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Preferential Characteristics of JG-11 Bengal Gram Variety as Experienced by Farmers of Yadgir District, Karnataka, India

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A B S T R A C T

The study was conducted in Shorapur and Yadagir taluks of Yadagir district on impact of JG-11 bengal gram on farmers revealed that majority of the JG-11 growers expressed that the characteristics namely; bold grains, higher flowering and seed setting, resistance to wilt, comes up well in dry land and high yielding capacity as positive ones. The major negative characters of JG-11 were single seed pod and shrivelled pods. The practices namely foliar application of urea, use of growth promoter after 35 days (NAA) was followed by only 15.00% of farmers. Very few farmers followed fertilizer application as recommended. Higher average yield was obtained by farmers in Shorapur taluk with 10.50 q/ha followed by Yadgir farmers with 10.00 q/ha. In case of Annigeri-1 variety average yield of 8.00q/ha was obtained by Yadgir farmers followed by 7.50 q/ha by Shorapur farmers. Very few farmers were growing desi varieties with average yield of 4.25q/ha. In case of JG 11 the C:B ratio was 1:2.3 and it was 1:1.86 in Annigeri-1. Majority expressed continued adoption of JG-11 (60.00 %) and even expand the area under JG-11 provided they are assured of price of at least Rs. 4000=00 per qtl.

Introduction

The Hyderabad Karnataka region of Karnataka state has six districts, among these Yadgir district comprising of three taluks namely; Shahpur, Shorapur and Yadagir is the most background district. The district receives annual rainfall of 819.38mm which is erratic and unevenly distributed, affecting the crops cultivated. Droughts are frequent in the district occurring every 3-4 years. Terrain has natural slope leading to soil and nutrient loss. The major crops grown include Tur, Ground nut, Cotton, Green gram in Kharif and Bengal gram and jowar in rabi. There is high incidence of migration-both distress and un-distress, 60% of the population between the age group of 15-45 years migrate to Mumbai, Mangalore and Bangalore in search of employment. Thus migration has been an accepted phenomenon among the members of the community. Though agriculture being the main source of livelihood, higher dependence on rains and following unplanned cropping

pattern under small holdings (1.71 ha. Average land holding) has made the conditions of farmers pathetic. Based on the preliminary discussion with farmers through FGDs it was found that farmers grow Bengal gram during rabi and they were growing varieties namely A-1 and other local varieties. The average yield of these varieties were very low 4-5 qtl/ha in case of A-1.

Bengal gram (Cicer arietinum) is the most important grain legume in the country covering 9.51 million ha and accounting to 68 per cent of the total global area of 13.20 million ha. and second most important legume after dry beans at the global level. Bengal gram cultivation in India The total production of Bengal gram in India stands at 8.88 million tons which is about 70 per cent of the total world production of 11.62 million tons. India, as the largest consumer and largest importer, is a major player in the global market for Bengal gram. It contributes to 40 per cent of total national pulse area under cultivation and 48 per cent of total national pulse production (Singh, 2013). Total area and production of Bengal gram is continuously rising in Karnataka indicating a strong and growing popularity for Bengal gram cultivation. The cultivation of Bengal gram in the country witnessed a marginal decline during the 1970's and 1980's but recovered to reach 95.1 lakh ha during decadal year 2010

JG-11 a drought tolerant Bengal gram variety was introduced in Karnataka during Rabi 2005-06. It had shown 14 percent increase in yield over the local Annigeri variety as per the information from officer of Joint Director of Agriculture, Yadgir. Farmers received fair price by cultivating JG-11 variety because of bold size. Even in drought condition the performance of JG-11 was good as expressed by the farmers compared to Annigeri variety. JG-11 had given yield of 15-20 q/ha this has very much attracted other farmers also and under irrigation just by two irrigations the yield can be increased upto 25 %. Also, JG-11 is tolerant to wilt and drought. It comes to maturity one week earlier than Annigeri. Department of Agriculture has distributed JG-11 seeds to around 200 farmers of in Yadgir district the reaction of these farmers could be analysed with respect to performance.Hence the present study is carried out with the following specific objectives:

To analyse the characteristics (both positive and negative) of JG-11 as perceived by farmers and practices followed in cultivation.
To study the practices followed and constraints faced by farmers with respect to JG-11 Bengal gram variety.

Materials and Methods

The study was conducted during 2013 in Shorapur and Yadgir taluks of Yadgir district. Post fact research design was used. The list of farmers who were given the JG-11 seeds by KSDA was prepared from the RSKs in all the three taluks in the district and the RSKs where higher quantity of seeds distributed and more number of farmers covered were selected. From the list of farmers in the selected RSKs 33 farmers from Yadgir and 70 farmers from Shorapur were selected by following proportionate random sampling procedure. Thus, 103 farmers formed the sample size for the study and another 25 JG-11 growers were considered for FGD in one village. Based on the objectives of the study an interview schedule was prepared to collect information from farmers. Personal interview method was followed and data were collected during February-march, 2013. FGD was carried out involving 25 farmers in Tangadgi village who had grown JG-11. Simple statistical tools like simple averages, ratios, percentages, mean and Standard deviation and others were employed to analyze the data to draw meaningful inferences.

Results and Discussion

Characteristics of JG-11 as perceived by farmers

A perusal of data in the Table 1 revealed that Majority (51.45%) of the farmers perceived that "yield is more" followed by a considerably higher parentage of farmers i.e. 29.12 and 20.38% who perceived that JG-11 has high flowering and seed setting quality and possess bold grains, respectively.

With respect to negative characteristics a considerable percentage of farmers (32.03) perceived that JG-11 has single seed and shrivelled pods. Followed by 27.18 percent who perceived that pest infestation is high (Table 2a).

Practices followed by farmers in JG-11 cultivation

The results presented in Table 2 reveals that Majority of the farmers followed the practices as recommended in case of date of sowing (51.51% in Yadgir Taluk and 72.85 in Shorapur), Seed rate (90.90% in Yadgir Taluk & 77.14% in Shorapur).

Fertilizer (63.63% in Yadgir Taluk and 72.85 in Shorapur), Method of harvesting manually (93.93% in Yadgir Taluk and 98.57%) in Shorapur), Spacing 30*10 cm (57.57% in Yadgir Taluk and 68.57% in Shorapur). Only few farmers followed the practices namely foliar application of urea, use of growth promoter after 35 days (NAA)

Table.1 Characteristics of JG-11 as perceived by farmers n=103

Sl. no	Characteristics of JG-11	Yadagir n1 =33		Shorapur n2 =70		Total	
	Positive	No	%	No	%	No	%
1	Grows well even in low winter temperature	3	9.09	3	4.28	6	5.66
2	Bold pods /grains	10	30.30	11	15.71	21	20.38
3	Resistant to powdery mildew and wilt	7	21.21	9	12.85	16	15.53
4	Yield is more	13	39.39	40	57.14	53	51.45
5	Comes up even in dry farming also	0	0.00	7	9.99	7	6.79
6	High flowering and seed setting	15	45.45	15	21.42	30	29.12
Negative							
1	Pest infection is high	10	30.30	18	25.71	28	27.18
2	Single seed and shrivelled pod	8	24.24	25	35.71	33	32.03
3	Suitable for only irrigation condition	0	0.00	12	17.14	12	17.14

Table.2 Influencing characteristics for adoption of JG-11 n=103

Sl. no	Characteristics	Yadagir n1 =33		Shorapur n2 =70		Total	
		No	%	No	%	No	%
1	Grows well even in low winter temperature	5	15.15	6	8.57	11	10.67
2	Comes up in dry farming also	8	24.24	8	11.42	16	15.53
3	Tasty Grains and suitable for sweets making	4	12.12	5	7.14	9	8.73
4	With stands cloudy climate	6	18.18	9	12.85	15	14.56
5	High yield	17	51.51	45	64.28	62	60.19
6	Tolerance to powdery mildew and wilt	8	24.24	0	0.00	8	7.76
7	Marketing(more rate)	19	57.57	35	49.99	54	52.42
8	Suitable for putani making	17	51.51	15	21.42	32	31.06

Table.2a Practices followed by farmers in Yadagi n=33

Sl. no	Practices	JG.11variety		Other Varieties	
		No	%	No	%
1	Date of sowing (oct-15)	17	51.51	20	60.60
2	Seed rate(25kg/acre)	30	90.90	24	72.72
3	Seed treatment(trichoderma)	19	57.57	18	54.54
4	Fertilizer (only DAP-2bags /acre)	21	63.63	16	48.48
5	Spacing 30*10 cm	19	57.57	11	33.33
6	Weedicide (Pendimethalin)	5	15.15	3	9.09
7	Nipping	21	63.63	10	30.30
8	Growth promoter after 35days. NAA Foliar	5	15.15	2	6.06
9	Foliar application of urea and calcium Nitrate	5	15.15	5	15.15
10	Method of harvesting manually	31	93.93	22	66.66

Table.2b Practices followed by farmers in Yadagir n=70

Sl. no	Practices	JG.11 variety		Other Varieties	
		No	%	No	%
1	Date of sowing (Oct-15)	51	72.85	19	27.14
2	Seed rate(25kg/acre)	54	77.14	15	21.42
3	Seed treatment(trichoderma)	29	41.42	39	55.71
4	Fertilizer (only DAP-2bags /acre)	51	72.85	18	25.71
5	Spacing 30*10 cm	48	68.57	21	29.99
6	Weedcide (Pendi methilien)	18	25..71	52	74.28
7	Nipping	43	61.42	26	37.14
8	Growth promoter after 35days NAA Foliar	19	27.14	50	71.42
9	Foliar application of urea and calcium Nitrate	11	15.71	59	84.28
10	Method of harvesting manually	69	98.57	1	1.42

Table.3 Bengal gram varieties grown and their yield levels and B:C ratio n=103

Varieties	Yadagir n1 =33		Average Yield /ha.			Shorapur n2 =70		Average Yield / ha.		
	No	%	Yield	Cost of prod	B.C ratio	No	%	Yield	Cost of prod	B.C ratio
A-1	31	93.93	8.00	11500	1:1.86	47	1.89	7.50	11000	1:1.90
Local	5	15.15	4.25	9500	1:1.40	5	1.51	5.00	9700	1:1.45
JG-11	33	99.99	10.00	11000	1:2.3	66	2.91	10.50	12000	1:2.50

In case of Annegiri-1 and others varieties the practices followed by farmers were not as per recommendation by majority (Table 2a &2b).

Economics of JG-11 as compared to Anniger-1 from the experiences of farmers

The results presented in Table 3 reveals that The B:C Ratio was higher in JG-11 (1:2.5) compared to A-1 variety which was 1:1.90 In case of other local varieties grown in the study area the B:C ratio was 1:0.45.

The average yield levels of JG-11 ranged from 10-10.5 q/ha compared to 7.5-8.0 q/ha in A-1 and 4.25 to 5.00 q/ha in other local varieties grown by farmers. The cost of production ranged from Rs.11,000-Rs.12,000 in JG-11 where as in case of A-1 it was Rs.11,000-Rs.11,500 and it was Rs.9500-Rs.9700 in local varieties.

Practical constraints and suggestions as perceived by farmers

Market price was the major constraint faced by farmers. All the farmers opined that if remunerative prices are given to Bengal gram they would continue to adopt JG-11 as they are happy with the yield and bold grains of JG-11. They suggested that Govt. announce the MSP in advance of growing JG-11, otherwise there are no major problems with respect to JG-11 cultivation. This was revealed by farmers during FGD at Tangadgi village.

Major recommendations/ Policy Implications

The pulse breeder has to stress on the negative characters of JG-11 especially, single seed pod and shrivelled pods in their crop improvement programme

There is need to undertake extension activities by RSK and AEEC, Yadagir in organizing demonstrations to show the worth of practices namely foliar application of urea, use of growth promoter after 35 days (NAA) as these were followed by only 15.00% of farmers.

The farmers need to be educated regarding the importance of applying fertilizers as recommended.

The diffusion process is initiated by KSDA through seed distribution programme as most of the farmers came to know about the variety within last one year (70.00 %) and two years (23 %) and got the information through Dept. of Agriculture (90.00 %) under the programme of seed distribution on subsidy. It has to become a demand driven initiative and in this direction the recent technologies are to be disseminated through mass media. University KVK and AEEC can take up

extension activities to provide information through literature such as leaflets and folders

Market price is the major driving force for continued adoption of JG-11 (60.00 %) and even expansion of the area under JG-11 the government may be persuaded to announce the support price in advance.

In conclusion, the results revealed that majority of the JG-11 growers expressed that the characteristics namely; bold grains, higher flowering and seed setting, resistance to wilt, comes up well in dry land and high yielding capacity as positive ones. Farmers received fair price by cultivating JG-11 variety because of bold size. Even in drought condition the performance of JG-11 was good as expressed by the farmers compared to Annigeri variety. JG-11 had given yield of 15-20 q/ha this has very much attracted other farmers also and under irrigation just by two irrigations the yield can be increased upto 25 %. Also, JG-11 is tolerant to wilt and drought.

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