Research Article

Study on knowledge and adoption of *Kharif* green gram cultivation practices

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SUMMARY : Present investigation was undertaken with an objective, to study the knowledge level of respondents about recommended package of practices of green gram and to study the extent of adoption of *Kharif* green gram cultivation practices. The study was conducted in the Parbhani district of Maharashtra state. On the area basis, Parbhani and Selu talukas were purposively selected. Pre-structured and pre-tested questionnaire was developed for data collection. Personal interview technique was used for collection of data. Data were analysed by SPSS software. It was observed that 49.33 per cent of the respondents were having knowledge of land requirement for green gram crop. While 34.00 per cent of them were having knowledge about recommended varieties of the green gram. Majority of the respondents (70.00 per cent) had medium knowledge followed by 17.33 per cent of them having low knowledge and 12.67 per cent of them had high level of knowledge. It was further observed that 19.33 per cent and 12.00 per cent of respondents fully adopted practices like recommended varieties and control measures for diseases like powdery mildew, respectively, whereas negligible per cent of respondents (*i.e.* 0.07%) fully adopted Rhizobium seed treatment practice. In relationship between selected nine independent variables and adoption level, it was found that out of five variables *viz.,* education, land holding, annual income, source of information and knowledge had positive and significant relationship with adoption level at 0.01 level of probability while single variable economic motivation had positive and significant relationship with adoption level at 0.05 level of probability.

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BACKGROUND AND OBJECTIVES

India occupies the largest area in the world under pulse crops. The important pulse craps in India are Bengal gram, Green gram, Black gram etc.

Pulses are grain legume crops grown universally in the country as they are chief source of protein in vegetarian diet of Indian population. Pulses contain 17.25 per cent protein and are rich source of energy, minerals and some vitamins such as vit. B. (Srilakshmi, 2003).

Pulses serve as an excellent forage and grain concentrates in the feed of the large cattle population of the country and some of them are the excellent green manuring crops adding much needed for humus formation and plant nutrients to the soil. Under poor soil fertility conditions, pulses are able to do better because of their ability to fix atmospheric nitrogen through root nodule bacteria (Ghuge, 1993).

Hajare (1998) has stated the erratic distribution of rainfall exposed green gram crop either to moisture stress or to excessive wet condition at the time of harvesting during *Kharif* season responsible for low and poor quality yield of green gram. This irregular behaviour of rainfall posed challenge for cultivation of green gram during *Kharif* season. This creates most uncertainty in production. There may be late sowing due to late monsoon or sometimes due to complete dry spell many times farmers could not compensate cost of cultivation also.

Keeping in view above facts, the present investigation was undertaken with an objective, to study knowledge level of respondents about

recommended package of practices of green gram and to study the extent of adoption of *Kharif* green gram cultivation practices.

RESOURCES AND METHODS

The present study was conducted in the Parbhani district of Marathwada region of Maharashtra state as is has considerable area under green gram crop. On the area basis, Parbhani and Selu talukas were purposively selected. A list of villages having maximum area under green gram cultivation was obtained from the office of one windows system of respective tahsils. Five villages from each of tahsil were selected randomly. List of green gram cultivators was obtained from the recorded of Talathi of respective villages. Fifteen respondents from each village were selected by using nine number method of random sampling. Thus, total sample comprised 150 respondents.

Pre-structured and pre-tested questionnaire was developed for data collection. Personal interview technique was used for collection of data. Data were analysed by SPSS software.

OBSERVATIONS AND ANALYSIS

Perusal of Table 1 clearly reveals that time of sowing was known by cent per cent of the respondents. Similarly, the knowledge about practices like time of harvesting, spacing, seed rate requirement and pest and disease were known to 99.33, 98.66, 97.33 and 92.00 per cent respondents, respectively. The knowledge of yield was possessed by 86.00 per cent of the respondents. Whereas 31.33 per cent of respondents were having complete knowledge about preparatory tillage

Table 1: Knowledge level of respondents about green gram cultivation practices

Sr. No.	Recommended practice	Frequency	Percentage
1.	Land requirement	74	49.33
2.	Preparatory tillage	47	31.33
3.	Application of FYM	85	56.66
4.	Time of sowing	150	100.00
5.	Recommended varieties	51	34.00
6.	Seed treatment	6	4.00
7.	Recommended seed rate	146	97.33
8.	Recommended spacing	148	98.66
9.	Use of recommended fertilizer dose	36	24.00
10.	Pest and diseases	138	92.00
11.	Plant protection measures	32	21.33
12.	Time of harvesting	149	99.33
13.	Yield/ha	130	86.00

practices.

Further, it was observed that 49.33 per cent of the respondents were having knowledge of land requirement for green gram crop. While 34.00 per cent of them were having knowledge about recommended varieties of the green gram. The practices like application of F. Y. M. and recommended fertilizer dose were known by 56.66 per cent and 24.00 per cent respondents, respectively.

Table 2 indicates the level of knowledge possessed by the respondents regarding recommended package of practices of green gram. It shows that majority of the respondents (70.00 per cent) had medium knowledge followed by 17.33 per cent of them having low knowledge and 12.67 per cent of them had high level of knowledge.

Table 2: Respondents according to their knowledge level about recommended green gram cultivation practices (n=150)

Sr. No.	Category	Frequency	Percentage
1.	Low	26	17.33
2.	Medium	105	70.00
3.	High	19	12.67

The information pertaining to practicewise adoption of green gram crop is depicted in Table 3. The perusal of the data reveal that, inter culturing operations (like weeding and hoeing) and threshing were adopted fully *i.e.* by cent per cent of respondents.

Similarly, the other practices like preparatory tillage and time of harvesting were fully adopted by an equal percentage of respondents (*i.e.* 91.33 per cent). Practices such as recommended spacing was adopted fully by 89.33 per cent of respondents, whereas 77.33 per rent of them fully adopted recommended seed rate. 65.33 per cent of them fully adopted time of sowing, while 34.67 per cent of respondents adopted fertilizer dose as per recommendations and 24.00 per cent of them adopted completely control measures for aphids.

It was further observed that 19.33 per cent and 12.00 per cent of respondents fully adopted practices like recommended varieties and control measures for powdery mildew, respectively, whereas negligible per cent of respondents (*i.e.* 0.07%) fully adopted Rhizobium seed treatment practice.

With regards to partial adoption of recommended practices of green gram cultivation, it was observed that the practices like use of recommended fertilizer dose (58.67%), time of sowing (34.67%) control measures for aphids (31-33%) seed rate (22.67%), recommended spacing (10.67%), while control measures for powdery mildew (10.00%) were found to be adopted partially. Similarly, the practices such as preparatory tillage and harvesting were adopted partially be equal percentage *i.e.* (8.67%) of them.

Table 3 also shows that 99.33 per cent) respondents had not adopted seed treatment before sowing and 80.67 per cent

Table 3: Adoption of recommended package of practices of *Kharif* green gram

Sr. No.	Recommended package of practices	Full adoption		Partial adoption		No adoption	
		Frequency	%	Frequency	%	Frequency	%
1.	Preparatory tillage	137	91.33	13	8.67	--	--
2.	Time of sowing	98	65.33	52	34.67	--	--
3.	Recommended spacing	134	89.33	1	10.67	--	--
4.	Recommended variety	29	19.33	--	--	121	80.67
5.	Seed rate/ha	116	77.33	34	22.67	--	--
6.	Seed treatment	1	0.07	--	--	149	99.33
7.	Use of recommended fertilizer dose	52	34.67	88	58.67	10	6.66
8.	Interculturing operations *i.e.* weeding and hoeing	150	100.00	--	--	--	--
9.	Plant protection measures						
	Control measures for aphids	36	24.00	47	31.33	67	44.67
	Control measures for powdery mildew	18	12.00	15	10.00	117	78.00
19.	Harvesting time	137	91.33	13	8.67	--	--
20.	Threshing	150	100.00	--	--	--	--

of them had not adopted recommended varieties whereas 78.00 per cent and 44.67 per cent of respondents had not adopted control measures for powdery mildew disease and aphids, respectively. While very meagre percentage *i.e.* 6.66 per cent of them had not adopted recommended fertilizer dose.

Table 4 shows that 66.00 per cent of the respondents had medium level of adoption of green gram cultivation practices while 18.00 per cent of them were having low level of adoption and 16.00 per cent were from high adoption category.

Table 5 shows the relationship between selected nine

Table 4: Respondents according to the adoption of recommended green gram cultivation practices (n=150)

Sr. No.	Category	Frequency	Percentage
1.	Low	27	18.00
2.	Medium	99	66.00
3.	High	24	16.00

Table 5: Personal, socio-economic and psychological characteristics of green gram growers

Sr. No.	Variables	Co-efficient correlation 'r' value
1.	Age	-0.067
2.	Education	0.412**
3.	Land holding	0.283**
4.	Annual income	0.423**
5.	Social participation	0.118
6.	Source of information	0.664**
7.	Economic motivation	0.170*
8.	Risk preference	0.028
9.	Knowledge	0.549**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

independent variables and adoption level and it was found that five variables *viz.,* education, land holding, annual income, source of information and knowledge had positive and significant relationship with adoption level at 0.01 level of probability while single variable economic motivation had positive and significant relationship with adoption level at 0.05 level of probability. Whereas age showed negative and non-significant relationship with adoption. While social participation and risk preference showed positive and non-significant relationship with adoption of green gram cultivation practices.

It was observed from Table 6 that the value of R^2 was 0.564. It is illustrated that 56.40 per cent of the variation in adoption was explained through the variables considered for regression equation. The 't' value was found significant at 0.01 level of probability in respect of annual income, source of

Table 6: Multiple regression analysis of adoption level of green gram cultivation practices

Sr. No.	Variables	Regression co-efficient 'r' value	SE	t value
1.	Age	0.0063	0.0130	0.4837
2.	Education	0.2116	0.1512	1.399
3.	Land holding	-0.2513	0.2722	-0.923
4.	Annual income	-0.0258	0.0100	2.584**
5.	Social participation	-0.277	0.199	-1.392
6.	Source of information	0.3049	0.0542	5.623**
7.	Economic motivation	0.0271	0.0559	0.484
8.	Risk preference	-0.0135	0.0424	-0.320
9.	Knowledge	0.5284	0.1063	4.969**

R^2 = 0.564   'F' value = 20.14

* and ** indicate significance of values at P=0.05 and 0.01, respectively

information and knowledge. The unexplained variation was 43.60 per cent which may be due to extraneous factors. Thus, from the present investigation it was concluded that out of nine independent variables, annual income, source of information and knowledge were the most important factors affecting the adoption of recommended green gram cultivation practices. While independent variables namely age, education, land holding, social participation, economic motivation and risk preference did not show any effect on adoption. This may be due to peculiar situation in which farmers are living.

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