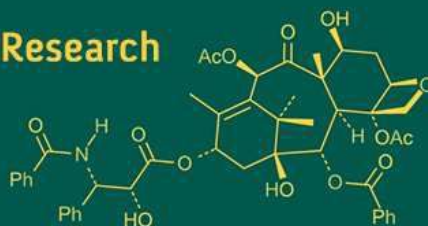
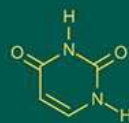


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Performance of TBG-104 variety of blackgram under CFLD pulses programme

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Abstract

Black gram is one of the major rabi pulse crop in Tirupati and SPSR Nellore districts of Andhra Pradesh but due to lack of availability of improved variety and non-adoption of improved cultivation practices in the district, its productivity is far below the average national productivity (970 kg/ha) and state average of 929 kg/ha. The present study was carried out by Dr. YSRHU - Krishi Vigyan Kendra, Periyavaram, Andhra Pradesh on performance of TBG-104 variety of Blackgram under CFLD Pulses programme for the years 2022-23 and 2023-24. The study found that during 2022-23 and 2023-24 the yield of Blackgram (TBG-104) in CFLD under rainfed conditions was 11.14 q/ha and 10.54 q/ha whereas in farmer's practice 9.15 q/ha and 8.94 q/ha respectively. The per cent increase in yield with improved practices over farmer's practice was recorded as 21.74 and 17.89 in 2022-23 and 2023-24 respectively. The study also resulted that improved technology gives higher gross return, net return with higher benefit cost ratio as compared to farmer's practices.

Keywords: Blackgram variety TBG-104, yield, cluster front line demonstration, benefit cost ratio

Introduction

Blackgram (*Vigna mungo*) commonly called as Urad in India contain 22-24% protein, which is almost twice the protein in wheat and thrice that of rice. Blackgram area accounts for about 19 per cent of India's total pulse acreage which contributes 23 per cent of total pulse production. India being the largest producer as well as consumer of Blackgram in the world, produces 23.4 lakh tonnes of Blackgram annually from 46.7 lakh hectares of land, with an average productivity of 501 Kg/ha. Andhra Pradesh produced 3.65 lakh tonnes of Blackgram in 3.93 lakh hectares with productivity of 929 kg/ha. However, the productivity of Blackgram in Tirupati and SPSR Nellore districts is far below than the state average due to lack of awareness in farming community regarding high yielding varieties and improved package and practices in Blackgram. Keeping this in view, Cluster Frontline Demonstrations (CFLDs) which are aimed to increasing the productivity of pulses and to minimize the adoption gap (Malathi *et al*, 2019) [7] were conducted in Blackgram with variety TBG-104 due to its resistance to yellow mosaic virus, adaptability to all seasons and a yield potential of 20-22.5 q/ha with a crop duration of 70-75 days. The main objective of the study was to analyse the performance of TBG-104 variety of Blackgram in terms of yield and returns compared to farmer's practice.

Materials and Methods

A total of 100 demonstrations on Blackgram variety TBG-104 were conducted during the year 2022-23 and 2023-24 under Cluster frontline demonstrations in pulses programme by the Dr. YSRHU - Krishi Vigyan Kendra, Periyavaram, Tirupati district of Andhra Pradesh in rabi season in the farmer's fields. Each demonstration was conducted on an area of 0.4 ha. The ICM practice included sowing of improved varieties (TBG 104), application of fertilizers based on soil test values, seed treatment + neem oil application at 25-30 DAS+ arrangement of sticky traps to monitor sucking pest vectors + spraying of monocrotophos @ 1.6 ml per litre of water at flowering to pod formation stage for insect management + spraying of carbendazim for control of leaf spot. Conducted Training Programme on Production technologies and recommended package of practices in Blackgram. Critical

inputs like TBG-104 variety of Blackgram seed, bio-fertilizers for seed treatment, neem oil for prophylactic application in management of pests, yellow and blue sticky traps were facilitated to the beneficiaries under CFLD Pulses programme in the year 2022-23 and 2023-24. The demonstrations were conducted in Arimenupadu, Obulaipalle, Pallipadu and Vendodu villages of Ojili, Rapur, Balayapalle and Gudur mandals of Tirupati District of Andhra Pradesh. Method demonstrations were conducted on seed treatment in Blackgram with the use of bio-fertilizers. Suggested suitable management practices to farmers through field visits and finally field days were conducted involving demonstration holding farmers, other farmers in the village, Scientists from University, officials from Department of Agriculture and local extension functionaries to demonstrate the superiority of the technology. Yield data for the improved practice and farmers' practice were recorded at the time of threshing. The Benefit: Cost ratio was calculated by dividing gross returns by cost of cultivation (Deva *et al*, 2019) [4].

Results and Discussion

1. Yield

It was evident from Table 1 that the yields of black gram in demonstration plots were higher when compared to farmer's plots during 2022-23 and 2023-24. The percent increase in yield of demonstration plots over farmers plots was 21.74 and 17.89 during 2022-23 and 2023-24 respectively. The increase in seed yield of demonstration plots was mainly due to the adoption of improved package of practices. Use

of TBG 104 seed not only improved the yield of the crop but also decreased the incidence of YMV disease. Adoption of seed treatment, applying fertilizers based on soil testing and plant protection measures for vector management of YMV followed under CFLDs really improved the yield of black gram compared to farmer's practices. These findings were in corroboration with the findings of Dwivedi *et al* (2018) [5], Rao *et al* (2020) [9] and Anuratha *et al* (2018) [1].

Table 1: Seed yield of Blackgram variety TBG-104 under CFLD Pulses

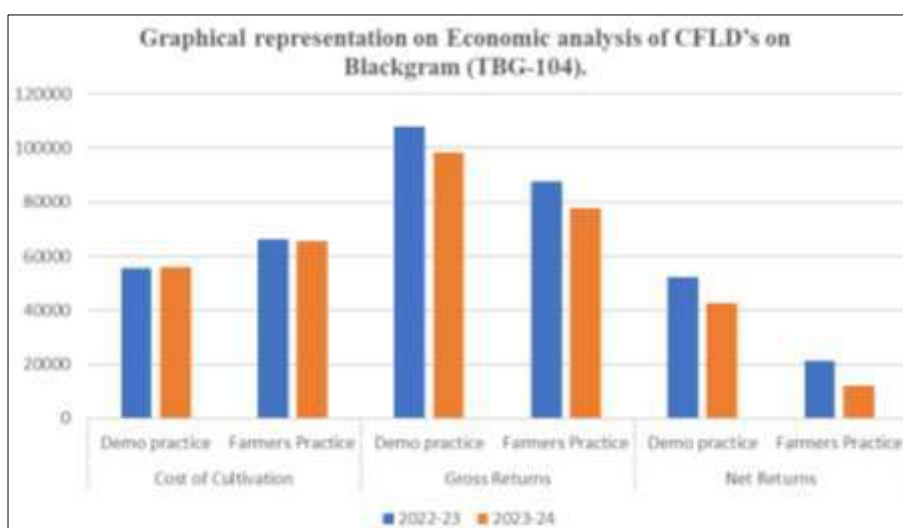
Year	Area (ha)	No. of Demonstrations	Seed yield (q/ha)		% increase over control
			Demo	Control	
2022-23	20	50	11.14	9.15	21.74
2023-24	20	50	10.54	8.94	17.89
Average	-	-	10.84	9.04	19.81

2. Economic analysis

The economic analysis revealed that during both the years of demonstration, gross returns, net returns and benefit cost ratio was higher in demonstrated plots compared to farmer's practice indicating higher profitability. The benefit cost ratio of demonstration plots was 1.32:1 and 1.19:1 during the years 2022-23 and 2023-24 respectively (Table 2). Hence, by adopting improved production practices in Blackgram, yield potential and economic returns of the farming community of Nellore district can be raised. These results were in line with the earlier findings by Singh *et al* (2020) [10], Nagarajuna *et al*. and Kumar *et al* (2020) [6].

Table 2: Economic analysis of CFLD's on Blackgram (TBG-104).

Year	Cost of cultivation (Rs/ha)		Gross returns (Rs/ha)		Net returns (Rs/ha)		B:C ratio	
	Demo practice	Farmers practice	Demo practice	Farmers practice	Demo practice	Farmers practice	Demo practice	Farmers practice
2022-23	55744	66372	108010	87789	52266	21417	1.93:1	1.32:1
2023-24	55828	65485	98407	77667	42579	12182	1.76:1	1.19:1



Conclusion

It is concluded from the above findings of CFLDs on Blackgram var. TBG-104, that by adopting the recommended practices and improved technology, the yield of Blackgram can be increased to a greater extent. The increase in yield and returns of Blackgram may also be attributed due to use of quality seed along with recommended along with recommended package of

practices. Horizontal expansion of improved technologies may be achieved by implementation of various extension activities like training programme, field day, exposure visit etc. organized in CFLD programmes in the farmer's fields. Potential yield can be achieved by imparting scientific knowledge to the farmers, providing the need-based quality inputs and their proper utilization.

References

1. Anuratha A, Ravi R, Selvi J. Productivity enhancement in black gram by cluster front line demonstrations. J Krishi Vigyan. 2018;7(1):242-244.
2. Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India. India. 2003. <http://agricoop.nic.in>
3. Directorate of Economics and Statistics, Government of Andhra Pradesh. 2021. <http://www.des.ap.gov.in>
4. Deva Sahaja G, Rao MV, Vinaya Lakshmi P, Varaprasada Rao CH. Micronutrients spray on yield and economics of cotton in rainfed areas of Prakasam district in Andhra Pradesh. J Krishi Vigyan. 2019;8(1):208-211.
5. Dwivedi RK, Tiwari BK, Baghel KS. Role of cluster frontline demonstration in enhancement of blackgram (*Vigna mungo*) production. Plant Archives. 2018;18(1):1088-1090.
6. Kumar S, Dev J, Singh R, Kumar S. Role of cluster frontline demonstrations in enhancing black gram productivity under rainfed conditions in district Bilaspur of Himachal Pradesh. J Krishi Vigyan. 2020;9(1):293-297.
7. Malathi B, Prasad YG, Reddy AR, Jogamba NSR, Appaji C, Prasad JV, *et al.* Bridging yield gaps in oilseeds through cluster frontline demonstrations: experiences of KVKs. 2019:6-7.
8. Nagarjuna D, Mallikarjun M, Kumar MP, Harathi PN, Jyothi GL, Sumathi V. Enhancing productivity and profitability of sesame in Nellore district of Andhra Pradesh. J Krishi Vigyan. 2022;10(2):125-130.
9. Rao PV, Chittibabu G, Naidu DC. Impact of front line demonstrations on integrated crop management in rice fallow black gram in Srikakulam district of Andhra Pradesh. J Krishi Vigyan. 2020;9(1):189-192.
10. Singh RP, Singh AK, Singh RP, Singh RK, Singh M. Impact of cluster frontline demonstrations on pulses productivity and profitability in farmers' field. Indian Journal of Extension Education. 2020;56(1):134-141.