Front Line Demonstrations conducted under TSP-STCR, during kharif and rabi seasons:



The FLD's were conducted at 10 tribal villages of District-Korea. The details of the farmers and their farms soil testing report of 10 tribal villages with different crop tested with STCR technology and compared with farmer's fertilizer practices.

Out of 140, Total 50 demonstrations were taken for rice in kharif season and 90 demonstrations were taken for wheat, mustard,

potato, brinjal & tomato in rabi season. The yield targets of crops were fixed as per crop variety and farms condition. The crop yields achieved against targeted with in

the limit of ±10 % variation is considered valid under STCR norms. Results indicate that soil test based balance fertilizer application to achieve a definite yield target of the crop can be benefited to the farmers in term of net profit and net return as compared to the farmer's fertilizer practice or blanket fertilizer dose which do not account the balance manner of fertilization. The tribal beneficiaries were



given inputs like seed, fertilizers and plant protection measures and benefited with increased yields over their traditional practices.

Crop	Variaty		izer dose target (c		Yield	Yield FPD	% Increased
Crop	Variety	Variety FN FP FK ST		STCR		over FPD	
Tomato	S-22, Vaishnavi 2082	100.63	47.13	63.00	324.94	291.56	34.01
Brinjal	VNR-125 & VNR-16	128.93	42.20	63.13	206.23	158.01	26.95
Potato	Kufri bahar	190.00	72.80	54.80	210.12	171.46	22.86
Wheat	GW-322,273, HD 2932	101.83	37.14	36.07	27.66	19.03	47.17
Mustard	Bharat Sarson- 2	128.00	44.50	50.00	12.50	8.65	44.80
Paddy	Chandrahasani, IR-64	107.92	41.60	45.59	46.09	35.04	32.73

Front Line Demonstrations conducted under TSP-LTFE, during kharif and rabi seasons:



The Front Line Demonstrations in a approached based cluster was carried out by Krishi Vigyan Kendra, Korea with technological & financial Balance support of Nutrient AICRP-Management under LTFE, IGKV, Raipur during Kharif & Rabi season from 2014-15 to 2016-17 (Three consecutive years) in the Tribal farmers field of adopted villages of Korea district. During this Three year of study, in area of 32 ha & 50 ha was covered with plot

size 0.40 ha under Front-line demonstration with active participation of *125 and 80 tribal farmers* in rice and wheat respectively. Before conducting FLDs, a list of tribal

farmers was prepared from group meeting and specific skill training was given to the selected farmers regarding package of practices of Rice & wheat. In demonstration plots, seeds use of quality of improved varieties, Sowing Operations, timely weeding, need based pesticides application as well as *balanced* fertilization (100:60:40). irrigation were emphasized and comparison has been with made the existing practices. The tradition



practices were maintained in case of farmers practices & local check. The data output were collected from FLD plots as well as farmer and control plot and finally the extension gap, technological gap, technological index along with the benefit-cost ratio were calculated from FLD plots as well as farmer and control plot and finally the extension gap, technological gap, technological index along with the benefit-cost ratio were calculated.

Productivity, technology gap, extension gap and Technology index in Rice under Front Line Demonstration

Area	Variotios				Seed Yield (q/ha)				
(ha)	vu	liteties	Pote	otential Demonstra		strations	Farm	ers Practices	Control
20	Chano	drahasani	5	50 42.85		31.48		36.12	
12	Saml	leshwari	5	0	0 40.55		32.50		24.77
Technolo	ogy Gap	Extension	Gap	Tec	hnology		B:C Ratio		
(q/ł	na)	(q/ha)		Index (%) RP)	FP	TP	
7.1	5	11.37		1	4.30 2.84		4	2.37	1.67
9.4	15	8.05		1	8.90 2.60		0	2.65	1.38

Area	Varieties		Seed Yield (q/ha)				
(ha)	varieties	Potential	Potential Demonstrations Farr		Over Control		
20	Ratan	40	37.04	22.70	63.00		
20	RBW4102	40	35.16	23.20	51.00		
10	GW-273	40	36.11	22.59	59.00		

Productivity, technology gap, extension gap and Technology index in Wheat under Front Line Demonstration

Technology	Extension	Technology		B:C Ratio	
Gap (q/ha)	Gap (q/ha)	Index (%)	RP	FP	TP
2.96	14.34	7.40	3.01	2.39	1.97
4.84	11.96	12.10	2.70	2.25	1.75
3.89	13.52	9.72	2.77	2.12	1.60

Front Line Demonstrations conducted under AICRP-Fodder, during kharif and rabi seasons:



Krishi Vigyan Kendra-Korea in collaboration with ACRIP Fodder-TSP initiated year round fodder production model in cluster as well as individual Tribal farmers Field to increase the nutritive fodder area, production and productivity as village level namely Bhandarpara, Karildua, Nagar & Budar Block-Baikunthpur, District-Korea. Farmers has been selected as per their interest and intensive training programme conducted as Village

level & KVK to create awareness to grow fodder in their waste land/upland to make fodder as income generation source. RCC pole fencing with barbed wire in cluster land was done. Sprinkler system and pump was taken up with Agriculture Department in Shakambari scheme. In Which Farmers share deposited by ACRIP-Fodder and Subsidy through state government.

Fodder production initiated in



Rabi 2015-16 with allocation of various fodder crops to demonstrate for promote the fodder production & productivity. Green fodder production tie up for sale with district government diary and KVK Farm to create self entrepreneurship among farming community. This established model will be continuing to grow fodder during upcoming Kharif, rabi and summer season with KVK support.

	Cluster Village-Salka, Total Tribal Farmers:9							
S.N.	Crop	Varieties	Area Allocated (ha)	Cuts	Yield (kg)	Income in Rs.		
1	Sorghum	UGS 999	0.80	3	25000	45000		
2	Bajra	UGS 888	0.30	3	10500	18900		
3	Maize	African Tall	0.20	1	5500	9900		
4	Oat	Cant	0.30	3	8000	14400		
5	Sudan Grass	JS 263	0.40	3	15500	27900		
	TOTAL		2.00		64500	116100		
	C	luster Village-	Nagar, Total Tribal Fa	armers:	12			
S.N.	Crop	Varieties	Area Allocated (ha)	Cuts	Yield (kg)	Income in Rs.		
1	Berseem	Berseem 22	0.40	3	17500	31500		
2	Bajra	UGS 888	0.30	3	11000	19800		
3	Maize	African Tall	0.40	1	10500	18900		
4	Oat	Cant	0.40	3	10000	18000		
5	Sudan Grass	JS 263	0.80	3	29500	53100		
	TOTAL		2.30		78500	141300		
	Demor	nstration on Fo	odder Crops, Total Tri	ibal Fa	rmers:16			
S.N	Crop	Varieties	Area Allocated (ha)	Cuts	Yield (kg)	Income in Rs.		
1	Sudan Grass	JS 263	1.0	2	31500	51975		
2	Maize	African Tall	1.0	1	23500	38775		
3	Sorghum	UGS 999	1.0	2	28500	47025		
	TOTAL		3.0		83500	137775		

Front Line Demonstrations conducted under CSS-MIDH, during *kharif and rabi* seasons:

35 demonstrations were conducted in 3.80 ha area in different tribal villages to disseminate the production technology of high yielding (120.56 q/ha) Roma variety having high curcumin content (4.8%), Suprabha Zinger variety, Chili Pusa sadabhar & VNR 145 . Field diagnostic visits, regular surveys, farmer meetings and training programmes ensured ridge and furrow planting, drip irrigation, application of balanced and optimum doses of nutrients and timely plant protection measures. These activities ensured higher yield over local practice of cultivation in the range of 22.5-31.4 per cent. An average net profit of Rs 279525, Rs 260917 and Rs 127451 were recorded under recommended practice. Benefit/ cost ratio ranged from 1.95, 1.67 to 2.17 under demonstration plots of Zinger, Turmeric & Chili respectively.

With frontline demonstration (FLD) of proven technology it could be shown that yield potential and net income from turmeric, zinger and chili cultivation could be enhanced to a great extent resulting in higher income to the farming community.

S. No	Crop	Variety	Area (ha)	Yield (t)	Seed/Rhizome (ha) facilitated to Farmers
1	Ginger	Suprabha	4.05	48.73	27.07
2	Turmeric	Roma	2.50	43.02	17.20

Production of Quality Material (At KVK Farm)

۶.	Crop	Variety	Area	No. of	Yield	Gross	Net	Total	B :C
No.				farmers	(t /ha)	return	return	production	
1	Ginger	Suprabha	0.5	05	10.93	546500	279525	5.46	1.95
2	Turmeric	Roma	2.0	20	25.64	437500	260917	51.28	1.67
3	Chili	Pusa Sadhabahar/ VNR-145	1.3	10	2.50	277082	127451	3.25	2.17
			3.80	35					

Technology Dissemination through FLD (At Tribal Farmer's Field)



FLD	Crop	Yield	(q/ha)	Net Re	turn (Rs)
FLD	Crop	FP	RP	FP	RP
DSR and balance fertilizer in Samleshwari	Rice	30.05	39.37	13100.8	20508.9
Improved Var.– Rajeev Lochan	Pigeon Pea	6.70	12.50	21496.0	49727.25
Improved variety Utakal of Niger line sowing and balance fertilizer.	Niger	1.95	3.99	3131.4	9497.3
Improved high yielding Variety of Brinjal- US 172	Brinjal-	158	280	76220	129510
Improved high yielding Variety of Okra- Arka Anamika	Okra	46.58	68.23	59600	98630
Performance of improved variety HD- 2932 wheat for late sown condition	Wheat	29.22	36.74	22386	29003
Improved variety Vaibhav	Chick pea	6.20	9.88	7801.4	15281
Recommended Dose of Fertilizer in Potato	Potato	148	225	56868	100670
Stacking in indeterminate varieties of tomato	Tomato	300.55	896.31	197475	654752
Improved hybrid variety Indira Sona line sowing and balance fertilizer	Rice	24.45	37.14	6767.8	22318.9

FLD	Crop	Yield	(q/ha)	Net Re	turn (Rs)
	Crop	FP	RP	FP	RP
Varietal Demonstration on Improved High Yielding Variety	Onion	182.26	325.54	58142.39	126929.67
Demonstration of Redomil M-Z for the control of early and late blight of potato	potato	195.4	305.6	54899.8	107031.6
Demonstration on Improved Var. of Pea (Arkel)	Pea	32.4	52.8	35160	73060
Demonstration on Clodinafop Propargyl 15% + Metsulfuron Methyl 1% WP @ 400 g ha ⁻¹ at post emergence application in Wheat at 25-30 DAS	Wheat	23.46	29.64	14612	22273
Improved variety HD-2932,line sowing and balance fertilizer	Wheat	22.72	26.67	14124	19410
Demonstration on Line sowing of Mustard by seed cum fertilizer drill	Mustard	3.95	5.5	6238	11707
Line sowing of Chickpea by seed cum fertilizer drill	Chickpea	4.48	6.65	10508	18955
Herbicide Application & STCR Based Fertilizer Recommendation for target yield under line sown wheat	wheat	16	25	12075	19550
Use of high yielding green fodder for milch animals	Fodder	877	975	9845	13588
Demonstration on improved variety of Turmeric-Roma	Turmeric	156.72	222.32	240585	367656.77
Demonstration on improved variety of Zinger- Suprabha	Zinger	144.42	186.34	846202.76	641573.44
Demonstration On Improved Variety Of Chilli- VNR No135	Chili	189.46	297.33	55962.75	105798.84
Demonstration on improved variety of Capsicum-Indra+ Drip Irrigation+ Black Polythene Mulch	Capsicum	165.74	245.61	50402.67	87218.59
Demonstration of improved Rice Durgeswari	Paddy	28.89	34.58	15067	22032.4
Demonstration on Bispyribeck Sodium 200g ha ⁻¹ at post emergence application at 25-30 DAT	Paddy	30.38	34.58	17290	23514.4
Demonstration of improved variety Groundnut K-6	Groundnut	10.3	16.6	33300	50200

FLD	Crop	Yield	(q/ha)	Net Return (Rs)		
	Стор	FP	RP	FP	RP	
Demonstration of improved variety of wheat for late sown condition	Wheat	28.89	33.59	15211	19410	
Demonstration Of Two Improved Dual Purpose Color Bird of Poultry (Vanraja. And RIR) In Semi Intensive Poultry Farming System	Poultry	1.30	1.73	118.00	137.95	
Demonstration of green Grass as year round fodder production for milch animal.	Green Grass	1200	1700	2900	3900	
Demonstration of high yielding green fodder for Milch animals	Fodder production	1375.22	1503.42	144.4	157.81	
Improved variety line sowing and balance fertilizer	Rice	29.39	35.11	15808	22836.4	
Improved variety line sowing and balance fertilizer	Wheat	26.67	34.08	17879	26820	
Demonstration of improved variety, earthing up and application of balanced fertilizer in Turmeric	Turmeric	48.9	88.6	91098	241746	
Demonstration on cultivation of ginger in ridge and furrow under drip	Ginger	8.15	15.64	282813	638546	
Demonstration on line sowing, improved variety and use of Rhizobium culture in pea	Pea	3.02	8.54	24261	125915	
Staking in tomato, Improved variety	Tomato	24.1	31.2	134800	186600	
Improved variety, seed treatment and IPM in chili	Chili	10.76	15.32	50080	82742.5	
Demonstration on line sowing, drip and fertigation technique in cumin	Cumin	1.02	2.14	3462	41917	
Demonstration on line sowing, improved variety and application of drip in lemon grass	Lemon grass	-	496 kg (oil)	-	19200	
Demonstration on line sowing, improved variety and application of drip in lemon grass	Palmarosa	-	60 kg oil	-	22000	
Demonstration on line sowing, improved variety and application of drip in	Khus	-	6.8 kg oil	-	66400	

FLD	Crop	Yield	(q/ha)	Net Re	eturn (Rs)	
FLD	Crop	FP	RP	FP	RP	
khus						
Stall feeding system for goat	Black Bengal	625.61	1156	29400	54320	
Stall feeding system for goat	Sirohi	19	6	13987	46200	
Hydroponic Green Fodder	Gir & Sahiwal	5.08	5.64	141	172.5	
Balance Diet Management	Black Bengal	9.0	15	950	1700	



Work done on promotion of production of pulses and oilseeds

Front Line demonstrations (FLDs) are the important extension techniques to convince the farmers about latest farm technologies. The present interventions implemented to assess the impact of frontline demonstrations on different oilseed and pulses crops conducted in the tribal dominated farming community. Interventions revealed that improved cultivation practices comprised under FLDs viz., recommended varieties, seed rate, timely sowing and plant protection technology resulted in increase in yield in crop over the farmers practices. Technology gaps, extension gaps and technology indices were calculated to analyze the performance of these front line demonstrations at farmers' fields which indicate the role of extension functionaries to act in a mission mode to fill the gaps and make the region selfsufficient in pulses and oilseeds.

The KVK has organized 2044 FLDs on Pulses & Oilseeds conducted in 1034 ha under cluster and individual mode in NFSM, AICRP-Pigeon Pea, TSP and NWRP on arid legumes. These demonstrations aimed to determine the impact of frontline demonstrations (FLDs) on yield, adoption, varietal replacement and horizontal spread technology *i.e.* Improved varieties, Bio-agent (*Trichoderma* of ppromising /pseudomonas Bio fertilizers 10g per kg seed), (Rhizobium/Azotobacter/Azospirillum/PSB 5g per kg seed), Pre-emergent herbicide application of Pendimethalin 30 EC @ 1000 ml per acre, Post-emergent herbicide application of Imazathyper 10% SL @ 250 ml per acre, RDF as per SHC. In order to encourage the use of agricultural machinery, the seed drill, multi crop planter and zero seed drill were facilitated by KVK to FLD's farmers for sowing purposes in all conducted demonstrations.

The package and practices demonstrated in the front line demonstrations were observed and visited by *Dr. I. P. Singh, Project Coordinator, IIPR, Kanpur, Dr. A.K. Shivhare Assistant Director, DPD Bhopal as well as Dr. M. K. Singh, Dr. G. P. Pali, Dr. A. K. Singh, Dr. V. K. Singh and Dr. G. P. Painkra, Scientist, IGKV, Raipur. Monitoring team made farmers aware of advanced technologies and encouraged farmers to adopt technologies in more and more fields.*

- Front line demonstration of pulses and oilseeds given in upland situation under crop diversification
- Horse gram (44 ha) and Niger (50 ha) were sown in mid-kharif in the fellow upland
- Lowland rice field used for increasing the double crop area under oilseed & pulses by utilizing residual soil moisture through zero seed drilling (Mustard-27.00 ha, Linseed-35 ha, Chickpea-30 ha and Field pea-30 ha)
- Pigeon pea, Chickpea and Field pea have been sown in 446.40 ha from multi crop planter.
- Seed Production Programme initiated in farmers field in 40 ha Pigeon pea, 10 ha Black gram and 20 ha Sesame.
- > Rainfed Linseed cultivated in about 20 ha of land.
- Quality seed production at farmers field i.e. Linseed (15.84 q), Chick pea (14.10 q), Pigeon pea (7.00 q), Field pea (19.50 q), Mustard (7.06 q) respectively.

Crop	Varieties	Area in ha	No. of demonstrations
Pigeon pea	Rajeev lochan, TJT-501,	208	491
Black gram	Aazad-3, MASH-479,	70	135
Horse gram	Indira Kulthi- 1	44	91
Chickpea	JAKI-1918, JG-11, Vaibhav	150	274
Field Pea	PARAS, VIKASH,	148	288
Sesame	TKG-22, TKG-55,	60	104
Niger	Birsa, JLC-9,	50	79

Groundnut	Dharani,	34	84
Mustard	CG-Sarson, NRCBH-101,	153	259
Linseed	KARTIKA,	117	239
Total		1034	2044

Comparison of yield and economics between FLD and farmers practices in different crops

Crop	Yield (q/ha)		Net Retu	Net Return (Rs)/ha	
	FP (T1)	RP (T2)	FP (T1)	RP (T2)	
Pigeon pea	8.99	11.93	18373	35368	
Black gram	4.93	6.47	9480	15840	
Chickpea	5.50	8.00	11320	16463	
Field Pea	5.23	8.63	21860	32097	
Horse Gram	2.64	5.05	2450	5952	
Groundnut	8.59	11.62	15818	22535	
Sesame	2.55	4.42	3289	5740	
Mustard	4.37	5.63	12213	18751	
Linseed	4.16	5.84	13735	18577	
Niger	2.47	3.53	6795	10294	

Technological gap, Extension gap and Technological index of the respondents of FLD Technological Crop Extension Gap (Dy-Technological Index (P-D)/P*100 Gap (Py-Dy) Fy) 5.07 Pigeon pea 2.94 29.82 6.53 1.54 50.23 Black gram Chickpea 7.00 2.50 46.67 **Field Pea** 8.37 3.39 49.25 4.95 2.41 49.50 Horse Gram Groundnut 2.38 3.03 17.00 Sesame 2.58 1.87 36.86 Mustard 9.37 1.26 62.47 Linseed 4.16 1.68 41.57 4.47 55.88 Niger 1.06

Production of pulses & oilseed from conducted demonstrations:

Crop	Production MT		
Pigeon pea	248.14		
Black gram	45.29		
Horse	35.20		
gram	55.20		
Chickpea	129.45		
Field Pea	74.74		
Sesame	69.72		
Niger	22.10		
Groundnut	19.14		
Mustard	89.35		
Linseed	41.30		
Total	774.44		



Mustard								
Treatment			Yield (q ha [.] ')	% Change in yield	Net Income (Rs./ha)	B:C Ratio**		
FP			3.14	-	12730	1.68		
ZSD			4.81	53.18	29990	1.91		
Linseed								
Treatment			Yield (q ha ⁻ ¹)	% Change in yield	Net Income (Rs./ha)	B:C Ratio**		
FP			3.54	-	7460	1.84		
ZSD			5.62	58.75	14730	2.32		
Field pea								
Treatment			Yield (q ha ⁻ 1)	% Change in yield	Net Income (Rs./ha)	B:C Ratio**		
FP			5.59	-	9460	1.64		
ZSD	8.62	55.59	16730		2.12			

Production of Pulses & Oilseed by Zero Seed Drilling





