

## Clustered Frontline Demonstration on Pulses (2020-21)

The project on frontline demonstration on pulses were funded by NFSM, New Delhi. An area of 1080 ha was covered under Frontline Demonstrations on pulses covering 2700 demonstrations/farmers. Demonstrations was organized in *rabi* and *summer* season in the state of A & N Islands, Odisha and West Bengal. Area coverage was 700 ha with 1750 farmers in *rabi* season with lentil, chickpea, field pea, horse gram, green gram and black gram. In summer coverage was 380 ha with 950 farmers.

In lentil, average yield was 10.5 q/ha in West Bengal against check yield of 7.6 q/ha, an increase of 37.4% over local practices. The area covered in lentil was 210 ha in West Bengal with 525 farmers.

Chickpea demonstration was conducted in 60 ha in Odisha and 70 ha in West Bengal. The demonstration yield was 11.0 q/ha in Odisha and 13.4 q/ha in West Bengal. Field pea crop was demonstrated in Odisha in 40 ha and 10 ha in West Bengal. The average yield was 14.2 q/ha in Odisha and 12.5 q/ha in West Bengal. Improvement in yield was 27-36%. Horse gram, green gram and black gram was demonstrated in *rabi* season in Odisha. The average yield was 6.5 q/ha in green gram, 5.4 q/ha in black gram. Increase in yield was 30-40%.

In summer, green gram was demonstrated in all 3 states covering 300 ha. Black gram was demonstrated in West Bengal in 50 ha and A&N Islands in 30 ha.

The average yield of green gram was 5.33 q/ha in Odisha. 8.1 q/ha in West Bengal and 5.98 q/ha in A & N Islands. It showed 37 to 59 % increase in yield. Black gram showed 56% increase in yield in West Bengal and 44 % increase in yield in A & N Islands. The results of demonstrations are summarized in the below table.

### Frontline demonstration conducted by NFSM

Sl. No.	Crop	State	Target of FLDs		Achievements of FLDs		Average yield (q/ha)	Yield (q/ha)	Yield increase %	Difference between demon and local (q/ha)
			No. of Demos	Area (ha)	No. of Demos	Area (ha)				
1	Lentil	West Bengal	525	210	525	210	10.5	7.6	37.4	2.9
2	Chick pea	Odisha	150	60	150	60	11.00	6.7	64.1	4.3
		West Bengal	175	70	175	70	13.4	9.43	42.3	4.0
3	Field pea	Odisha	100	40	100	40	14.2	10.4	36.5	3.8
		West Bengal	25	10	25	10	12.5	9.82	27.5	2.7
4	Horse gram	Odisha	25	10	25	10	6.2	4.8	29.2	1.4
5	Green gram	Odisha	525	210	525	210	6.5	4.6	40.7	1.9
6	Black gram	Odisha	225	90	225	90	5.4	3.7	30.7	1.7
<b>Total</b>			<b>1750</b>	<b>700</b>	<b>1750</b>	<b>700</b>				
7	Green gram	Odisha	225	90	225	90	7.05	5.33	40.1	2.19
		West Bengal	375	150	375	150	11.3	8.21	37.4	3.16
		A&N Islands	150	60	150	20	9.6	5.98	59.1	3.53
8	Black gram	West Bengal	125	50	125	50	10.3	6.8	56.4	3.22
		A&N Islands	75	30	75	12	8.4	5.4	44.2	2.62
<b>Total</b>			<b>950</b>	<b>380</b>	<b>950</b>	<b>322</b>				
<b>Grand total</b>			<b>2700</b>	<b>1080</b>	<b>2700</b>	<b>1022</b>				

## Result of CFLD on Pulses during 2020-21 (*rabi*)

Sl. No.	Crop/ Season	Variety	Technology demonstrated	Area (ha)	No. of farmers	Farmer Practice (q/ha)	Yield		Economics of Demo (Rs./ha)			
							Demo (q/ha)	% increase	Gross Cost	Gross return	Net Return	BC ratio
<b>Rabi season</b>												
1	Lentil	<i>WBL 77 (Moitree)</i>	Seed treatment with Rhizobium @5 g /kg of seed / application of B @2g/L of water at 35 days & at 42 to 45 days aftersowing/Zinc sulphate @ 20 Kg/ha and Borax @ 10kg/ha	130	501	7.60	11.10	46.00	23763	59961	36198	2.52
		<i>HUL 57</i>	Seed Treatment with Trichoderma @ 4 gm/kg seed,/Seed Priming (Rhizobium inoculation) @ 20 gm/kg of seed through Jaggery mixture/ Basal application of PSB and Azotobactor @ 2 kg/acre	20	87	8.10	10.10	25.84	23075	51695	28620	2.24
		<i>PL-08</i>	Line sowing/Seed treatment-Trichoderma viridae- 4g/kg/ Soil application- Azotobactor + PSB@ 200g each, and foliar application of B@ 2g/ltof water and soil application 7.5 kg/ha	30	148	8.50	10.00	17.64	24465	56260	31795	2.30
		<i>L 4717</i>	Line sowing (20 cm × 8-10cm) / weed management Pendimethalin @ 0.75 l/ ha & Propaquizafop @ 0.1 kg/ha at 15- 20 DAS/ 2. Foliar application of boron @ 0.2% for twice Yellow sticky trap @ 16/ha, Pheromone trap with lure @ 20/ ha	20	52	7.10	9.60	35.44	19748	45396	25648	2.30
		<i>Pusa Agati-4717/WBL-77/KL-320</i>	Seed treatment / Soil Treatment + PSBspray / Micronutrient spray / InsectManagement / Disease Management	10	30	8.14	12.86	57.80	18022	70703	52681	3.94
2	Chickpea	<i>NBeG-47</i>	Improved variety- NBeG-47/ Line sowing (30x10cm)and seed treatment with carbendazim @3 gm /kg of seed/. Foliar spray of multi-micronutrient Eurostar 2 ml/lit once at preflowering stage and allwin top plus 2ml/lit at flowering stage.	50	82	6.68	11.95	81.10	24700	77500	50800	3.13
		<i>NBeG-49</i>	Seed Treatment with Carboxin 37.5% + Thiram 37.5%/ Basal application of Zypmite Plus as Soil conditioner/ Vermicompost under INM and use of Neem Oil,/Thiamethoxam 25% EC/ Yellow Sticky Trap and Blue Sticky Trap under IPM.	10	25	6.80	9.10	34.81	23800	42042	18242	1.76
		<i>JAKI-9218</i>	Variety-Jaki-9218, Introduction of Improved variety Jaki-9218	10	33	12	13.69	14.1	30095	73926	43831	2.46
		<i>Anuradha</i>	Herbicide Whip Super (Fenoxaprop-P-ethyl) as early post emergence @ 0.5 lt / ha / Micronutrient spray Boron-20 @ 2 g/lt water in 25 and 45 DAS and need based fungicide spray Carbendazim+ Mancozeb 2 g/lt of water for control ofwilt	10	84	8.20	14.90	81.5	17900	74500	56600	4.20
		<i>NBeG 45</i>	Application of Sulfur and micronutrient nutrition	10	35	8.10	10.55	30.25	19500	42440	22940	2.18
		<i>NBeG-49</i>	Variety- NBeG-49 @ 75kg./ha, Seed Treatment-Trichoderma viride @200gm/ha & Pseudomonas 200g/ha/Fertilizer-30kg N &100kg P2O5/ ha, Seed Rate: 75 Kg/ha/ Bio-Fertilizer: Rhizobium @ 2 kg/ha & PSB @ 2 Kg/ha, micro-nutrient: Zn @25 Kg/ha./ Plant Protection: Gram Pod Borer (Helicoverpa armigera)-Indoxacarb:0.5 ml/lt,	30	137	10.32	14.92	47.20	30744	77467	46590	2.48
		<i>RVG202</i>	Variety/ Seed treatment with Rhizobiumand application ofBio-fertilizer, PSB	10	47	8.78	13.59	54.70	23763	59961	36198	2.52
3	Fieldpea	<i>Aman</i>	Seed treatment with Vitavax power @ 2 gm per kg seed /Line sowing ( 30x10cm), Seed inoculation with Rhizobium @ 20g/kg seed, /Application of Boron @1kg/ha and Wettable Sulphur @ 1.5 kg/ ha,/Soil test based fertilizer applica-tion (based on the recommended dose of25:50:25 kg NPK / ha),	40	125	8.80	12.95	47.16	29850	66505	36655	2.23
		<i>PL-08</i>	Line sowing/Seed treatment-Trichoderma viridae- 4g/kg/ Soil application- Azotobactor + PSB@ 200g each, and foliar application of B@ 2g/ltof water and soil application 7.5 kg/ha	30	148	8.50	10.00	17.64	24465	56260	31795	2.30
4	Horse gram	<i>Chakapada Kolatha</i>	Seed treatment with Vitavax power @ 2gm per kg seed, Line sowing (with spacing 30x10 cm), Seed inoculation with Rhizobium @ 20g/kg seed and soil application of PSB @ 6 kg/ha,	10	32	4.80	6.20	29.17	13300	30015	16715	2.30

Sl. No.	Crop/Season	Variety	Technology demonstrated	Area (ha)	No. of farmers	Farmer Practice (q/ha)	Yield		Economics of Demo (Rs./ha)			
							Demo (q/ha)	% increase	Gross Cost	Gross return	Net Return	BC ratio
5	Black gram	Vallab Urd1	Seed rate of 20 kg per ha/Seed treatment with Rhizobium sp.@ 20g/kg 3. Post emergence application of Quisqualofop Ethyl 5% EC @ 1.5 ml/14. Plant Protection to control pod borer application of Emamectin Benzoate 5 % SG @ 0.4 g/	20	50	4.35	6.18	29.55	24165	43225	19061	1.79
		PU 1	Seed Treatment with Carboxin 37.5% + Thiram 37.5%, Basal application of Zypmite Plus as Soil conditioner & Vermicompost under INM and use of Neem Oil, Thiamethoxam 25% EC, Yellow Sticky Trap and Blue Sticky Trap under IPM.	10	25	3.88	2.50	55.20	13835	21728	7893	1.57
		IPU 2-43	seed treatment with chemicals , soil test based fertilizer application, application of chemical for weed management and need based plant protection measures	60	172	3.78	5.40	30.00	7950	27900	19950	3.51
6	Green gram	IPM-205-7(Virat)	Var.IP M-205-7(Virat) - Line sowing 25cm x 10 cm,/Seed treatment with Carbendazim @1gm/kg & Rhizobium culture @ 20 gm/kg seed, STBF,/ Application of Phospho - Gypsum @ 2.5 q/Ha., Sulphur 80WP @ 5 gm. /ltr of water	10	33	5.60	9.15	63.39	28600	47000	18400	1.64
		IPM-02-14	Soil test based fertilizer application, seed treatment with chemicals and inoculation with Rhizobium, Soil application of biofertiliser, foliar spray of Boron & nutrient at 30 DAS and 45 DAS , Use of neem based pesticides	200	517	4.54	6.265	40.77	18614	38880	20266	2.24
<b>Total</b>				<b>700</b>	<b>2265</b>							

Sl. No.	Crop/Season	Variety	Technology demonstrated	Area (ha)	No. of farmers	Farmer Practice (q/ha)	Yield		Economics of Demo (Rs./ha)			
							Demo (q/ha)	% increase	Gross Cost	Gross return	Net Return	BC ratio
<b>Summer season</b>												
1	Green gram (Odisha)	IPM 02-14	Variety IPM 02-14 , Seed treatment with Rhizobium @ 20 gm/kg of seed, Soil test based fertilizer application , Line sowing (30X10) and need based PP measures-Chloropyrifos 50% + Cypermethrin 5 % @ 2ml/L for control of fungal attack, for control of sucking pest spraying Thiomethoxam 25 WG 5 gm/15L	90	203	5.23	7.8	49.14	22454	47813	25118	2.07
	Green gram (WB)	IPM205-7 (Virat)	IPM205-7 (Virat) Seed treatment with T. Viridae (@ 5g/kg),Rhizobium inoculation (@ 600g/acre), Boron(20%) application @ 2g/ L of water, Application of Liquid Sulphar (33%) @3ml/L of water, application of Imidachlorpid 17.8 SL @0.3ml/L of water for mosaic, application of Chlorantraniliprole 18.5% SC against pod borer.	120	502	7.72	10.14	31.35	25428	61402	36031	2.46
		Samrat	Samrat, Application of Boron @2g/L of water at 30& 42 DAS, lime application @200kg/ha before 15 days of sowing, line sowing (30X10cm)	10	25	6.3	7.34	16.51	13810	24330	10520	1.76
		IPM-02-03	IPM-02-03, Seed treatment with Rhizobium @ 1.5 kg/ha, Application of Insecticide Imidachlorpid and chlorpyrifos @ 1.5ml/L at flowering and pod development stage, application of fungicide Copper Oxychloride 1kg/acre at active growth stage and fruiting stage,application of pre emergence herbicide Pendimethalin @ 750 g ai/ha	20	95	7.94	10.85	36.65	26650	66376	39726	2.43
		Green gram (A&N)	CO8	Seed treatment with Rhizobium @50g/kg, Phosphobacteria, Trichoderma viride @20g/kg of seed and foliar application of pulse wonder @ 5 kg /	10	25	4.52	6.65	47.12	23400	47822	24422

	Islands )		ha at flowering and 15 days after 1st spray									
		<i>CARI Moong-1</i> <i>CARI Moong-3</i> <i>CO-8(CO-303)</i>	Varieties -CARI Moong-1,CARI Moong-3,CO-8(CO-303),Soil application- Pseudomonas , PSB & Tricoderma viridea@ 200g each , groundnut nut cake @5kg, application of Azadirachtin 1500 ppm bio Insecticide @ 0.5-1 ml/L water sprayed on foliage and root zone at every 7 days interval	10	40	3.3	4.15	25.76	26500	48800	22300	1.84
2	Black gram (WB)	<i>PU-01</i>	Var: PU-01, Spray of Pendimethalin as pre emergences @ 3L/ha, micronutrient spray Boron-20 @2gm/L water at 25 and 45 DAS	10	76	6.2	12.25	97.58	17500	67375	49875	3.85
		<i>PU-31</i>	PU-31, Line sowing(30X15 cm), Seed treatment- Trichoderma viridae-4g/kg, Soil application- Azotobactor & PSB@ 200g each and foliar application of B@ 2g/L of water and soil application 7.5 kg/ha	40	132	7	10.55	50.71	24738	58050	33312	2.345
	Black gram (A&N Islands )	<i>VBN(Bg)-8</i>	Seed treatment with <i>Rhizobium</i> @50g/kg, <i>Phosphobacteria</i> , <i>Trichoderma viride</i> @20g/kg of seed and foliar application of pulse wonder @ 5 kg / ha at flowering and 15 days after 1st spray	10	25	3.1	5.61	80.97	18800	33593	14793	1.79
		<i>CARI Urd-1</i> <i>VBN-8</i> <i>(C-875)</i>	Varieties -CARI Urd-1, VBN-8 (C-875),Soil application- Pseudomonas , PSB & <i>Tricoderma viride</i> @ 200g each , groundnut nut cake @5kg, application of Azadirachtin 1500 ppm bio Insecticide @ 0.5-1 ml/L water sprayed on foliage and root zone at every 7 days interval	2	22	2.5	2.95	18.00	26500	36000	9500	1.36
<b>Total</b>				<b>322</b>	<b>1145</b>							

