

**RESEARCH ARTICLE :**

# Boosting of pulse productivity through front line demonstration to improve the nutritional security of the farmers of Tripura

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**SUMMARY :** Increasing productivity of crops ensure the food and nutritional security of the farmers which depends upon the soil fertility and productivity. Pulses can play a vital role in nutritional requirement and also increases the fertility status of the soil. In Tripura state, pulses are grown in very small area using mostly local varieties. Area under different pulses crop in Tripura is 5361 ha (2008-09) and production is 3496 MT. In general, farmers do not follow scientific package of practices due to which the productivity of pulses is only 600 kg/ha. With a view to increase the productivity level of pulses and nutritional security of the farmers family of South Tripura, 60 front line demonstration (FLD) on three pulse crops like lentil, Moong and Arhar was undertaken during *Kharif* and *Rabi* season of 2008-10 by Krishi Vigyan Kendra of South Tripura. The objective of the FLD on pulses was to demonstrate the potential of improved varieties and technologies to the farmers. Five villages were identified through PRA method. Awareness programme and training on scientific cultivation practices of lentil, Moong and Arhar were conducted before starting the FLD. Besides imparting training, printed leaflets on pulses were distributed among the farmers for their ready reference. Field day programme was also conducted in the farmer's field in standing crop. Altogether 12 ha area of pulses was covered under this programme. Improved variety of lentil (WBL-58), Moong (HUM-16) and Arhar (Narendra-1) were demonstrated for obtaining higher yield as compared to local varieties and traditional method of cultivation. Yield percentage increased from 21.43 to 40 per cent. Farmers earned upto Rs. 43,000/- by selling pulses crops in the local market. The enhanced production through the demonstration of improved technologies with improved varieties in pulses helping farmers for its adoption for achieving the nutritional security (protein) of their family.

**KEY WORDS :**

Front line demonstration, Pulses, South Tripura, Economics

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## **BACKGROUND AND OBJECTIVES**

In Tripura state, pulses are grown in very small area using mostly local varieties. Area under different pulse crops in South Tripura

is 2209 ha (2007-08) and production and productivity is 1556 and 0.7 MT, respectively. In general farmers do not follow scientific package of practices due to which the productivity of pulses is only 600 kg/ha.

**Table A : Details of FLD and cropping system of the selected villages of South Tripura district**

Village	No. of FLD farmer	Farm land of the FLD farmer (ha)		Cropping system			Yield (qha <sup>-1</sup> )		
		Lowland (ha)	Upland (Tilla Land) (ha)	Rabi	Kharif	Summer	Rabi	Kharif	Summer
Dudhpushkarini	15	7.2	4.8	F*	F	F	-	-	-
Mirza	5	2.4	1.6	F	F	F	-	-	-
Hrishyamukh	15	8	3.0	Rice	Rice	F	30	25	-
Garji	15	9.6	2.4	F	F	F	-	-	-
Jamjuri	10	3.2	1.6	Rice	Rice	F	30	30	-

\*F: Fallow land

Therefore, it is essential to demonstrate the high yielding varieties, resistant to biotic and abiotic stresses and other improved pulse production technologies for its adoption by the farmers. Krishi Vigyan Kendra, South Tripura conducted a series of front line demonstration (FLD) on three pulse crops like lentil, Moong and Arhar during *Kharif* and *Rabi* season of 2008-10. The objectives of FLD were :

- To exhibit the performance of recommended High Yielding varieties (HYV) in lentil, Moong and Arhar.
- To increase the productivity of pulse crops by practicing scientific package of practices
- To compare the yield levels of local check (Farmers field) and demonstrated technology.

## RESOURCES AND METHODS

Front line demonstration (FLD) for lentil, Moong and Arhar was laid out in the selected villages after discussion with the farmers during the training programme on pulse crops. Based on the trials conducted by ICAR Tripura centre and KVK, improved variety of lentil (WBL-58), Moong (HUM-16) and Arhar (Narendra-1) were selected for demonstration in the farmer's field. Altogether, 60 numbers of FLDs covering an area of 12 ha in five selected villages were conducted. Awareness programme on the importance of pulses both in human diet and improvement of soil fertility was conducted. A group meeting and training programmes on the topics like improved cultivation practices of lentil, Arhar and Moong was also conducted. Integrated nutrient management and integrated pest management was conducted before starting the FLD. Besides imparting training, printed leaflets on greengram, Arhar were distributed among the FLD farmers. Regular visit by the KVK Scientist and SMS were ensured and made to guide the farmers. These visits were also utilized to collect feedback for further improvement in research and

extension programme. Field day was organized at the demonstration site to provide opportunities for other farmers to witness the benefit of demonstrated technologies. The critical inputs like seed, fertilizer, insecticide/pesticides were supplied to the FLD farmers by KVK, South Tripura. Regular data on various parameters were collected from the farmers field. Details of FLD and cropping system of selected villages of South Tripura is given (Table A).

## OBSERVATIONS AND ANALYSIS

Results of FLDs conducted during the *Kharif* and *Rabi* 2008-10 on pulses like moong, arhar and lentil to exhibit the performance of recommended high yielding varieties *i.e.* HUM-16, Narendra-1 and WBL-58 is presented in Table 1.

The data in Table 1 revealed that in *Kharif* season of year 2008, 2009 and 2010, total 25 numbers of demonstration on moong covering 5 ha area in two villages were undertaken. An average yield of 8.5, 8.3 and 8.2 q/ha was obtained from the test variety (HUM-16) during the *Kharif* season of 2008, 2009 and 2010, respectively as compared to 6.5, 6.0 and 6.0 q/ha of local check (Farmer's practice) in these three consecutive years. The total per cent increased in yield ranged from 30.76 to 38.33 per cent. The result of this study are inline with the findings of the study carried out by Reddy *et al.* (1996).

Twenty demonstration of arhar covering 4 ha area in 3 villages of South Tripura was undertaken during the *Kharif* season of 2008, 2009 and 2010. An average yield of 8.5, 9 and 9.3 q/ha was obtained from the test variety (Narendra-1) compared to 7.0, 7.3 and 7.4 q/ha of local check (Farmers practice) during 2008, 2009 and 2010, respectively. Similarly, 7.0, 6.8 and 7.3 q/ha of lentil was obtained from 15 demonstration as compared to 5, 5.2 and 5.4 q/ha during the *Rabi* season of 2008, 2009 and

**Table 1 : Performance of recommended high yielding varieties of pulses**

Crops	Variety	Season	No. of FLD	Area (ha)	Yield (q/ha)		Increase in yield percentage
					Test variety	Farmer's practice	
Moong	HUM-16	Kharif 2008	5	1	8.5	5.5	30.76%
	HUM-16	Kharif 2009	10	2	8.3	5.0	38.33%
	HUM-16	Kharif 2010	10	2	8.2	5.0	36.66%
Arhar	Narendra-1	Kharif 2008	5	1	8.5	7.0	21.43
	Narendra-1	Kharif 2009	10	2	9.0	7.3	23.28
	Narendra-1	Kharif 2010	5	1	9.3	7.4	25.68
Lentil	WBL-58	Rabi 2008	5	1	7.0	5.0	40%
	WBL-58	Rabi 2009	5	1	6.8	5.2	30.77%
	WBL-58	Rabi 2010	5	1	7.3	5.4	35.18%

**Table 2 : Economic analysis of pulse crops taken for FLD**

Crops	Season	Cost of cultivation		Gross return		Net return		B:C ratio	
		Test var.	Local check	Test var.	Local check	Test var.	Local check	Test var.	Local check
Moong	Kharif 2008	19500	19000	38250	29250	18750	10250	1.95	1.54
	Kharif 2009	19500	19000	37350	27000	17850	8000	1.92	1.42
	Kharif 2010	19500	19000	36900	27000	17400	8000	1.89	1.42
Arhar	Kharif 2008	22000	21000	46750	38500	24750	17500	2.13	1.83
	Kharif 2009	22000	21000	49500	40150	27500	19150	2.25	1.91
	Kharif 2010	22000	21000	51150	40700	29150	19700	2.33	1.94
Lentil	Rabi 2008	18500	17500	35000	25000	16500	7500	1.89	1.43
	Rabi 2009	18500	17500	34000	26000	15500	8500	1.84	1.49
	Rabi 2010	18500	17500	36500	27000	18000	9500	1.97	1.54

2010, respectively. Increased in yield percentage ranged from 35.18 to 40 per cent over local check. Economic analysis of the test varieties of pulses are presented in Table 2.

The data in Table 2 revealed that farmers obtained highest net return upto Rs. 18,750/- by adopting improved varieties and scientific technologies from moong during the year 2008-10 over the local check. B : C ratio was calculated and it was 1.96 from the demonstrated practices of moong. The results of this study are at par with the findings of the study carried out by Singh *et al.* (2005).

Net return obtained from the Arhar during 2008-10 was Rs. 29,150/- and BC ratio was 1.94 which was comparatively higher than the local varieties used by the farmers. Similarly net return was found to be higher in case of improved variety of lentil than the local one.

The findings of above front line demonstrations indicated that by adopting improved varieties and improved package of practices, the productivity level of pulses could be enhanced considerably. It is envisaged that the production of different pulse crops in the district could be raised upto 40 per cent by adopting improved varieties and management practices. This will substantially increase the income as well as livelihood security of the farming community of South Tripura. Similar work related to the present investigation was also done by Asiwali *et al.* (2014) on groundnut, Tandel *et al.* (2014) on brinjal, Chaudhary *et al.* (2014) on field pea,

Rajiv and Dabbas (2011) on sesame and Kushare and Sahane (2011).

## REFERENCES

**Asiwali, B.L.,** Hussain, Akhter, Akhter, Juned and Ram, Lala (2014). Impact analysis of groundnut FLDs technology on extent of adoption, enhancing the productivity and profitability in Sikar district of Rajasthan. *Agric. Update*, **9**(4): 562-565.

**Chaudhary, R.P.,** Pandey, Rakesh, Chaturvedi, A.K. and Prasad, R. (2014). Enhancing yield and economics of field pea through Front line demonstration. *Agric. Update*, **9**(4): 494-498.

**Kushare, B.M.** and Sahane, U.G. (2011). Front line demonstration-An effective tool for increasing productivity of Niger in Thane district of Maharashtra. *Internat. J. agric. Sci.*, **7**(2): 415-417.

**Rajiv and Dabas, M.R.** (2011). Performance of improved technologies on yield and economics of sesame (*Sesamum indicum*) in front line demonstration of Firozabad district in Uttar Pradesh. *Internat. J. agric. Sci.*, **7**(2): 370-372.

**Reddy, M.D.,** Krishna, A. and Rao, P.S. (1996). Performance of promising greengram and blackgram varieties during *Rabi*. *J. Res., ANGRAU*, **24**: 98-100.

**Singh, L.,** Singh, A. and Prasad, R. (2005). Pulse production under technology assessment, refinement and dissemination through KVKs in U.P. Paper presented in 3<sup>rd</sup> National Ext. Edu. Congress 2005 held at N. D.R.I. Karnal from April 27-29, 2005.

**Tandel, B.M.,** Shah, K.A., Prabhu, Nayaka and Tandel, Y.N. (2014). Yield and impact analysis of training and FLDs regarding scientific cultivation of brinjal. *Agric. Update*, **9**(3): 288-291.

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