

Original Research Article

Evaluation of Cluster Front Line Demonstration Trials on Blackgram (*Vigna mungo*) in Janjgir-Champa District of Chhattisgarh

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ABSTRACT

The cluster frontline demonstrations (CFLDs) on blackgram were conducted by Krishi Vigyan Kendra, Janjgir – Champa during kharif season in two villages of Jaijaipur Block, i.e., Beladula and Kashigarh. All 200 demonstrations on blackgram crops were carried out in area of 40 ha by the active participation of farmers with the objective to demonstrate the improved technologies of pulses production potential. The improved technologies consisting use of improved variety, seed treatment with Carbendazime, *rhizobium* and PSB culture, and management of weeds, insects and diseases. FLD recorded higher yield as compared to farmer's local practice. The improved technology recorded highest yield of 886 kg/ha in demonstration plot of variety AZAD – 3 at village Kashigarh followed by 864 kg/ha and 852 kg/ha in Variety PU – 31 at Village – Beladula.

Keywords

Blackgram,
CFLDs,
Technological
Interventions,
yield

Introduction

Blackgram is one of the important pulse crop grown throughout India. It accounts 13 % total pulses area and 10 % total pulses production in India. Generally it is consumed in the form of 'Dal'. It is the chief constituent of 'papad, idly and dosa'. For milch cattle, it is used as nutritive fodder. It is also used as green manuring crop. It controls soil erosion and compete with weeds effectively due to its deep root system and foliage cover. It fixes atmospheric nitrogen into soil and improves the soil fertility. As per the latest available estimates, UP and Andhra Pradesh occupy the first two positions, contributing over 40%. Maharashtra contributes about 14% while Tamil Nadu and Madhya Pradesh account for about 10% and 8.5% respectively of total production in the

country. Whereas Chhattisgarh state contributes about 2.2% in terms of total production of blackgram in the country. Till date the productivity level of blackgram in the district is not sufficient on account of several causes like unavailability of quality seeds of improved varieties in time and poor crop management practices due to unawareness and non-adoption of recommended production & plant protection technologies. Therefore, it is very essential to demonstrate the high yielding varieties, resistant to biotic and abiotic stresses and other production technologies which the farmers generally do not adopt. Keeping above points in view Front line demonstrations were conducted on blackgram (var. PU – 31 and AZAD - 3) by Krishi Vigyan Kendra, Janjgir-Champa.

Materials and Methods

The studies of CFLDs were conducted during kharif season 2016-17 by the Krishi Vigyan Kendra, Janjgir-Champa of Chhattisgarh state. Two villages namely Kashigarh and Beladula of Block – Jaijaipur were selected for this project. Total 200 farmers in area of 40 ha were selected for the project. Farmers were trained by organizing various training and field day programmes to follow the package and practices for blackgram cultivation as recommended by the Indira Gandhi Krishi Vishvidyalaya Raipur and need based input materials provided to the farmers (Table 1).

The farmers of both the villages followed the full package of practices like soil testing, Seed Treatment with Carbendazime @ 3 gram per kg seed, seed treatment with biofertilizer @ 5 gram per kg seed each by Rhizobium and PSB Culture, fertilizer application, weed management by Application of Herbicide (Imazethapyr 10% SL @ 1000 ml/ha) and Insect Pest Management by Application of Insecticide (Beta-Cyfluthrin 8.49% + Imidacloprid 19.81%) @ 625 ml/ha etc.

In case of local check, the traditional practices were followed in existing local varieties by the farmers. The yield data were collected from both CFLD and farmers practice plot (local check) and compiled results has been given in (Table 2).

Results and Discussion

Cluster Frontline demonstrations on blackgram were conducted by using variety PU – 31 and AZAD - 3 in an area of 40 ha at 200 farmer's field at Kashigarh and Beladula villages of Block – Jaijaipur. The need based inputs provided to farmers were variety PU – 31 and AZAD - 3 seeds @ 20

kg/ha, *Rhizobium spp.* @ 5 gram per kg seed, PSB @ 5 gram per kg seed, Herbicide (Imazethapyr 10% SL @ 1000 ml/ha) Insecticide (Beta-Cyfluthrin 8.49% + Imidacloprid 19.81%) @ 625 ml/ha.

Results concluded that average higher yield 852 kg/ha were found in demonstration plot of variety PU-31 at Village Beladula followed by 587 kg/ha in control plot of the same village. The Gross returns and Net returns of demonstration plot was Rs. 42600/- and Rs. 29350/- per ha and for control Rs. 25500/- and Rs. 13850/- per ha, respectively. B: C ratio for demonstration and control was 2.49 and 1.89 respectively.

Likewise in demonstration plot of variety PU-31 at Village Kashigarh, the average higher yield of 8.64 kg/ha was observed followed by 6.38 kg/ha in control plot of the same village. The Gross returns and Net returns of demonstration plot was Rs. 43200/- and Rs. 31900/- per ha and for control Rs. 26100/- and Rs. 16700/- per ha, respectively. B: C ratio for demonstration and control was 2.53 and 2.09 respectively.

Whereas in demonstration plot of variety AZAD-3 the average highest yield 886 kg/ha was recorded at Village Kashigarh followed by 612 kg/ha in control plot of the same village. The same trend found in case of CFLDs gross and net monetary returns, was Rs. 44300/- and Rs. 27350/- per ha and for control Rs. 27350/- and Rs. 15800/- per ha, respectively. Benefit cost ratio for demonstration and control was 2.61 and 2.06 respectively.

This improvement in yield might be due to the application of seed treatment, use of biofertilizers, timely sowing, application of recommended dose of fertilizers, proper and timely weed management and integrated pest management practices.

Table.1 Details of need based input material given on CFLDs of Blackgram

S. No.	Crop	Variety	Cluster Village	Demo. Area (ha)	No. of Demo.	Technology Demonstrated	Need based inputs
1	Black gram	Pant Urd - 31	Beladula	20	100	Improved Variety, Seed Treatment, Weed Management and IPM Practices	Improved Seeds, Seed Treatment with Carbendazime, Rhizobium and PSB Culture, Soil Testing, Application of Herbicide (Imazethapyr 10% SL @ 1000ml/ha), Application of Insecticide (Beta-Cyfluthrin 8.49% + Imidacloprid 19.81%) @ 625 ml/ha
2		Pant Urd - 31	Kashigarh	10	50		
3		Azad - 3	Kashigarh	10	50		

Table.2 Details of yield and economics of cluster frontline demonstration on Blackgram

Variety	Village	Yield (q/ha)		% increase in yield	Cost of Cultivation (Rs./ha)		Gross Return (Rs./ha)		Net Return (Rs./ha)		B:C Ratio	
		(T1)	(T2)		(T1)	(T2)	(T1)	(T2)	(T1)	(T2)	(T1)	(T2)
Azad-3	Kashigarh	6.12	8.86	44.77	14800	16950	30600	44300	15800	27350	2.06	2.61
PU-31	Kashigarh	6.38	8.64	35.42	15200	17100	31900	43200	16700	26100	2.09	2.53
PU-31	Beladula	5.87	8.52	45.14	15500	17100	29350	42600	13850	25500	1.89	2.49

Whereas:

T1 = Farmers Practices (Local Check)

T2 = Demonstration Practices (Improved Seeds + Seed Treatment with Carbendazime, Rhizobium and PSB Culture + Application of Herbicide (Imazethapyr 10% SL @ 1000 ml/ha) + Application of Insecticide (Beta-Cyfluthrin 8.49% + Imidacloprid 19.81%) @ 625 ml/ha)





Constraints Observed During CFLDS

The farmers yields were affected by various environmental and socio-economic factors like non-availability of quality seed, frequently use of old & local varieties, unawareness of latest technologies, no seed treatment, delayed sowing, improper dosage of fertilizers, herbicides and pesticides etc.

High losses in yield observed due to delayed sowing, heavy infestation of weeds, Spodoptera Catterpillar, white fly insects and yellow mosaic viral diseases due to improper method and time of application of herbicides and pesticides.

Cluster frontline demonstrations on pulses (Blackgram) conducted by using variety PU – 31 and AZAD – 3 varieties during Kharif

Season in year 2016-17. All 200 demonstrations on blackgram crops were carried out in area of 40 ha by the active participation of farmers with the objective to demonstrate the improved technologies of pulses production potential.

The improved technologies consisting use of improved variety, seed treatment with Carbendazime, *rhizobium* and PSB culture, and management of weeds, insects and diseases.

Result concluded that the average highest yield 886 kg/ha was recorded at Village Kashigarh in the demonstration plot of variety AZAD – 3 followed by 612 kg/ha in control plot of the same village. There was 44.77 percent increase in yield observed in demonstration plot over farmers' practice. It

was observed that potential yield can be achieved by imparting scientific knowledge to the farmers, providing the quality need based inputs and proper application of inputs. Horizontal spread of improved technologies may be achieved by the successful implementation of frontline demonstrations and various extensions activities like training programme, field day, exposure visit organized in CFLDs programmes in the farmer's fields. For wide dissemination of technologies recommended by SAUs and other research institute, more number of FLDs should be conducted.

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References

- Balai C M, Bairwa R K, Verma L N, Roat B L, and Jalwania R 2013. Economic Impact of Front line demonstrations on cereal crops in Tribal Belt of Rajasthan. *International Journal of Agricultural Sciences* 3 (7): 566-570.
- Khedkar Rupesh, Shinde Vijay and Chaudhari Pawan 2017. Role of Cluster Frontline Demonstrations in Enhancement of Chickpea Production. *J Krishi Vigyan*, 6(1): 172-174
- Lathwal O P 2010. Evaluation of front line demonstrations on blackgram in irrigated agro ecosystem. *Annals of Agricultural Research* 31 (1&2): 24-27.
- Ramnathan S P and Chandrashekharan B 1998. Weed Management in Blackgram (*Phaseolus mungo*). *Indian Journal of Weed Sciences* 33 (3): 234-237.