FLD implementing agencies must document the success stories of FLDs of different technological interventions.
9. The list of beneficiaries with address should be displayed on the website of respective implementing agency with a linkage to NFSM website.
10. The result of FLD plots should be presented not only in physical term but also in economic term.
11. Field day of FLD programme need to be organised in such a way that participation of farmers and Extension Officers of the State Department of Agriculture must be ensured.

12. FLDs will also be conducted for Rice, Wheat and pulses under NFSM in the year 2012-13.

13. Fund position under direct component of MMA will be communicated to Crops Division, DAC by the first week of May, 2012 so that we can allot the FLDs of Cereals for the year 2012-13 well in time.

APPENDIX

List of participants of Meeting of Frontline Demonstration (FLDs) Programme under the Direct Funded Components of Macro Management for 2012-13 held under the Chairmanship of Special Secretary cum Agriculture Commissioner on 27.04.2012.

S.No	Name of the participants
1.	Shri V. Venkatachalam, Special Secretary cum Agriculture Commissioner, DAC
2.	Shri Mukesh Khullar, Joint Secretary (Crops), DAC
3.	Dr.J.P. Mishra, OSD to Agri Commissioner, DAC
4. ✓	Dr.D.P.Malik, ADC (Crops), DAC
5.	Dr.P.K.Saha, DC(Crops), DAC
6.	Sh. Himat Singh, DC (M&T), DAC
7.	Dr.M.S.Rathore, Agronomist, AICPMIP, Jodhpur
8.	Dr.J.P.Singh, Director (DMD)
9.	Dr.Shaik.N.Meera, Sr.Scientist, DRR, Hyderabad
10.	Sh.M.V.C.Gowda, Project Coordinator (Small Millets), Bangalore
11.	Sh. D.Mukhopadhyay, SO(CA-V), Crops Division, DAC
12.	Sh. Ram Sanehi, Asstt. Dir (Crops), DAC

ANNEXURE-III

**Revised Guidelines
for Conducting Wheat and Coarse Cereals (Barley,
Sorghum, Maize, Pearl Millet & Small Millets) Front
Line Demonstrations (FLDs) as the approved
component of National Food Security Mission
(NFSM) Scheme of the Department of Agriculture &
Cooperation, Ministry of Agriculture, Government of
India, Krishi Bhawan, New Delhi.
Applicable for the year 2014-15**



F. No 2-1/2014-CU-I
Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation
Crops Division

By Speed Post

Krishi Bhawan, New Delhi.
Dated the 22nd April, 2014

Subject:- Revised Guidelines for Frontline Demonstration on Rice, Wheat, Pulses and Coarse Cereals under National Food Security Mission (NFSM) - regarding.

Please find enclosed a copy of the Revised Guidelines for Frontline Demonstration on Rice, Wheat, Pulses and Coarse Cereals for implementation of Frontline Demonstration Programme across the country.

It has approved by the Competent Authority.

(Dr. D.P. Malik)

Additional Commissioner (Crops)

Distribution:-

1. Director, Indian Institute of Pulses Research, Kanpur.
2. Director, Central Rice Research Institute, Cuttack, Orissa.
3. Project Director, Directorate of Rice Research, Hyderabad.
4. Project Director, Directorate of Wheat Research, Karnal.
5. Project Director, Directorate of Maize Research, Pusa, New Delhi.
6. Project Director, Directorate of Sorghem Research, Hyderabad.
7. Project Coordinator, AICRP on Small Millets, UAS, GKVK Campus, Bangalore, Karnataka.
8. Project Coordinator, AICRP on Pearl Millet, Mandore, Jodhpur, Rajasthan.
9. Director, Directorate of Pulses Development, Bhopal, Madhya Pradesh.
10. Director, Directorate of Millet Development, Jaipur, Rajasthan.
11. Director, Directorate of Rice Development, Patna, Bihar.
12. Director, Directorate of Wheat Development, Ghaziabad, U.P.

PTCSS
G. K. Singh
22.04.2014
2014

GUIDELINES FOR FRONT LINE DEMONSTRATIONS UNDER NFSM

Front Line demonstrations (FLDs) is a unique approach to provide an direct interface between researcher and farmers as the scientists are directly involved in planning, execution and monitoring of the demonstrations for the technologies developed by them and get direct feedback from the farmers' field about the crops like wheat, rice and pulses production in general and technology being demonstrated in particular. This enables the scientists to improvise upon the research programme accordingly. In FLDs, the subject matter scientists provide technological inputs to extension scientists to organize the demonstrations. Thus, FLDs provide an opportunity to researchers and extension personnel for understanding the farmer's resources and requirement to fine tune and/or modify the technologies for easy adaptability at farmers' fields.

The FLDs for Rice, Wheat, Pulses, Pearl millet, Maize, Barley, Sorghum and Small Millets are approved component of National Food Security Mission (NFSM). The FLDs are conducted by the ICAR/SAUs system. The ICAR Institutes i.e. Directorate of Rice Research, Hyderabad, Directorate of Wheat Research, Karnal, Indian Institute of Pulse Research, Kanpur, Directorate of Maize Research, Delhi, Directorate of Small Millets, Bangalore, Directorate of Pearl millet, Mandore, Jodhpur and Directorate of Sorghum Research, Hyderabad are the nodal Institutions for organizing the FLDs on rice, wheat, pulses, maize, small millets, pearl millet and sorghum, respectively.

1. FRONTLINE DEMONSTRATIONS

- 1.1 Frontline Demonstration is a form of applied research through ICAR/SAUs system on latest notified/released varieties along with full package of practices on selected farmers' fields with a view to demonstrate the potentiality of the technologies to (a) participating farmers (b) neighboring farmers and other agencies; (c) to analyze the production (d) performance of the technologies for scientific feed back.

2. OBJECTIVES

- 2.1 To demonstrate improved Crop Production Technologies of Rice, Wheat, Pulses and Coarse Cereals on the farmers' fields;
- 2.2 To popularize the newly notified and improved varieties/technologies for varietal diversification and efficient management of resources.
- 2.4 To bring synergy among planers, researchers, farmers and industry for parable interface through seminars/symposium on emerging themes of importance in the field of Rice, Wheat and Pulses production for deciding strategies for development of these crops.

3. SELECTION OF TECHNOLOGY

- 3.1 The need and necessity of demonstration should invariably be based on the emerging issues. The DAC will in advance communicate the desired technologies/thematic areas on which the FLDs to be conducted and the concerned ICAR institutes in consultation with SAUs and other stakeholders should develop a comprehensive plan for organizing the demonstrations.
- 3.2 There will be a committee under chairmanship of Director of Research of concerned State Agriculture University which will decide the technology to be demonstrated. The other members of the committee will be Director of Extension, Joint Directors/ Heads of Departments of Crop Production/ Agronomy, Plant Breeding and Plant Pathology. The technology so decided should be discussed along with the results of the station trials in Annual Workshops and the technical programme should be finalized well in advance.
- 3.3 The Technology programme should take care of the availability of seed of improved varieties /hybrid, drought resistance varieties, method of sowing, IPM, INM, micro irrigation, farm machines etc. to be demonstrated. The seed agencies and the manufacturers should also be taken on board for deciding the FLDs.
- 3.4 The varieties which are within 3 years (5 years for problem areas viz: Hills Saline, Alkaline Soils etc.) period from the date of notification/release/identification should only be included in the demonstration purpose and those varieties in the border lines should be avoided.
- 3.5 The details of the technical programme should be communicated by first week of April for kharif crops and by first week of August for winter crops to Crops Division of DAC to convey the administrative approvals. The plan of FLD will be approved by a committee comprising of:

Agriculture Commissioner	Chairman
Joint Secretary (Crops)	Member
Additional Commissioner (Crops)	Member
Directors/Project Directors (DWR/DRR/IPR, DSR, DMR, DSM, DPM)	Member
Directors (DWD, DRD, DPD, DMD,)	Member
Additional Commissioner (Machinery)	Member
Deputy Commissioner (Seeds)	Member
Joint Director (Crops)	Member-Secretary

4. SELECTION OF SITE AND BENEFICIARY

- 4.1 The site of demonstrations should be at a place easily accessible and at central point to attract large number of audience/farmers for more impact, easy monitoring and feedback.
- 4.2 The technology selected for demonstration should be of paramount importance and preferably with a farmer.
- 4.3 To create better and visible impact of a technology the demonstrations may be conducted in **cluster approach of at least 10.0 hectares**. One demonstration at individual farmer should never be less than 0.4 hectare and not exceeding to one hectare.
- 4.4 Number of demonstrations of a particular variety and package of practices should be decided keeping in view the scientific requirement for reliability and validated of the results.
- 4.5 Demonstrations may be conducted on farming situations for scientific interpretation.
- 4.6 Participatory approach may be followed in conducting demonstrations associating (i) farm scientists (ii) extension workers and (iii) demonstrating farmers, so that we have effective implementation leading to better adoption and diffusion of technology.
- 4.7 Other equal size plots of the demonstrating farmers or the equal size of plot of neighboring farmers in the same farming situation may be considered as check or control plots for objective comparison of the results.
- 4.8 Selection of the site should be decided in consultation with Department of Agriculture of the concerned State and should be such that it is easily assessable to farmers of neighbouring villages and extension workers coming from different parts of the district. The demonstrating farmers should be progressive one with leadership quality and who is easily approachable by other farmers & extension workers.
- 4.9 Special attention towards soil problems like acidity, alkalinity, micro-nutrients deficiency, soil borne pests and diseases should be tackled before taking up the Frontline demonstrations. Identify broad based farming situations and conduct only limited number of FLDs with more emphasis on the quality of FLDs implementation.

- 4.10 Identification of FLDs beneficiaries shall be carried out by the Implementing Centres as per the requirement/aptitude of the farmers to conduct the Demonstrations. Preference for FLDs should be given to the Socio-economically backward/Small Marginal/ST/SC/OBC/ women shall be given at the time of the identification of FLD beneficiaries.

5. SIZE OF FLDS

- 5.1 The size of one demonstration will be 0.40 hectare to one hectare depending upon the size of plot available with small and marginal/women farmers who will be given preference in the selection of beneficiaries.
- 5.2 The assistance for demonstrations will be decided upon the area. The rate of assistance is Rs.7500/ for Rice, Wheat, Pulses and Rs.5000/- for Coarse Cereals per demonstration of one hectare.

6. IMPLEMENTING AGENCY

- 6.1 Front line Demonstrations will be organized by ICAR Institute through their Centers/Krishi Vigyan Kendras (KVKs under ICAR system) and State Agriculture Universities, reputed and registered NGOs.
- 6.2 Directorate of Rice Research, Hyderabad will be the nodal institute for organizing the FLDs on Rice; Directorate of Wheat Research, Karnal for wheat and barley. Indian Institute of Pulses Research, Kanpur for pulses. Directorate of Maize Research, Delhi for maize, Directorate of Small Millets, Bangalore for small millets, Directorate of Pearl millet, Jodhpur for pearl-millet and Directorate of Sorghum Research, Hyderabad for sorghum

7. PLANNING FOR THE DEMONSTRATION

- 7.1 A local survey may be conducted to (a) ascertaining the socio-economic conditions of the farmers; (b) farming situations under which the crop is grown; and (c) the existing level of adoption of technologies and the productivity. This will serve as a broad benchmark for future planning demonstrations work and evaluation.
- 7.2 Agro-economic constraint analysis should be done of the representative farmers sample to identify the critical factors/inputs for the adoption of technologies by the farmers require support for such inputs

- 7.3 Advance planning may be done for the demonstration so that all the critical inputs are arranged in time.
- 7.4 Orientation training may be organized for half a day for all the participating persons about all aspects of technologies and methodologies including aims and objectives of the demonstrations so that there is uniform clarity of purpose for better working relating and linkages.

8. APPROVAL OF TECHNICAL PROGRAMME

- 8.1 The details of physical and financial targets (Agency-wise and location-wise) for laying out the FLDs on Kharif crops to be organized by participating centres may be communicated to the Crops Division of Department of Agriculture & Cooperation, Ministry of Agriculture, Delhi latest by 30th April and 30th August for Rabi crops.
- 8.2 The in-principle approval for the conduct of FLDs will be communicated to the concerned ICAR institutes in first quarter of April for all the crops by the Department to facilitate them to arrange the required inputs and also the selection of beneficiary farmers.

9. IMPLEMENTATION

- 9.1 Prior to the launching of the demonstrations, all participating agencies/persons may be informed well in advance about the date and venue (demonstrating farmers on the demonstration and are invited to participate). On occasion, the neighbouring farmers may also be invited. They should be educated about the details of the technologies and objectives of the FLDs. Sowing of the crops, may be done in the presence of participating persons.
- 9.2 All the important farm operations may be carried out by the demonstrating farmers under the close supervision and guidance of the scientist in-charge of FLDs. The concerned scientist(s) may record observations of all important events so that the results could be interpreted.
- 9.3 When the demonstrations plot is at maturity, the field day may be organized where neighbouring farmers including farm women and extension workers are invited. A question-answer hour i.e buzz session (between the scientists, farmers and extension workers) may be organized.
- 9.4 The information pertaining to different technological interventions adopted at Check plot and FLD plot must record to evaluate the technological gap.

- 9.5 The concerned scientist is expected to keep records of various expenses incurred on various inputs used for the demonstrations plot(s) and check plot (s) for deriving cost benefits.
- 9.6 After the harvesting and threshing the yield (grain & straw/stalk etc.) may be recorded for demonstration plot and check plot.

10. MONITORING

- 10.1 Monitoring is required on continuous and regular basis through visits to FLD plots, recording observations, getting the feed back from the farmers and extension workers.
- 10.2 The Scientist in Charge of the FLDs in SAUs and ICAR Institute should ensure to make regular visits to the demonstration plots to have proper feedback on the impact of the technology.
- 10.3 Monitoring teams comprising of Senior Scientists/Officers of the ICAR system/SAUs, Ministry of Agriculture and the State Department of Agriculture will make visits to such demonstration plots for getting direct feedback and offering suggestions and guidance.
- 10.4 The committee comprising of Agriculture Commissioner, Joint Secretary (Crops), ADG (FFC), Project Directors/Directors of concerned ICAR Institutes, ADG (FFC), ICAR, Additional Commissioner (Crops) and Director, Dte. of Rice, Wheat, millets and Pulses Development as representative from the Department of Agriculture & Cooperation, M/o Agriculture, Government of India will review progress of FLDs periodically at least once during the crop season. The periodical progress report will be submitted by ICAR to the Ministry.
- 10.5 The results and feedback as obtained by the monitoring teams/others should be complied by the Concerned Crop Development Directorates to be submitted to Agriculture Commissioner. The quarterly reports on physical and financial progress will be submitted directly to Agriculture Commissioner of this Department with a copy to the Director, Directorate of Rice, Wheat, Pulses and Millets Development, Patna, Ghaziabad, Bhopal and Jaipur regularly by 15th of succeeding month.
- 10.6 It is also requested to kindly arrange to introduce a more effective system to develop closer coordination between State functionaries of various input units/other State Officials, extension unit of State Agricultural Universities and

Panchyati Raj Institutions in implementing of the Programme. Details of such coordination exercise/meeting should include in the periodic physical report.

11. REPORTING AND DOCUMENTATION

- 11.1 The results of the demonstrations may be properly documented, reported and circulated among all the concerned personnel of the State Department of Agriculture, demonstrating farmers etc.
- 11.2 A success story may be published in popular extension journals (widely circulated in the state) for the benefits of other farmers preferably in local languages.
- 11.3 Full report of FLDs so conducted by ICAR/SAUs is to be sent to Ministry of Agriculture, Department of Agriculture & Cooperation by Directors/Project Directors well before the Annual Workshop and is also presented in the Workshop.

12. FUNDING PATTERN

- 12.1 Frontline Demonstrations on the basis of above guidelines would be conducted in different agro-ecologies through Crop Directorate/Coordinating Unit of ICAR in the potential areas of the country. The funds for the demonstrations so organized by the ICAR/SAUs would be provided by the Government of India from the funds available in National Food Security Mission. For such demonstrations, funds shall be provided directly to the concerned Director//Project Director and the pattern of assistance would be Rs.7500 for Rice, Wheat, Pulses and Rs.5000 for Coarse Cereals per demonstration of one hectare or actual of the cost, whichever is less.

The detailed item-wise break-up of the expenditure for organizing a Frontline Demonstration on one hectare of rice, wheat and pulses is given as under:

S.N.	Component	Amount (Rs.)	
		Rice, Wheat, Pulses	Coarse Cereals
1	Cost of critical inputs (seeds/ bio-fertilizers/manures/PP chemicals/ herbicides) to supplement the cultivation charges	6700	4200
2.	Organization of Field Day	250	250
3.	Display board and publicity material (posters/pamphlets/leaflets etc.)	250	250
4.	Visit of scientists excluding TA/DA, but hiring of Taxi/POL etc. and miscellaneous expenses	300*	300*
	Total	7500	5000

* Nodal FLD implementing Directorate may retain 50 % of the amount for monitoring of FLDs across the country.

- 12.2 Funds earmarked for FLDs may be made available to the concerned SAUs/Scientist well before the start of the sowing season by concerned Directorate/Project Directorate of ICAR.
- 12.3 FLD on newly released varieties should include the package of improved production technologies. The expenditure in excess of the approved norm per hectare if any, should be incurred by the beneficiary-farmer. Therefore, the FLDs only those farmers who are willing to contribute some of critical resources.
- 12.4 In order to monitor the programme, the following information may be furnished by concerned Director/Project Director to the concerned Crop Development Directorate under intimation to Crops Division of Department of Agriculture & Cooperation:

Kharif Crops		
Sl.No.	Activity Milestone	Scheduled date for submission of reports
1.	Name and full addresses of the selected farmers, varieties used, area sown under the Demonstration and Technology demonstrated	Kharif- 15 th July, Rabi- 15 th November
2.	Crop stand and appropriate date for visit by the FLD monitoring team	Kharif- 15 th September Rabi- 15 th January
3.	Tentative dates for organization of Farmer's Day	Kharif- 30 th September Rabi- 31 th January
4.	Report and complete data about FLDs conducted	Kharif- 15 th December Rabi- 15 th May

ANNEXURE-1

DETAILED INFORMATION OF INDIVIDUAL FRONT LINE DEMONSTRATION (FLD)

Details of beneficiaries of FLDs during Kharif/Rabi/summer of year _____

- (1) Name & Complete address of the Implementing Centre :-
- (2) Website/E-mail ID :
- (3) Fax No.
- (4) Name of Crop
- (5) Name of variety/hybrid
- (6) Location
- (7) District
- (8) state

S.N.	Name of beneficiary with address and Phone number	Category (SC/ST/OBC/Gen) & Gender (Male/ Female)	Area of FLD (ha)	Pattern of Financial Assistance								Technology demonstrated	Field day/ Kisan Ghosti	Follow visits of scientist
				Seed		Bio-fertilizers		Micro-nutrients		Weedicides/ pesticides				
				Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value			

Signature of beneficiary

Signature with Seal
Scientist In charge
Implementing Centre

Signature with Seal
Director/Project Coordinator

ANNEXURE-II

**Quarterly/Final physical and financial progress report of FLDs during
Kharif/Rabi/Summer of Year _____**

(1) Name & Complete Address of the Implementing Centre :

(2) Website/E-mail ID :

(3) Fax No.

(4) Name of Crop

No.	Physical				Financial (Rs.)	
	Allocation		Achievement		Allocation	Achievement
	No. of FLDs	Area under FLD	Number of FLDs	Area under FLD		
Men						
SC						
ST						
OBC						
Gen						
Women						
SC						
ST						
OBC						
Gen.						
Total						

Signature with Seal

Director/Project Coordinator

ANNEXURE-III

**Results of FLDs conducted at various locations on farmer's field during
Kharif/Rabi/summer of year _____**

(1) Name & Complete Address of the Implementing Centre :

(2) Website/E-mail ID :

(3) Fax No.

(4) Name of Crop

Implementing Center/ location	Grain yield (kg./ha.)				Fodder yield (kg./ha.)	
	Average yield of concerned State	Average yield of concerned district	Yield under improved practice of FLD	Yield under farmer's practice	Yield under improved practice of FLD	Yield under farmer's practice

Signature with Seal

Director/Project Coordinator

ANNEXURE -IV

ASSESSMENT OF TECHNOLOGY GAP FOR CHECK PLOT AND FLD PLOT

Interview schedule: Socio-Economic Profile of FLD/ check plot farmer

Name of the farmer:	
Address of the farmer:	
Education level:	
Name of KVK or other research station near FLD or check plot	
Number of visit of farmers to KVK or research station	
Number of training attended at KVK or research station	
Size of operational Land Holding	
Area under irrigation	
Area under Rain fed	
FLD conducted on irrigated/rainfed /shallow/lowland/ upland etc.	
Source of Irrigation : tube well /well/pond/canal/other	
Testing of soil: Yes/No	
The farmer has tested soil before FLD	
Place of soil testing/SAU/ICAR/ state Agril Department/ Public undertaking/ others	
Name of nutrients deficit in soil	
Name of prevalent crop-rotation followed at farm	
Name of farm machineries on the farm	
Name of person from implementing agency present at the plot at the time of estimate of yield to record it accurately.	

ANNEXURE –IV
ASSESSMENT OF TECHNOLOGY ADOPTION AND GAP

Items	Farmer's practice (Check plot)	Recommended Practice (FLD plot)
Source of seed Govt. agencies/public undertaking/others		
Name the varieties cultivated		
Other varieties most commonly adopted by the farmers		
Name of Hybrid rice if grown on the farm		
Seed Rate(Kg/Ha)		
Seed treatment with water Yes/No		
Age of seedlings are transplanted in the field		
Seed treatment with fungicides/ others, dose of fungicides/others		
Raising of nursery in case of rice by dry or wet method and raised bed or flat bed		
Quantity and type of NPK fertilizers and manures used in nursery of rice?		
Name and quantity of Plant Protection measures used in rice nursery		
Method of transplanting of rice		
No. of hills per unit area in case of rice.		
No. of plants per hill in case of rice.		
Spacing of row to row and plant to plant		
Method of Field Preparation for transplanting. i.e use of rotavator/other machinery		
Use of Gypsum /Lime: Quantity (Kg/ha.)		
Doses of NPK fertilizers applied		
Name and quantity of use of bio-fertilizers		
Quantity of vermi-compost applied		
Number of doses of N applied: single /double /others		
Name and quantity of micro nutrients applied in field		
Type of irrigation: flood/micro irrigation		
Number of irrigation applied in the field		
Method of weeding: mechanical/ chemical/ manual/others		
Weeding of crop by hand weeder/rotary weeder /cono weeder/ powered weeder		
Name and quantity of herbicides applied		
Name of common insects		
Name of common diseases		
Name and quantity of pesticides for the control of pests		
Number of sprayers of insecticides		
Name and quantity of insecticides of diseases.		
Number of sprayers of insecticides		
Biological control of insects-pests and diseases		
Harvesting of crop is done by manual/ mechanical/ others		
Name of machine used for harvesting		
Threshing of crop is done by manual/ mechanical /other		
Name of machine used for threshing		

Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation
Directorate of Millets Development
2nd Floor, Kendriya Sadan-A, Sector-10, Vidhyadhar Nagar, Jaipur-302 039

F.No. 5-18/2014-DMD-FLDs/360

Dated: 03.05.2014

To,

1. The Director, Directorate of Maize Research, ICAR, Pusa Campus, New Delhi-110 012
2. The Director, Directorate of Sorghum Research, ICAR, Rajendra Nagar, Hyderabad-500 030
3. The Director, Directorate of Wheat Research, ICAR, Karnal-132 001
4. The Project Coordinator (PM), All India Coordinated Pearl Millet Improvement Project, ICAR, Mandore. **Jodhpur-342 304.**
5. The Project Coordinator (SM), All India Coordinated Small Millets Improvement Project, ICAR, KVK Campus, **Bengaluru-560 065.**

Sub: Organization of Front Line Demonstrations of Coarse cereals during 2014-15-reg.

Ref: DAC letter No. 2-1/2014-CU.I dated 25th April, 2014

Sir,

DAC vide its letter referred above has communicated the allocation of FLDs on coarse cereals for implementation during 2014-15 as per details given below:-

(i) Crop specific physical and financial allocation of FLDs during 2014-15.

Name of implementing agency	Crop	FLDs (ha)	Allocation (Rs in lakh) @ Rs. 5,000/- per ha
DSR, Hyderabad	Sorghum	150	7.50
PC (PM), Mandore, Jodhpur	Pearl millet	200	10.00
PC (SM), Bengaluru	Small millets	300	15.00
DMR, New Delhi	Maize	200	10.00
DWR, Karnal	Barley	100	5.00
	TOTAL	950	47.50

- (ii) The rate of assistance for coarse cereals is Rs. 5,000/- per ha.
- (iii) All the FLDs should be conducted under the close supervision of scientist of ICAR/SAUs/KVKs.
- (iv) AICRP on Pearl millet will focus to conduct FLDs on pearl millet in the Western part of Rajasthan.
- (v) DSR, Hyderabad will conduct FLDs of Rabi sorghum in the States of Andhra Pradesh, Maharashtra and Karnataka.
- (vi) Crop season and component specific detailed plan of FLDs should also be submitted by respective implementing agency after finalization of the programme.
- (vii) The reports of FLDs in prescribed format (Annexure-I to IV attached with revised guidelines) need be submitted to Directorate of Millets Development, Jaipur.
- (viii) The FLDs programme should be conducted as per revised guidelines (**copy enclosed**).
- (ix) No chemical fertilizer is allowed as input under FLD programme.

Accordingly, centre-wise allocation and details of the technology to be demonstrated by the centres in each cluster may kindly be furnished to Dr. D.P. Malik, Additional Commissioner (Crops), DAC, Krishi Bhawan, New Delhi with copy to this Directorate for monitoring of the programme.

Encls: a/a.

Yours faithfully,

(Dr. M.N. Singh)
Director (I/c)

Copyto: Dr. D.P. Malik, Addl. Commissioner (Crops), DAC, Krishi Bhawan, New Delhi-110 001 w.r.t. his letter referred above.



GOVERNMENT OF INDIA
DIRECTORATE OF WHEAT
DEVELOPMENT
MINISTRY OF AGRICULTURE
(DEPTT. OF AGRICULTURE AND COOPN.)
C.G.O. COMPLEX-I, 3rd Floor,
KAMLA NEHRU NAGAR
GHAZIABAD- 201 002 (U.P.)

Tel. 0120-2711380 (Dir.) -2710897 (O) Fax: 0120-2711380 Telegram: Gehuri Vikas E-Mail: dwd.wheat@gmail.com

F. No. 8-1/2014-FLD-DWD 425

Date: 07.05.2014

To,

The Project Director,
Directorate of Wheat Research,
Agrasen Marg, Post Box No. 159,
Karnal- 132001(Haryana).



Subject: Approval of organisation of Frontline Demonstrations on Wheat (WFLDs) 2014-15- regarding.

Madam,

With reference to the Ministry's letter no. 2-1/2014-CU-I dated 25.04.2014 on the above cited subject, I am directed to convey that the competent authority has approved an outlay of Rs. 38.25 lakh for organizing 510 (total number) Frontline Demonstrations on Wheat with financial assistance @ Rs. 7500/ha for the year 2014-15 with following instructions.

1. All the FLDs should be conducted under the close supervision of Scientists of SAUs/KVK/ICAR institutes.
2. Crop season and component specific detailed plan of FLDs should also be submitted by respective implementing agency after finalization of the programme.
3. The FLDs programme should be conducted as per the revised guidelines.
4. No chemical fertilizer is allowed as input under FLDs programme.

[Handwritten signature and stamp]

Yours faithfully;

(Narender Kumar)
Joint Director

Copy to

Dr. D.P. Malik, Addl. Commissioner (Crops), Ministry of Agriculture, Deptt. of Agri. and Cooperation, Krishi Bhawan, New Delhi.

1047

34/2014

F.No.2-1/2014-CU-I
Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation
Crops Division

Krishi Bhawan, New Delhi
Dated the 19th June, 2014

Subject: Organization of Frontline Demonstrations (FLDs) on Wheat for 2014-15 reg.

With reference to your letter no. DWR/EXTN/FLD/2013-14/1247-55 dated on May 5, 2014, it is informed that Frontline Demonstrations (FLDs) of cereals and pulses is one of the component of NFSM approved for the XII Plan. The ICAR institutes /SAUs may identify the beneficiary farmers under FLD programme who can contribute the recommended dose of chemical fertilizers from their own resources. Accordingly, ICAR institutes/SAUs may allocate the funds for different interventions within approved cost norms in organization of FLDs of wheat and barley.

[Signature]
19/6/14
(D.P.Malik)

Additional Commissioner (Crops)

To
Project Director,
Directorate of Wheat Research
Agrasen Marg, Post Box No. 159,
Karnal-132001 (Haryana)

[Signature]
21/6/14

[Signature]
20/6/14