



Research Article

YIELD GAP AND CONSTRAINTS FACED BY BLACKGRAM GROWERS IN NORTH EASTERN KARNATAKA

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Abstract: Blackgram is mainly grown in India after the gram, redgram and it produce 1.5 to 1.9 million tonnes and having area 3.5 million hectares. Blackgram having average productivity about 500kg/ hectares. Blackgram is the main crop in Karnataka having area 1.26 Lakh hectares with the production of 0.64 lakh tonnes and having productivity 507 kg per hectares. The research study conducted mainly in 2 districts viz, Bidar and Kalaburagi districts of North Eastern Karnataka during the year 2014-15. This study aims to quantify the gap between average yield obtained at the farmers field and yield at package of practice of blackgram also reasons for low yield and constraints encountered by blackgram growers in adoption of recommended cultivation practices. The results of the study revealed that, there were 21.40 percent yield gap observed between yield of package of practice and farmers field. The constraints faced by the respondents in adoption of recommended cultivation practices, in order of priority, majority (85.83 %) of the respondents indicated shortage of labours and high cost of inputs (64.17 %). Whereas, 55.83 percent of the respondents expressed financial constraints and 52.50 percent of the respondents expressed non-availability of FYM.

Keywords: Yield gap, Constraints, Blackgram, Package of practice. Labour, High cost, and Farmers field

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Introduction

India is one of the main country famous for agriculture and 65 percent of the farmers engaged in agriculture. India is one of the leading country for pulses production and it contributes 25 percent world production. Major pulses grown in India include chickpea, pigeonpea, lentil, blackgram, mungbean, lablabbean, mothbean, horsegram, pea, grasspea, cowpea, and broadbean. Among the various pulses, Black gram (*Vigna mungo*) is an important food legume widely consumed in India. India produces about 1.5 to 1.9 million tonnes of blackgram annually from about 3.5 million hectares area, with an average productivity of 500 kg per hectares. In Karnataka, blackgram occupies an area of 1.26 lakh ha with the production of 0.64 lakh tones and productivity of 507 kg/ ha. The major urdbean growing states of the country are Maharashtra, Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Tamilnadu and Karnataka. In Karnataka, major blackgram growing districts are Bidar, Kalaburgi, Raichur, Yadgir, Bijapur, Baglakot, Dharwad, Bellari, Koppal and Belgaum districts of Northern Karnataka [1-6]. Blackgram required less amount of water and can grow in drought and give more amount of yield to farmers. It is famous for making idli, vada and dosa especially in South India. Improvement in agriculture is possible with the adoption of new and modern farming agro-techniques. New agriculture techniques are disseminating through extension methods. Here agricultural extension services play important role in in blackgram production. Different methods like field day, group meeting, demonstration, Krishi mela and exhibition are the main source for dissemination of improved technology to farmers to get maximum returns from their produce. Therefore, yield level at farmers field is quite low than that is achieved in package of practice. Therefore, the present investigation was carried out to estimate the yield gaps find out the various constraints perceived by the farmers in black gram for having planning for better research and extension [7-12].

Methods and Materials

The study conducted to know the yield gap and reasons for low yield and constraints encountered by blackgram growers in adoption of recommended

cultivation practices. The research study conducted in North Eastern region of Karnataka mainly in 2 districts viz, Bidar and Kalaburagi during the year 2014-15. These districts were purposively selected as these ranks first and second in area and production of blackgram. Among five talukas of Bidar district, Bhalki taluka had the maximum area under blackgram. Similarly, among seven talukas of Kalaburagi district Chincholi taluka had maximum area. Hence, Bhalki taluka from Bidar district and Chincholi taluka from Kalaburagi district were purposively selected for the study area. Three villages were selected from each taluka. 20 blackgram growing respondents selected randomly from each village. From each taluka 60 respondents selected and it makes 120 sample from research area. Ex-post fact research design suitable for the study and employed. Personal interview technique was used for data collection. Thereafter data were tabulated, analysed and interpreted in the light of objectives of the study [13-18].

Results and Discussion

Yield gap between yield mentioned in package of practice and realistic yield of respondents

A perusal of [Table-1] showed that, there were 21.40 percent yield gap observed between yield mentioned in package of practice and realistic yield of respondents. The yield of farmers was 7.86 quintal/ ha while that of the package of practice yield was 10 quintal/ ha. Thus, there existed a gap of 21.40 quintal/ ha between the package of practice and farmers field. This existence of yield gap was because the farmers failed to adopt recommendations for important practices like seed treatment (*Rhizobium* and PSB), FYM application, vermicompost, management measures for pests like pod borer, aphid, aromicide fly and thrips and diseases like powdery mildew, leaf spot and mosaic. Moreover, they did not follow seed treatment.

Reasons for low yield

It can be seen from [Table-2] that, majority (94.17 %) of respondents expressed erratic distribution of rainfall was the major reason for low yield, it is beyond Yield

human control. However, it is a challenge to the scientists to develop drought tolerant high yielding varieties, which would certainly mitigate the inadequacy and uncertainty of rainfall. Some of also respondent express non availability of organic manure (45.83 %) due to low knowledge about organic manure and not available in time, higher infestation of disease (30.00 %), higher pest incidence (28.33 %), lack of technical knowhow for management of pest and disease (24.17 %) and non-availability of quality seeds in time (7.50 %). Another reason might be timely not taken management measures for insect pest and diseases and due to lack of knowledge to manage pest and diseases.

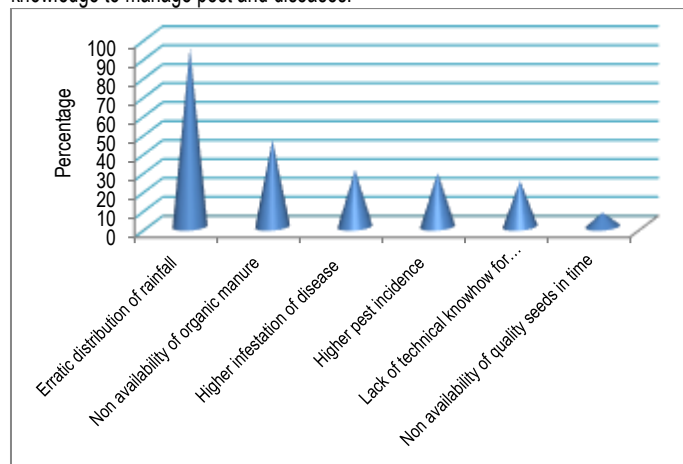


Fig-1 Reason for low yield in blackgram

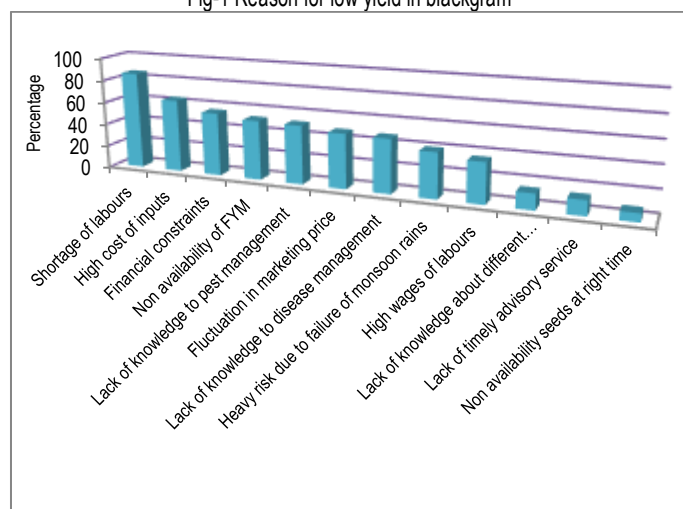


Fig-2 Constrains encountered by blackgram growers

Constraints encountered by blackgram growers in adoption of recommended cultivation practices

It is clear from [Table-3] that, the most important constraint faced by blackgram growers was shortage of the labourers as expressed by 85.83 percent of the respondents. In agriculture sowing and harvesting stages important for the farmers. This could be due to migration of labours to nearby industrial cities and most of the younger generation gets engaged in non agricultural operations. As high as 64.17 percent of the respondents expressed high cost of inputs like seeds, fertilizer and chemicals as the major constraint in the blackgram cultivation. In recent years, the price of inputs has gone up and naturally it has attracted the attention of many farmers, especially the small and medium land holders, the cost of inputs does not commensurate with the low price they get for the produce. The other constraint faced by farmers was the 'financial constraints' (55.83 %) because most of the respondents belonged to medium and semi-medium land holding categories. Most (52.50 %) of the respondents expressed that non availability of FYM because of gradual reduction in the livestock numbers kept by farm households could be the reason for non availability of FYM. Fifty seven percent of the respondents faced 'lack of knowledge about insect pest management' and 47.50 percent had faced problem like lack of knowledge about disease

management, since many years the blackgram crop was severely affected by powdery mildew (*Budi roga*) disease many respondents expressed that once disease enters into their field within few days whole field is going to be affected and so, it reduces more than 30 percent of the yield. Reason might be that, more respondents were illiterates or low level of education and lack of knowledge to manage the diseases. The other constraint faced by farmers was 'fluctuation in market price' (48.33 %). The farmers expressed that, there was a lot of variation in the prices that prevail at the beginning of the season and that prevail at the time of harvesting. Thus, the government should think of announcing the minimum support price based on actual cost of cultivation well in advance of the season in order to enable the farmers to plan properly and adopt the recommended practices. Whereas, 40.00 percent of the respondents expressed the problem of 'heavy risk due to failure of monsoon rains' it is quite genuine and is beyond human control. However, it is a challenge to the scientists to evolve drought tolerant high yielding varieties, which would certainly mitigate the inadequacy and uncertainty of rainfall. High wages of labourers were a problem to 35.83 percent of the respondents. It is related directly to the non availability of labour as the shortage of any goods escalates its cost. Some of them also expressed lack of knowledge about different cultivation practices (14.17 %), even the extension system should be oriented to educate farmers in this direction. Some of them also expressed that lack of timely advisory service (13.33 %) as a constraint. Agriculture department and extension personnel should advise to farmers at the time of sowing and give training on different cultivation practices. Whereas, non-availability seeds at right time (7.50 %) were also expressed by the respondents, government should take action on it and seeds should be made available at right time to farmers. The above results are supported by the results of Jat *et al.* (2011) and Shashikant *et al.* (2011).

Table-1 Overall yield gap analysis of blackgram growers, n=120

Yield at package of practice (quintal/hectare)	Average yield obtained at the farmers field (quintal/hectare)	Yield gap (quintal/hectare)	Yield gap in percentage
10	7.86	2.14	21.4

Table-2 Reasons for low yield, n=120

SN	Reasons for low yield	Respondents	
		Frequency	Percentage
1	Erratic distribution of rainfall	113	94.17
2	Non availability of organic manure	55	45.83
3	Higher infestation of disease	36	30
4	Higher pest incidence	34	28.33
5	Lack of technical knowhow for management of pest and disease	29	24.17
6	Non availability of quality seeds in time	9	7.5

Table-3 Constraints encountered by blackgram growers in adoption the recommended cultivation practices, n=120

SN	Constraints	Respondents	
		Frequency	Percentage
1	Shortage of labour	103	85.83
2	High cost of inputs (seeds, fertilizer, chemicals)	77	64.17
3	Financial constraints	67	55.83
4	Non availability of FYM	63	52.5
5	Lack of knowledge to pest management	62	51.67
6	Fluctuation in marketing price	58	48.33
7	Lack of knowledge to disease management	57	47.5
8	Heavy risk due to failure of monsoon rains	48	40
9	High wages of labours	43	35.83
10	Lack of knowledge about different cultivation practices	17	14.17
11	Lack of timely advisory service	16	13.33
12	Non availability seeds at right time	9	7.5

Conclusion

Based on the above study it can be inferred that there were 21.40 percent yield gap observed between yield of package of practice and farmers field, majority

(94.17 %) of respondents expressed erratic distribution of rainfall was the major reason for low yield followed by non availability of organic manure (45.83 %), higher infestation of pest and disease (30.00 and 28.33 %), also several constraints faced by the farmers in cultivation of blackgram crop. The major constraints are majority (85.83 %) of the respondents indicated shortage of labours and high cost of inputs (64.17 %). Whereas, 55.83 percent of the respondents expressed financial constraints and 52.50 percent of the respondents expressed non-availability of FYM. Over half (50.00 %) of the respondents expressed lack of knowledge about pest management (51.67 %) followed by fluctuation in marketing price (48.33 %) and lack of knowledge about disease management (47.50 %). The findings of the present study provide the empirical feedback to agricultural development departments, state agricultural universities and various non-governmental organizations working in agricultural and allied departments to strengthen the research-extension-farmer linkage by providing credible and timely information to the farming community. The ICAR has started a programme of organizing front line demonstrations on pulses in order to motivate farmers to increase the area under cultivation there by enhancing production. Extension service should be play important role to disseminate important and improved technologies mainly related to insect, pest and diseases management with emphasis on skill to farmers. Farmer programmes and result demonstrations on pulses cultivation should be organized by the extension personnel's. The technology should be such that the farmers could get the net returns equivalent to that they get from the crops they mainly grow. Only then, will the farmers go for cultivation of pulses. The demonstration plays a very important role to disseminate recommended technologies because it shows the potential of technologies resulting in an increase in yield at farmers' level. Under demonstrations some specific technologies like seed treatment, seed rate, improved varieties, balance use of fertilizer, intercultural and plant protection measures were undertaken in a proper way.

Application of research: These technologies were found to be the main reason for increase in the yield and thus, it can be said that FLDs were the most successful tools for transfer of technology.

Research Category: Agricultural Extension Education

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Sample Collection: Study conducted mainly in 2 districts Bidar and Kalaburagi districts of North Eastern Karnataka

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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