

**RESEARCH ARTICLE :**

Benefits received and constraints faced by BDN 711 variety of pigeonpea cultivation in Marathwada region of Maharashtra

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SUMMARY : Study was undertaken in Marathwada region of Maharashtra state. Ambajogai and Kaij tehsil of Beed district has purposively selected. From Ambajogai tehsil three villages namely Jawalgaon, Ghatnandur, Kumbephal and in Kaij tehsil three villages namely, Borisawargon, Bansarola, Jawalban were selected purposively. Minimum five respondents from each village thus, comprising of fifty pigeonpea growing farmers were selected by proportionate random sampling method. 78.00 per cent of the respondents had medium (13.61 to 40.64 q) level of productivity, 84.00 per cent mentioned yield will be increased if followed the different technologies, 68.00 per cent mentioned drip irrigation system will help to increasing yield level. All of the respondents kept their produce for seed purpose and mentioned BDN 711 is a guaranteed crop due to higher productivity and other characteristics of crop, further it was observed that large majority (80.00 % to 96.00 %) of the respondents felt that BDN 711 variety had no effect of climatic change, intercultural operations are easier due to appropriate growth of plants, resistance for diseases, easier for threshing, suitable for rainfed condition, sustainable in water stress and superior for intercrop. 40.00 per cent of the respondents faced with low knowledge of improved technology and 34.00 per cent of the respondents suggested to provide effective insecticide spraying schedule.

KEY WORDS :

Benefits, Constraints,
BDN 711, Pigeonpea

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BACKGROUND AND OBJECTIVES

Pulses are an important food in Indian peoples diet, pigeonpea is the most important pulse crop widely cultivated in all tropical and subtropical regions. Pigeonpea is used for food, feed, and fuel. It has more diverse uses than any other pulse crop. It is the principal source of dietary protein for more than billion people

most of whom are vegetarian and poor. Its seed contains about 21% protein and rich in essential amino acids, carbohydrate, minerals and vitamin A and C (Singh *et al.*, 2016). Also it helps to increase productivity and fertility of soil. It is cultivated worldwide on 4.92 million hectares with an annual production of 3.65 Mt and productivity of 898 kg ha (Anonymous, 2017). India is the major

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producer of pigeonpea, appx. 82 % of total production is grown in India (Anonymous, 2017). In India pigeonpea is cultivated in 14 per cent of the gross cropped area under pulses providing 20 per cent of the national pulse production (Siddayya *et al.*, 2016). The crop is cultivated on 40.283 lakh ha and annual production of this pulse in India is about 29.295 lakh tonnes (Anonymous, 2016). This quantity is insufficient to meet the domestic needs; and hence a considerable amount (about 100,000 tonnes) of pigeonpea is imported each year (Saxena and Tikle, 2015).

In Maharashtra in 2013-14 area under pigeonpea was 11.41 lakh hectares and productivity was 906 kg / ha. Majority of the farmers cultivated pigeonpea as a cash crop, but it cannot see to all farmers due to dry land cultivation with using long duration and local varieties.

Recently in 2011-12 VNMKV Parbhani has developed BDN 711 new variety of pigeonpea to overcome the problems and increasing the productivity of pigeonpea in Maharashtra. Now this variety is very popularized in the farmers field level, therefore, the present investigation on “benefits received and constraints faced by BDN 711 variety of pigeonpea cultivation in Marathwada region of Maharashtra was undertaken with following objectives.

Objectives :

- To know the productivity and disbursement of produce by the respondents
- To study the opinion of the respondents about increasing the yield level by using different technology.
- To ascertain the benefits received by BDN 711 cultivation to the respondents.
- To identify the constraints faced and suggestions given by the respondents.

RESOURCES AND METHODS

The present study was undertaken in purposively selected Beed district, in which Ambajogai and Kaij tehsil has purposively selected as the RAEEC and KVK has

been in operation in this area. From Ambajogai tehsil three villages namely Jawalgaon, Ghatnandur, Kumbephal and Kaij tehsil three villages namely, Borisawargon, Bansarola, Jawalban were selected purposively. Minimum five respondents from each village thus comprising of fifty pigeonpea growing farmers from these villages were selected by proportionate random sampling method. The respondent were interviewed with the help of structured interview schedule prepared for the study. The statistical tools like mean, standard deviation, frequency and percentage were used to analyse the data.

OBSERVATIONS AND ANALYSIS

The findings of the study are given as below.

Productivity and disbursement of produce by the respondents :

The data presented in Table 1 indicates that three-fourth (78.00 %) of the respondents had medium (13.61 to 40.64 q) level of productivity, while 12.00 per cent and 10.00 per cent respondents had high (above 40.65 q) and low (Upto 13.60 q) productivity, respectively.

The data with regards to marketing or disbursement of produce, it was observed from Table 2 that all (100.00 %) of the respondents were kept their produce for seed purpose (5.70 q) on own farming in next year sowing, followed by 92.00 per cent of the respondents kept there produce (35 q) for sale to the other farmers for seed purpose and 16.00 per cent of them gifted seeds to the relatives for sowing. Nearly all (96.00 %) of the respondents kept their produce for consumption purpose. Further it is observed that half (52.00 %) of the respondents not sold their produce in open market and kept it for sale whereas 48.00 per cent of the respondents sold their produce in open market. Total production was 925.00 q.

Opinion of the respondents about increasing the yield level by using different technology :

The data regarding opinion about increasing the yield

Table 1 : Distribution of the respondents according to productivity

Sr. No.	Productivity	Frequency	Per cent
1.	Low (Upto 13.60 q)	5	10.00
2.	Medium (13.61 to 40.64 q)	39	78.00
3.	High (above 40.65 q)	6	12.00
	Total	50	100.00

level by using different technology were collected and presented in Table 3, from this it is observed that high majority (84.00 %) of the respondents mentioned yield will be increased if followed the different technologies, while 16.00 per cent mentioned no yield level increased by following the different technologies.

It is found that two-third (68.00 %) of the respondents mentioned drip irrigation system will help to increasing yield level, followed by 48.00 per cent of them mentioned use of micro nutrients, 34.00 per cent mentioned proper drainage, 24.00 per cent mentioned use of recommended fertilizers, 18.00 per cent mentioned use of BBF technique and 12.00 per cent mentioned increasing the spacing will help to increasing the yield level.

Benefits received by BDN 711 cultivation to the respondents :

The results depicted from the Table 4 reveal that, all (100.00 %) of the respondents mentioned BDN 711 is a guaranteed crop due to higher productivity and other characteristics of crop (better production level in last 5 years), further it was observed that large majority (96.00 % to 80.00 %) of the respondents felt that BDN 711 variety had intercultural operations easier due to

appropriate growth of plants, resistance for diseases, suitable for rainfed condition, easier for threshing, proper aeration due to less height resulted more yield, superior for intercrop system (Soybean+Pigeonpea), no effect of climatic change and sustainable in water stress. Whereas equally (40.00 %) of the respondents felt that BDN 711 was sustained in water lodging condition and better cooking quality and taste for consumption. While 30.00 of the respondents benefited without spraying to control for diseases and equal percentage (20.00 %) of the respondents taken gram crop in *Rabi* season in open space as a intercrop after harvesting of soybean and controlled insect /pest by only one spraying at flowering stage, also 10.00 per cent of the respondents were benefited with BBF technology and suitable for ratoon crop.

Constraints faced and suggestions given by the respondents :

Table 5 shows that two-fifth (40.00 %) of the respondents expressed the constraints that low knowledge of improved technology, whereas equal percentage (20.00 %) respondents faced effect of climatic change and unavailability of recommended chemicals and only 10.00 per cent of them faced to the

Table 2 : Distribution of the respondents according to marketing or disbursement of produce

Sr. No.	Particulars	Frequency	Per cent	Quantity	Remarks
1.	Kept for consumption	48	96.00	29.50	
2.	Kept for sowing on own farming	50	100.00	5.70	For next year
3.	Gifted to the relatives for sowing	8	16.00	1.10	
4.	Kept for sale to other farmers for sowing	46	92.00	35.00	Kept for next year
5.	Sold in open market			925.00	Total produce
	Yes	24	48.00		
	No	26	52.00		

Table 3 : Distribution of the respondents according to opinion about increasing the yield level by using different technology

Sr. No.	Opinion	Frequency	Per cent
1.	Yes	42	84.00
2.	No	8	16.00
	Technologies, if followed		
1.	Drip irrigation system	34	68.00
2.	Use of BBF technique	9	18.00
3.	Use of micro nutrients	24	48.00
4.	Use of recommended fertilizers	12	24.00
5.	Proper drainage	17	34.00
6.	Increasing spacing	6	12.00

Table 4 : Distribution of the respondents according to benefits received due to BDN 711 cultivation

Sr. No.	Particulars	Frequency	Per cent	Ranks
1.	No effect of climatic change	40	80.00	VIII
2.	Suitable for rainfed condition	45	90.00	IV
3.	Intercultural operations are easier due to appropriate growth of plants	48	96.00	II
4.	Proper aeration due to less height resulted more yield	42	84.00	VI
5.	Sustainable in water stress	40	80.00	IX
6.	Sustainable in water lodging conditions	20	40.00	X
7.	No requirement of spraying to control for diseases	15	30.00	XII
8.	BDN711 is a guaranteed crop due to higher productivity and other characteristics (last 5 years)	50	100.00	I
9.	Superior for intercrop system (Soybean+Pigeonpea)	42	84.00	VII
10.	Taken gram crop in <i>Rabi</i> season in open space as a intercrop after harvesting of soybean	10	20.00	XIII
11.	Easier for threshing	45	90.00	V
12.	Suitable for BBF	5	10.00	XV
13.	Suitable for ratoon crop	5	10.00	XVI
14.	Resistance for diseases	48	96.00	III
15.	Insect pest can be controlled only one spraying at flowering stage	10	20.00	XIV
16.	Better cooking quality and taste for consumption	20	40.00	XI

Table 5 : Distribution of the respondents according to constraints faced in pigeonpea crop cultivation

Sr. No.	Constraints	Frequency	Per cent	Ranks
1.	Effect of climatic change	10	20.00	II
2.	Low knowledge of improved technology	20	40.00	I
3.	Timely availability of inputs	5	10.00	IV
4.	Unavailability of recommended chemicals	10	20.00	III
	Suggestions			
1.	Provide effective insecticide spraying schedule	17	34.00	I
2.	Knowledge about improved technology for pigeonpea cultivation is essential	15	30.00	II
3.	Recommended inputs may be timely available	10	20.00	III

timely availability of inputs constraints.

With regards to suggestion one-third (34.00 %) of the respondents suggested to provide effective insecticide spraying schedule while 30.00 per cent and 20.00 per cent of the respondents had suggested knowledge about improved technology for pigeonpea cultivation is essential and recommended inputs may be timely available, respectively.

Conclusion :

- Three-fourth had medium level of productivity.
- All the respondents kept their produce for seed purpose for own farming in next year followed for sale to the other farmers for seed purpose.
- Yield will be increased if followed drip irrigation system and use of micro nutrients.
- BDN 711 is a guaranteed crop due to higher productivity and other characteristics of crop (last 5

years).

- BDN 711 is a superior for intercrop system (Soybean+Pigeonpea)

- Two-fifth of the respondents faced constraints with low knowledge of improved technology and one-third of the respondents suggested to provide the effective insecticide spraying schedule.

Implications :

- Promote BDN 711 growers to produce seed to meet the demand of other farmers in village by organizing awareness campaign.
- Strip cropping system with soybean + pigeonpea intercrop may be adopted.
- Provide one or two irrigations, it helps increasing productivity than other varieties of pigeonpea.
- Organize training on improved technology of BDN 711 to increase knowledge and adoption level of

farmers.

– Extension functionaries should made available in time the effective insecticide spraying schedule to BDN 711

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