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Extent of adoption of recommended cultivation practices of black gram (*Vigna mungo* L.)

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Abstract

The present study on "Adoption of recommended cultivation practices of black gram" was purposively conducted in three Panchayat Samities of Akola district of Maharashtra state in the year 2018-19. Results obtained after analysis have been summarized as below.

Findings of relational analysis revealed that, variable occupation and economic motivation was positively and highly significantly correlated with adoption of recommended cultivation practices of black gram. The remaining variables such as age, education, land holding, annual income, area under black gram, sources of information, social participation and risk orientation were positively and significantly correlated with adoption of recommended cultivation practices of black gram. The variable insurance availed was non-significantly correlated with adoption of the recommended cultivation practices. Therefore, the null hypothesis was accepted for this variable.

Keywords: Adoption recommended, cultivation practices, *Vigna mungo* L.

Introduction

India is the largest producer (25.00% of global production), consumer (27.00% of world's consumption) and importer (14.00%) of pulses in the world. Pulses account around 20.00 per cent of area under food grains and contribute around 7.00-10.00 per cent of total food grain production in the country. Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing states. Productivity of pulses is 764 kg/ha. (www.icrisat.org).

Black gram popularly known as Urd bean, Urid or mash is an important pulse crop in India. Black gram (*Vigna mungo* (L.) Hepper) reported to be originated in India. It belongs to family *Leguminosae* with chromosome no. $2n=22$. It is the main source of protein, amino acids in vegetarian diet. It contains about 24-26 per cent protein, 56 per cent carbohydrates and 2 per cent fat. It is rich source of calcium, iron and niacin. Pulses have good ability to fix atmospheric nitrogen and improve the soil fertility. They are mostly useful as fodder and concentrates in cattle feed. Because of the special features of pulses they are mostly used as green manure.

Grains of black gram are most important product which is consumed in the form of dal (whole or split, husked and un-husked) or parched. It is the chief constituent of papad and also used to prepare a delicious curry. It is prescribed as medicine in both internally and externally in paralysis and infection of the nervous system. (Hulagur *et al.*, 2018) [4].

Methodology

An exploratory design of social research was used for the present investigation. Out of seven Panchayat Samiti in Akola district, three talukas namely, Akola, Murtizapur and Akot were purposively selected for the study on the basis of maximum area under black gram cultivation. A sample of 10 black gram growers from each village was selected purposively considering the higher area under this crop. Thus, a sample of 120 black gram growers was selected purposively from the four villages of selected three Panchayat Samiti. The data was collected using the interview schedule.

Adoption of the respondents about recommended cultivation practices of black gram was measured on the basis of Dr. PDKV, Akola recommended cultivation practices of black gram. The present study was undertaken with the following objectives

1. To study the personal, socio-economic, communicational and psychological characteristics of respondents
2. To study the adoption of recommended cultivation practices of black gram
3. To find out relationship of respondents and their adoption of cultivation practices of black gram

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4. To identify the constraints faced by the farmers in adoption of recommended cultivation practices of gram

been summarized under the following heads:

Result and Discussion

The findings of the study as well as relevant discussion have

Profile of black gram growers

The selected characteristics of black gram growers have been summarized in Table 1.

Table 1: Distribution of profile of black gram growers

SI. No.	Profile of black gram growers		Respondents (n=120)	
			Frequency	Percentage (%)
1	Age	Young	30	25.00
		Middle	84	70.00
		Old	06	05.00
2	Education	Illiterate	00	00.00
		Primary school	09	07.50
		Middle school	43	35.83
		Secondary school	40	33.34
		Higher secondary school	21	17.50
		College and above	07	05.83
3	Occupation	Agriculture + labour	09	07.50
		Agriculture	83	69.16
		Agriculture + allied occupation	16	13.34
		Agriculture + business	08	06.67
		Agriculture + services	04	03.33
4	Land holding	Marginal	11	09.16
		Small	44	36.67
		Semi-medium	59	49.17
		Medium	06	05.00
		Large	00	00.00
5	Annual income	Up to Rs. 1,14,000	08	06.67
		Rs. 1,14,001 to Rs. 2,28,000	52	43.33
		Rs. 2,28,001 to Rs. 3,42,000	38	31.66
		Rs. 3,42,001 to Rs. 4,56,000	13	10.84
		Above Rs. 4,56,000	09	07.50
6	Area under black gram	Up to 0.70 ha.	38	31.66
		0.71 ha to 1.40 ha.	71	59.17
		Above 1.40 ha.	11	09.17
7	Sources of information	Low	20	16.66
		Medium	79	65.84
		High	21	17.50
8	Insurance availed	Yes	22	18.33
		No	98	81.67
9	Social participation	Low	22	18.33
		Medium	81	67.50
		High	17	14.17
10	Economic motivation	Low	21	17.50
		Medium	91	75.83
		High	08	06.67
11	Risk orientation	Low	13	10.83
		Medium	88	73.33
		High	19	15.84

From Table 1, it has been observed that majority of the respondents (70.00%) were from middle age i.e. between 36 to 50 years of age. The old age farmers did not take initiative in adoption of recommended cultivation practices. Similar findings were reported by Hulagur *et al.* (2018) [4] and Abha Tiwari (2019) [1] and the respondents adopting recommended cultivation practices had formal schooling up to middle school level (35.83%). These findings supported the observations of Mane (2018).

It has been observed that, 70.00 per cent (i.e. 69.16%) of the respondents had agriculture as their occupation. These findings are in line with the observations of Shweta (2014) and More (2016). Majority of respondents (49.17%) belonged to semi-medium category of land holding. This findings therefore, supports findings of Mane (2018). The distribution of the farmers according to their annual income presented in Table 1. It was concluded that majority of the respondents (43.33%) possessed annual income Rs. 1,14,001/- to Rs. 2,28,000/-. Maximum percentage of the respondents i.e. 59.17 per cent had 0.71 ha. to 1.40 ha area under black gram cultivation.

From Table 1, it has been observed that majority of the respondents (65.84%) were mediocre in respect of use of information sources. These results were similar to the results obtained by Majority (81.67%) of the respondents had not availed insurance. Similar findings were observed by Mote *et al.* (2017). And 67.50 per cent of the respondents were included in the medium level of social participation. These findings are in line with the observations of Mane (2018).

It leads to conclude that higher percentage of black gram growers (75.83%) had medium level of economic motivation. These findings were confirmed by the observations Mane (2018), and D and higher percentage of black gram growers (73.33%) had medium level of risk orientation category. These findings were confirmed by the observations of Mane (2018) and Dhorey (2019).

Adoption

Adoption was measured on three point continuum as full adoption, partial adoption and non-adoption by assigning the score of 2, 1, and 0 respectively.

The distribution of respondent according to adoption in Table 2 indicates that, majority (71.66%) of the respondents possessed medium level of adoption of recommended cultivation practices of black gram. As much as 15.84 per cent had high and 12.50 per cent of them belonged to low level of adoption of recommended cultivation practices of black gram. The above findings are in consonance with the findings of Zunjar (2011) [8], Mane (2012) [7], Khare (2013) [5], Chandawat *et al.* (2014) [3], Lohare (2017) [6], Hulagur *et al.* (2018) [4] and Abha Tiwari (2019) [1].

Table 2: Distribution of respondents according to their adoption of recommended cultivation practices of black gram

Sr. No.	Adoption	Respondents (n=120)	
		Frequency	Percentage
1	Low	15	12.50
2	Medium	86	71.66
3	High	19	15.84
	Total	120	100.00

Table 3: Distribution of respondents according to their practice wise adoption of recommended cultivation practices of black gram

SI. No.	Recommended black gram cultivation practices	Respondents(n=120)		
		Complete adoption	Partial adoption	No adoption
1.	Land preparation	118 (98.33)	02 (01.67)	00 (00.00)
2.	Sowing method	76 (63.34)	08 (06.66)	36 (30.00)
3.	Sowing time	63 (52.50)	19 (15.83)	38 (31.67)
4.	Seed rate	67 (55.83)	14 (11.67)	39 (32.50)
5.	Varieties	68 (56.66)	20 (16.67)	32 (26.67)
6.	Spacing	42 (35.00)	17 (14.66)	61 (50.84)
7.	Seed treatment	35 (29.17)	33 (27.50)	52 (43.33)
8.	Recommended FYM dose	19 (15.83)	23 (19.17)	78 (65.00)
9.	Recommended fertilizer application	43 (35.83)	10 (08.33)	67 (55.84)
10.	Irrigation application at critical stages	31 (25.83)	15 (12.50)	74 (61.67)
11.	Weed management	72 (60.00)	31 (25.83)	17 (14.17)
12.	Plant protection	32 (26.67)	36 (30.00)	52 (43.33)
13.	Harvesting	87 (72.50)	07 (05.83)	26 (21.67)
14	Yield	102 (85.00)	08 (06.67)	10 (08.33)

Figures in parentheses indicate percentage.

A detail probing about practice wise adoption possessed by the respondents in the Table 3 revealed that, majority of the respondents (98.33%) had complete adoption about land preparation before sowing. Majority i.e. 85.00 per cent of the respondents had complete adoption of yield and 72.50 per cent of the respondents had complete adoption of harvesting. In case of farm yard manure dose, maximum number of respondents (65.00%) were observed in non adoption and 61.67 per cent of the respondents were observed not adopting the irrigation application at critical stages. It was seen that 63.34 per cent of the respondents completely adopted the sowing methods of black gram such as drilling and dibbling. It is observed that 60.00 per cent of the respondents had complete adoption about weed management and 55.83 per cent respondents had complete adoption about the seed rate of black gram. In context with the sowing according to the commencement of rains, nearly half (52.50%) of the respondents had complete adoption of the recommended sowing time. With regards recommended fertilizer dose, nearly half of the respondents (55.83%) possessed non adoption of the recommendations. In case of spacing, about 50.84 per cent of the respondents and in case of recommended varieties, about 47.50 per cent of the respondents had no adoption. It is observed that, 43.33 per cent of the respondents had no adoption about both seed treatment and plant protection techniques.

Relation analysis

Relationship of selected characteristics of respondents with their adoption of recommended cultivation practices of black gram

The coefficient of correlation of adoption with profile of the respondents has been furnished in Table 4.

Table 4: Coefficient of correlation of selected characteristics of the respondents with their adoption

SI. No.	Variables	'r' value
1	Age	0.1821*
2	Education	0.2151*
3	Occupation	0.2429**
4	Land holding	0.2152*
5	Annual income	0.2322*
6	Area under black gram	0.2026*
7	Sources of information	0.2265*
8	Insurance availed	0.0356 ^{NS}
9	Social participation	0.1981*
10	Economic motivation	0.2507**
11	Risk orientation	0.2055*

** - Significant at 0.01 level of probability

* - Significant at 0.05 level of probability

NS - Non significant.

It can be seen from the Table 4, that the variable occupation and economic motivation was positively and highly significantly correlated with adoption of recommended cultivation practices of black gram. The remaining variables such as age, education, land holding, annual income, area under black gram, sources of information, social participation and risk orientation were positively and significantly correlated with adoption of recommended cultivation practices of black gram. Therefore, the null hypothesis was rejected for these variables.

Whereas, the variable insurance availed was non significantly correlated with adoption of the recommended cultivation practices. Therefore, the null hypothesis was accepted for this variable.

Conclusion

The findings revealed that characteristics such as, occupation and economic motivation was positively and highly significantly correlated with adoption of recommended cultivation practices of black gram. All the remaining variables such as age, education, land holding, annual income, area under black gram, sources of information, social participation and risk orientation were positively and significantly correlated with adoption of recommended cultivation practices of black gram. Whereas, the variable insurance availed was positively and non-significantly correlated with the adoption of recommended cultivation practices of black gram.

Near about three fourth i.e.71.66 per cent of the respondents had medium level of adoption of recommended cultivation practices of black gram.

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