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## Increase pulse production through cluster frontline demonstrations

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### Abstract

Field demonstrations were conducted in Rabi & Kharif season 2015-16 & 2016-17 at village Malhipur, Nanadfirozpur block Balia Khedi & village Bidvi & Jagheta Gujar block Nakur Saharanpur Distt. U.P. under NFSM programme to yield evaluate in pulses of different varieties Black gram, Green gram and lentil. It was found that PU -31 variety of Black gram given highest yield among the three varieties i.e. PU-31, PU-35 and Shekhar 1. The average yield of PU-31 was found 13.80 qtl/ha which was 31.30% more as compare to farmers practices. Net profit was found Rs. 72324/ha. Whereas IPM 2-3 variety of Moong given highest average yield 11.80 qtl/ha and it was 38.10 more compare to farmer's practices (PPM.54) and net profit was recorded Rs. 52540/ha. Similar the yield of lentil Pant Masoor 8 was 18.40/ha which was 37.20 % more as compare to L – 4076 (farmers practices) and net return Rs. 58642/ha.

Similarly conducted experiment on effect of Phosphorous in pulses. It was found the same effect on all crops and varieties the additional income were obtained Rs. 7500 - 8700 /ha from Black gram 3100-4300 in Green gram and 3850-4650 from lentil.

**Keywords:** Black gram, Green gram and Lentil.

### Introduction

Pulses are most important part of human diet. It is rich source of protein. Pulses are produced in India 23.82 Lakh m.ha and total production 15.16 Lakh tones every year. The average productivity of pulses were not good due to the unavailability of high yielding varieties, poor production management and high incidence of pests and diseases and farmers were not aware their production techniques. In 2010-11 the pulses production of District Saharanpur was very low. To increase the pulse productivity, special awareness programme was organized in 2014-15 to provide the production techniques to the farmers and cluster front line demonstration were organized of different pulse crops by Krishi Vigyan Kendra, Saharanpur

### Materials and Methods

Cluster front line demonstrations were conducted at Farmer's field through Krishi Vigyan Kendra Saharanpur as per direction of ICAR Atari (Agricultural Technology applications Research Institute) Kanpur in 2015-16 and 2016-17. To conduct the CFLD first of all four villages were selected from two Block viz. Balia Khera and Nakur. The farmers were selected in cluster. Soil samples of selected farmers field were collected and tested Most of Fields Were Sandy Loam and ph rang was 7.2-8.2.t.The Organic matter of the Demonstrated soil was 0.5-0.92 percentage On the basis of soil testing report soil health cards were issued. Special technical trainings as production techniques, insects and pests management were organized at KVK Saharanpur. The quality seeds were procured from National Seed Corporation and S.A.Us. Trichoderma bio-gent was provided to the farmers @ 5 kg/ ha and emphasis was given for their application to timely sown the pulses. After the sowing of the crop time to time KVK Scientists were visited pulses field and provided the technical inputs about pest and disease management and were focused "prevention is better than cure" and observations were recorded time to time.

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**Table 1:** Comparative table of Black Gram

Years	Village & Block	Varieties	Average Yield Q/ha	Increase %age	Total Return	Net Return	C:B Ratio
Kharif 2015	Malhipur (Balial Khera)	Shekhar -1 (PF)	9.80	-	49683	37683	1:3.7
		PU-31	13.80	31.30	72324	61324	1:5.7
	Nandi Firozpur	Shekhar -1 (PF)	9.65	-	50575	40575	1:4
		PU-31	14.60	33.90	76518	65518	1:5.6
Kharif 2016	Malhipur (Balial Khera)	Shekhar -1 (PF)	8.40	-	54024	44024	1:4
		PU-31	14.55	42.5	76518	65518	1:6
	Nandi Firozpur	Shekhar -1 (PF)	9.20	-	48217	38217	1:3.8
		PU-31	15.30	39.9	80137	69137	1:6

**Table 2:** Effect of Zink Sulphate Black Gram

Years	Village & Block	Varieties	With Zink Sulphate	Without Zink Sulphate	Yield increase in %age	Net Return	C:B Ratio
Kharif 2015	Malhipur (Balial Khera)	Shekhar -1 (PF)	10.40	9.48	9.47	4821	1:4.8
		PU-31	14.95	13.80	8.34	6027	1:4.4
	Nandi Firozpur	Shekhar -1 (PF)	10.55	9.65	9.30	4716	1:4.7
		PU-31	16.20	14.60	10.95	8385	1:7.6
Kharif 2016	Malhipur (Balial Khera)	Shekhar -1 (PF)	9.20	8.40	9.50	4193	1:4.1
		PU-31	15.90	14.65	8.53	6551	1:5.9
	Nandi Firozpur	Shekhar -1 (PF)	10.10	9.20	9.70	4716	1:4.7
		PU-31	16.50	15.30	8.5	6813	1:6.1

**Table 3:** Comparative table of Green Gram

Years	Village & Block	Varieties	Average Yield Q/ha	Increase %age	Total Return	Net Return	C:B Ratio
Kharif 2015	Jagheta (Nakur)	PDM54 (PF)	7.27	-	45074	35074	1:3.5
		IPM 2-3	11.4	36.22	70680	59680	1:5.4
	Bidvi	PDM54 (PF)	7.29	-	45198	35198	1:3.5
		IPM 2-3	12.2	40.2	75640	64640	1:5.8
Kharif 2016	Jagheta (Nakur)	PDM54 (PF)	7.80	-	48360	38360	1:3.8
		IPM 2-3	11.20	30.35	69440	58440	1:5.4
	Bidvi	PDM54 (PF)	7.90	-	48980	38980	1:3.8
		IPM 2-3	12.60	37.30	78120	67120	1:6.1

**Table 4:** Effect of Zink Sulphate Green Gram

Years	Village & Block	Varieties	With Zink Sulphate	Without Zink Sulphate	Yield increase in %age	Net Return	C:B Ratio
Kharif 2015	Jagheta (Nakur)	PDM54 (PF)	7.95	7.27	9.30	4216	1:4.2
		IPM 2-3	12.30	11.40	7.9	5580	1:5.0
	Bidvi	PDM54 (PF)	8.00	7.32	9.20	4218	1:4.3
		IPM 2-3	13.40	12.20	9.80	7440	1:6.7
Kharif 2016	Jagheta (Nakur)	PDM54 (PF)	8.50	7.80	8.97	4340	1:4.3
		IPM 2-3	12.10	11.20	8.03	5882	1:5.3
	Bidvi	PDM54 (PF)	8.30	7.60	9.21	4341	1:4.4
		IPM 2-3	13.50	12.40	8.87	68.20	1:6.2

**Table 5:** Comparative table of Lentil

Years	Village & Block	Varieties	Average Yield Q/ha	Increase %age	Total Return	Net Return	C:B Ratio
Rabi 2016	Jagheta (Nakur)	L-4076 (PF)	11.56	-	64736	46736	1:2.5
		PM -8	18.60	37.84	104160	82160	1:3.7
	Malhipur (Balial kheda)	L-4076 (PF)	11.70	-	65520	47520	1:2.6
		PM-8	18.20	35.57	101920	79920	1:3.6
Kharif 2016	Jagheta (Nakur)	L-4076 (PF)	11.74	-	65744	47744	1:2.6
		PM -8	17.80	37.00	99680	77680	1:5.3
	Malhipur (Balial kheda)	L-4076 (PF)	11.84	-	66304	48304	1:2.8
		PM-8	19.00	37.68	106400	84400	1:3.8

**Table 6:** Effect of Zink Sulphate Lentil

Years	Village & Block	Varieties	With Zink Sulphate	Without Zink Sulphate	Yield increase in %age	Net Return	C:B Ratio
Rabi 2016	Jagheta (Nakur)	L-4076 (PF)	12.60	11.56	8.9	5824	1:3.1
		PM -8	19.90	18.60	7.0	7280	1:3.8
	Malhipur (Balial Kheda)	L-4076 (PF)	12.80	11.70	9.4	6160	1:3.4
		PM-8	19.80	18.20	8.7	8960	1:4.7
Kharif 2016	Jagheta (Nakur)	L-4076 (PF)	12.70	11.74	8.1	5376	1:2.9
		PM -8	19.20	17.80	7.9	7840	1:4.1
	Malhipur (Balial Kheda)	L-4076 (PF)	12.60	11.55	9.0	5880	1:3.2
		PM-8	20.80	19.00	9.4	10080	1:5.3

### Results and Discussions

In Table 1, recommended variety of Urd PU-31 and farmer practices Urd variety Shekar -1 were demonstrated in the village Malhipur and Nandi Firozpur of Block Balial Kheda. The yield of Demonstrated variety was found 14.55-15.3 Q/ha and farmers practices variety yield was 8.40-9.65 Q/ha. Yield percentage was increased 31.30 to 42.5 as compared to farmers practices. Yield of recommended varieties was found to be higher than farmer's practices. There was significant difference between recommended Farmers practices. The Cost Benefit Ratio was 1:6.0 was higher than farmer's practices i.e.1:3.7. Singh, Lakhan, Singh, Atar and Prasad, R (2005) [2] Response of demonstration of pulse yield of KVK in Uttar Pradesh. In table 2 the effect of zinc sulphate in Urd crop was also found significantly higher. De, Be, Ghosh, M. and Das, B. 2011 [3]. Effect of Integrated Nutrient management on yield, Uptake and economics on Black gram (*Vigna mungo*) in recommended practices it was recorded 1:6.2 were as under farmers practices it was 1:4.2. The yield of PU-31 was found to be with zinc sulphate better than farmers practices Shekhar-1 variety without zinc sulphate. In Table -3 the recommended variety of Green gram IPM 2-3 and farmer practices variety PDM-54 were demonstrated village Jagheta Gujar and Bidvi Block Nakur. The yield of variety IPM 2-3 was found to be 11.20 -12.60 Q/ha were as of PDM-54 was 7.27-7.90 Q/ha in the year 2016. The yield of recommended variety was significant higher both year in comparison to farmers practices variety PDM-54 and CB ratio of IPM2-3 variety 1:6.1 is much higher in comparison to PDM-54 variety (1:3.5). The yield of recommended variety IPM 2.3 was 40.20 percent higher in comparison to farmers practices variety. In Table 4, the effect of Zinc sulphate in green gram also found better the yield 7.9-9.8 percent in comparison without use of zinc sulphate the Cost Benifit ratio was also found 1:4.2 in PDM -54 varieties and 1:6.7 in recommended varieties IPM 2-3. Hussain, N. Mehdi, M and Kant, R.H. (2011) [4] Response of nitrogen and phosphorus on growth and yield attributes of Black gram (*Vigna mungo*) The result and revealed that recommended variety with zinc sulphate better than farmers practices. In Table 5, the recommended variety of Lentil pant Masoor -8 and Farmer practices variety L-4076 were demonstrated Jagheta Gujar Block Nakur and Malhipur Block Balial Kheda. The yield of recommended variety was found to be 17.80-19.0 Q/ha where as farmer's practice variety L-4076 yield 11.56-11.84 Q/ha. The recommended variety yield in both the years was higher to farmers practice variety L-4076. There was significance different in recommended variety as compared to farmers practices variety. The recommended variety yield was increased 37.84 percent as compared to farmer practices varieties L-4076. The Cost Benefit ratio was found in recommended variety 1:3.8 where as in practices variety it was 1:2.6. which was also higher than farmer's

practices. Yadav, V.P.S., Kumar R, Deshwal, A.K., Raman, R.S. Sharma, B.K., Bhela, S.C. (2005) [1] Boosting pulse production through FLD's. In Table 6, the effect of zinc sulphate also found the good result in Lentil. The yield of recommended varieties with the application of zinc sulphate was 17.80-19.0 Q/ha and Cost Benefit was found to be ratio 1:3.8-1:5.3. Result revealed that the Cost Benefit ratio also better as compared to farmers practices i.e. 2.9 to 3.1. In this way it is concluded that the recommended variety of Pant Masoor -8 with use of zinc sulphate is found beneficial to the Farmer practices.

### Conclusion

The recommended variety PU-31 has found better than farmer's practice Shekhar-1 and the use of zinc sulphate has given higher yield (14.60 Q/ha). The recommended variety of Green Gram IPM2-3 has got better yield 12.60 Q/ha than PDM-54 variety 7.89 Q/ha and use of zinc sulphate is found beneficial to the farmers. Therefore IPM 2-3 variety of Green Gram with use of zinc sulphate most beneficial to the farmer. The recommended variety of Lentil Pant Masoor-8 has recorded 19.0 Q/ha better than farmer practice variety L-4076 yield 11.74 Q/ha Pant Masoor-8 with zinc sulphate @ 15 kg/ha give the 19.0 Q/ha. Which is superior to yield is more beneficial resulting variety of Lentil Pant Masoor-8. with zinc sulphate recommended to the farmers.

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