

## Boosting Pulse Production Through Frontline Demonstration

**V.P.S. Yadav<sup>1</sup>, R. Kumar<sup>2</sup>, A.K. Deshwal<sup>3</sup>, R.S. Raman<sup>4</sup>, B.K. Sharma<sup>5</sup> and S.L. Bhela<sup>6</sup>**

1, 2, 3, 4, 5 & 6. Krishi Vigyan Kendra, Bhopani, Faridabad (CCS HAU, Hisar)

### ABSTRACT

*The productivity of pulse crops continues to be quite low due to technological gaps in adoption of pulse technologies and other factors also. The yield of pulses can be increased by demonstrating their cultivation technologies at the farmers' fields under the supervision of scientists working in the operational area. Keeping the importance of Frontline Demonstrations, the KVK, Faridabad conducted demonstrations on improved agricultural technologies of pulse crops in scientific manner at farmers' fields during the year 2003-04, 2004-05 and 2005-06 and achieved the expected yields.*

**Key words :** *Frontline demonstrations; Operational area; Scientific manner*

**P**ulses are grown on 23.82 million ha area with annual production of 14-15 million tonnes. The productivity of pulses continues to be quite low (622 q/ha) on account of several biotic and abiotic stresses besides unavailability of quality seeds of improved varieties in time and poor crop management due to unawareness and non-adoption of recommended production and plant protection technologies. The area and production of pulse crops in Faridabad district is very low as compare to state and national acreage and production. The pulse production targeted to be 32 million tonnes with productivity of 850 kg/ha for the period 2007-2012 by Govt. of India. Therefore, it is very essential to demonstrate the high yielding varieties, resistant to biotic and abiotic stresses and other pulse production technologies which the farmers generally do not adopt. Recognizing the importance of pulses in Indian Agriculture and urgent need to ensure household nutritional security, the Ministry of Agriculture, Govt. of India taken the innovative methodology to boost up the production of pulse crops. Keeping the importance of FLDs, the KVK, Faridabad conducted demonstrations on pulse crops viz. Moong, Gram, Arhar, Lentil at farmers' fields under irrigated situations in Rabi and Kharif seasons during the year 2003-04, 2004-05 and 2005-06. The objectives of study were as follows :

- (i) To exhibit the performance of recommended high yielding varieties in moong and gram; and performance of recommended dose of phosphatic fertilizers in arhar and lentil in harvesting higher crop yields.
- (ii) To compare the yield levels of local check (Farmers' field) and FLD fields.

- (iii) To collect feedback information for further improvement in research and extension programmes.

### METHODOLOGY

Farmers of operational area of KVK, Faridabad were selected as per allotment of FLDs to KVK by Zonal Coordinator (Zone-I). Accordingly, the FLDs under gram, moong, lentil and arhar crops were laid out in the villages, namely, Bhopani, Mahavatpur, Jasana, Chirsi, Badarpur said, Kaboolpur, Jatauli and Khedla. Regular visits by the KVK scientists to demonstration fields were ensured and made to guide the farmers. These visits were also utilized to collect feedback informations for further improvement in research and extension programmes. Field days and group meetings were also organized at the demonstration sites to provide the opportunities for other farmers to witness the benefits of demonstrated technologies. The critical inputs were duly supplied to the farmers by the KVK. Data were collected from the FLDs farmers and analysed with the suitable statistical tools to compare the yields of farmers' fields and FLDs fields.

### RESULTS AND DISCUSSION

*(A) Front Line Demonstration on Kharif Pulses :*

*Performance of recommended high yielding varieties of moong :* The progress of front-line demonstration on pulses during kharif, 2003 and 2004 to exhibit the performance of recommended high yielding variety i.e. Asha of moong is presented in Table 1.

The data in Table 1 revealed that in the kharif season 2003, 5 demonstrations of moong covering 2.0 ha in 2 villages with variety Asha and local check (K-851) were

planted. An average yield of 7.9 q/ha of test variety was obtained, as compared to 6.7 q/ha of local check, where per cent increase was accounted at 17.9. During the kharif season 2004, 5 demonstrations of moong covering 2.0

ha in one village with variety Asha and local check (K-851) were planted. An average yield of 9.8 q/ha of test variety was obtained, as compared to 8.1 q/ha of local check, where per cent increase was accounted at 20.9.

Table 1. Performance of recommended high yielding variety of moong (Asha)

Crop season	Village	Variety demonstrated	No. of Demonstrations	Area (ha)	Yield (q/ha)		Increase in yield (%)
					Asha	K-851 (Local Check)	
Kharif 2003	Bhopani	Asha	4	1.6	7.8	6.6	18.2
	Khedla	Asha	1	0.4	8.2	7.4	17.1
	Weighted Mean	Mean	5	2.0	7.9	6.7	17.9
Kharif 2004	Bhopani	Asha	5	2.0	9.8	8.1	20.9

*Performance of recommended dose of Phosphatic fertilizer application (87.5 kg DAP/ha) in Arhar:* The progress of front-line demonstration on pulses during Kharif,

2003, 2004 and 2005 to exhibit the performance of recommended dose of 87.5 kg DAP/ha in arhar is presented in Table 2.

Table 2. Performance of recommended dose of Phosphatic fertilizer application (87.5 kg DAP/ha) in Arhar.

Crop season	Village	Variety demonstrated	No. of Demons-trations	Area (ha)	Yield (q/ha)		Increase in yield (%)
					DAP	No DAP	
Kharif 2003	Bhopani	Manak	13	5.2	13.6	11.9	14.3
	Khedla	Manak	1	0.4	15.4	12.5	23.2
	Jatauli	Manak	1	0.4	15.0	13.0	15.4
	Weighted Mean		15	6.0	14.1	12.3	14.6
Kharif 2004	Bhopani	Paras	10	4.0	15.6	13.1	19.1
Kharif 2005	Bhopani	Manak	5	2	16.3	14.1	15.6

The data in Table 2 indicated that in the Kharif season 2003, the application of 87.5 kg DAP/ha, as demonstrated factor in 15 demonstrations covering 6 ha of land in 3 villages resulted in 14.1 and 12.3 q/ha yield in DAP and non-DAP plots of arhar (var. Manak), respectively. This accounted for 14.6 per cent average increase in the yield. During the kharif season 2004, the application of 87.5 kg DAP/ha, as demonstrated factor in 10 demonstrations covering 4 ha of land in one village resulted in 15.6 and 13.1 q/ha yield in DAP and non-DAP plots of arhar (var. Paras), respectively (Table 2). This accounted for 19.1 per cent average increase in the yield. In the kharif season 2005, the application of 87.5 kg DAP/ha, as demonstrated, factor in 5 demonstrations covering 2 ha of land in one village in 16.3 and 14.1 q/ha yield in DAP and non-DAP plots of arhar (var. Manak), respectively (Table 2). This accounted for 15.6 per cent average increase in the yield.

*(B) Front Line Demonstration on Rabi Pulses*

*Performance of high yielding variety (HC-1) of Gram:* The progress of front line demonstrations on pulses during Rabi seasons, 2003-04, 2004-05 and 2005-06 to exhibit the performance of recommended high yielding variety, viz., HC-1 of gram is presented in Table 3. The data in Table 3 revealed that during Rabi (2003-04) season, 5 demonstrations of gram covering 5 ha of land in 4 villages resulted in 9.4 and 7.8 q/ha yield in test variety HC-1 and

local check (C-235), respectively. This accounted for 20.0 per cent average increase in the yield. In Rabi (2004-05) season, 5 demonstrations of gram covering 2 ha of land in 4 villages resulted in 21.6 and 16.8 q/ha yield in test variety HC-1 and local check (H-208), respectively. This accounted for 28.5 per cent average increase in the yield (Table 3). 5 demonstrations of gram during Rabi (2005-06) season, covering 2 ha of land in 4 villages resulted in 18.5 and 16.7 q/ha yield test variety HC-1 and local check (H-208), respectively. This accounted for 10.8 per cent average increase in the yield (Table 3).

*Performance of recommended dose of Phosphatic fertilizer (87.5 kg/ha) in Lentil crop.:* The progress of front line demonstrations on pulses during Rabi seasons, 2003-04, 2004-05 and 2005-06 to exhibit the performance of recommended dose of phosphatic fertilizer (87.5 kg/ha) in lentil crop is presented in Table 4. The data in Table 4 showed that during Rabi (2003-04) season, 5 demonstrations of lentil covering 2.0 ha in one village with variety Sapna using DAP @87.5 kg/ha and without DAP (Check) were planted. An average yield of 5.9 q/ha of demonstrations was obtained, as compared to 4.5 q/ha of check, where per cent increase was accounted at 31.1. Further, in Rabi (2004-05) season, 5 demonstrations of lentil covering 2.0 ha in one village with variety Sapna using DAP @87.5 kg/ha and without DAP (Check)

were planted. An average yield of 12.9 q/ha of demonstrations was obtained, as compared to 11.1 q/ha of local check, where per cent increase was accounted at 16.2 (Table 4).

Table 3. Performance of high yielding variety (HC-1) of Gram

Crop season	Village	Variety demonstreaed	No. of Demonstrations	Area (ha)	Yield (q/ha)		Increase in yield (%)
					HC-1	C-235 (Local Check)	
Rabi (2003-04)	Badarpur said	HC-1	1	0.4	9.8	8.1	20.9
	Bhopani	HC-1	1	0.4	9.0	7.7	16.9
	Jasana	HC-1	2	0.8	9.4	7.62	3.7
	Khedla	HC-1	1	0.4	9.5	7.9	20.3
	Weighted Mean		5	2.0	9.4	7.8	20.0
Crop season	Village	Variety demonstreaed	No. of Demonstrations	Area (ha)	Yield (q/ha)		Increase in yield (%)
					HC-1	H-208 (Local Check)	
Rabi (2004-05)	Mahawatpur	HC-1	2	0.8	21.4	16.9	26.6
	Bhopani	HC-1	1	0.4	21.0	16.8	29.1
	Chirsi	HC-1	1	0.8	20.9	16.3	28.2
	Khedla	HC-1	1	0.4	22.5	17.2	30.8
	Weighted Mean		5	2.0	21.6	16.8	28.5
Crop season	Village	Variety demonstrated	No. of Demonstrations	Area (ha)	Yield (q/ha)		Increase in yield (%)
Rabi (2005-06)		HC-1	10	4	18.5	16.7	10.8

Table 4. Performance of recommended dose of Phosphatic fertilizer (87.5 kg/ha) in Lentil crop.

Crop season	Village	Variety demonstrated	No. of Demons-trations	Area (ha)	Yield (q/ha)		Increase in yield (%)
					DAP	No DAP	
Rabi (2003-04)	Bhopani	Sapna	5	2.0	5.9	4.5	31.1
Rabi (2004-05)	Mahawat pur	Sapna	5	2.0	12.9	11.1	16.2
Rabi (2005-06)	Badarpur said	Sapna	5	2.0	12.5	11.0	13.6

During Rabi (2005-06) season, in lentil, 5 demonstrations covering 2.0 ha in one village with variety Sapna using DAP @87.5 kg/ha and without DAP (check) were planted. An average yield of 12.5 q/ha of demonstration was obtained, as compared to 11.0 q/ha of local check, where percent increase was accounted at 13.6 (Table 4). The results of this study are online with the findings of the study carried out by Singh, Atar *et al.* and Singh, Lakhan *et al.* (2005).

## CONCLUSION

- The yield of demonstrated plots was higher than Local-check plots.

- There is need of short duration high yielding arhar varieties in this area to fit well in Arhar - Wheat cropping pattern for timely sowing of wheat after the harvest of arhar crop.
- Weed management studies for the arhar, moong, gram and lentil need to be intensified for timely control of these unwanted plants efficiently and effectively.
- The location based nutrient application for pulses to be thoroughly reviewed and investigated.
- The use of bio-pesticides needs concentrated and composite efforts both at research generating and technology dissemination system.

## REFERENCES

1. Singh, Atar; Singh, Lakhan and Prasad, R. (2005). Pulse production under technology assessment, refinement and dissemination through KVKs in U.P. Paper presented in 3rd National Ext. Edu. Congress 2005 held at N.D.R.I. Karnal from April 27-29, 2005.
2. Singh, Lakhan; Singh, Atar and Prasad, R. (2005). Response of demonstrations on pulses yield at KVKs in Uttar Pradesh. Paper presented in 3rd National Ext. Edu. Congress 2005 held at N.D.R.I. Karnal from April 27-29, 2005.