



RESEARCH PAPER

Knowledge level of farmers about redgram production technologies of UAS Dharwad

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Abstract : The present study was conducted in Vijayapura and Bagalkot districts of Karnataka state during 2021-22. To study the knowledge level of farmers about redgram production technologies of UAS Dharwad by employing “*Ex-post facto*” research design and by using simple random sampling technique in Vijayapura and Bagalkot districts constituting a total sample size of 160 farmers. It was depicted that, majority 46.25 per cent of red gram growers belonged to medium knowledge level category, whereas, 30.00 per cent and 23.75 per cent of them belonged to low and high-level knowledge category, respectively. Cent per cent redgram growers had knowledge about recommended time of sowing, method of sowing and inter cultivations. Majority of the redgram growers had knowledge about yield (96.88 %), major pests (93.13 %), time of application of FYM (92.50 %), recommended variety (90.62 %), varieties resistant/tolerant to wilt (87.50 %), major diseases (86.25 %), spacing (83.13 %), seed rate for sole crop (78.75 %), soil type (77.50 %) and quantity of FYM (76.25 %). More than half of the redgram growers had knowledge about fertilizer dosage (74.37 %), seed treatment (62.50 %), nipping (57.50 %), inter crops (56.25 %), chemicals to control pest (55.00 %) and seed rate for mixed redgram cultivation (51.25 %). This trend is due to their habitual predisposition to set pattern of redgram cultivation over the years using old practices without any change. Hence, the agriculture department has to conduct training programmes on redgram cultivation, establish demonstration plots in farmer’s field.

Key Words : Knowledge, Redgram, Production technology, Nipping, Ratooning, IPM

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INTRODUCTION

Red gram (*Cajanus cajan*) family Fabaceae. It is a well-known pulse crop. It is the second most important pulse crop after bengal gram in India. It is a perennial plant and a short annual crop in India and as a perennial in many other countries, where the pods are harvested at regular interval. The crop has deep root system, it

helps in extracting the nutrients and moisture from deeper layer of soil hence, this crop is highly drought tolerant and most suitable for rainfed conditions. Deep root system of the crop helps in breaking hard pans of soil and also helps in improving soil structure and hence it is called as ‘Biological plough’. More than 350 vernacular names of red gram have been recorded however, it is commonly known as Tur. Other names of red gram are Arhar, Tur,

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No eye pea, Angola pea, Congo bean, Gungo pea etc. Red gram is a native of peninsular India and was grown in this region for 3500 years. Its seeds have become a common food in Asia, Africa and Latin America.

Globally, redgram is grown in an area of 56.16 lakh hectares with the production of 44.25 lakh tonnes and productivity of 788.1 kg/ha. (FAO STAT, 2019). India stands first in red gram production globally with 37.50 lakh tonnes cultivated under 48.24 lakh hectares with productivity of 777 kg/ha in 2020-21 (*agricoop.nic.in*). In India, red gram takes second place in total pulse production after bengal gram. It is widely cultivated throughout India (37.50 lakh tones), Myanmar (6.76 lakh tones), Malawi (4.34 lakh tones), Tanzania (3.15 lakh tones) and Haiti (0.87 lakh tones).

The major red gram producing states are Karnataka (9.47 lakh tones) with an area of (12.80 lakh ha), Maharashtra (8.34 lakh tones) with an area of (12.46 lakh ha) and Madhya Pradesh (3.11 lakh tones) with an area of (4.12 lakh ha).

Karnataka stands at 1st position in red gram production in India. It is cultivated in an area of 12.80 lakh ha, with the production and productivity of 9.47 lakh tonnes and 739 kg/ha, respectively. The major red gram growing districts are Gulbarga (2,42,979 tonnes) with an area of (4,09,360 ha), Vijayapura (1,73,653 tonnes) with an area of (3,88,932 ha), Bidar (46,900 tonnes) with an area of (68,200 ha) and Bagalkot (21,256 tonnes) with an area of (37,261ha).

The findings of the study would also help to understand the knowledge level of farmers about production technologies of redgram. Keeping these things in view, the present study was undertaken to know the knowledge level of redgram farmers in north Karnataka.

MATERIAL AND METHODS

The study was conducted in Vijayapura and Bagalkot districts of Karnataka in the year 2021-22 by using Ex-post facto research design and simple random sampling technique. Considering the major red gram growing areas, two taluks of Vijayapura and Bagalkot districts of North Karnataka were selected *viz.*, Sindagi, Muddebihal, Hunagund and Bagalkot. Further, from each taluk, two villages were randomly selected. Thus, total of 8 villages were selected for the study and 20 redgram growing farmers from each village were randomly selected to constitute a total sample of 160 farmers. To study the knowledge of farmers about redgram

production technologies, a structured interview schedule was prepared by reviewing the previous studies and pretested in the non-sample area. Mean and standard deviation were used for classification of the members into various categories.

A teacher made test as suggested by Anastasi (1961) was employed to measure the knowledge level of the respondents about the red gram cultivation practices. A list of knowledge items was prepared by discussing with experts from Agronomy, staff of Krishi Vigyan Kendra, staff of Agricultural Extension Education Centre and by referring to the package of practices book published by the University of Agricultural Sciences, Dharwad. Each practice was framed in a question form to obtain the response from the respondents. For each question alternative answers were given. The answers to the question were quantified by giving one score to correct answer and zero score to incorrect answer. The test constituted 30 knowledge questions. The questions covered full range of cultivation practices beginning from variety selection till the crop yield. Thus, the maximum possible score was 30 and the minimum was zero. The summation of scores of the correct answers for a particular respondent indicates his knowledge level about improved cultivation practices of red gram. Based on the total score, the respondents were grouped into three categories namely low, medium and high categories using mean and standard deviation as measure of check. Further frequency and percentage were calculated to present the data. The above procedure was also followed by Raghavendra (2005) and Kiran and Aski (2014).

RESULTS AND DISCUSSION

The experimental findings obtained from the present study have been discussed in following heads:

Over all knowledge level of redgram growers about production technologies :

It was observed from the Table 1 that, 46.25 per cent of redgram growers were belonged to medium knowledge level category, while 30.00 per cent of redgram growers were belonged to low and 23.75 per cent of the redgram growers were belonged to high knowledge category. The incidence of lower education level and medium mass media exposure, economic motivation, extension participation, extension contact among farmers cultivating redgram which resulted in acquiring better knowledge of cultivation practices. This

might be the reason for nearly half of the redgram growers had medium knowledge about production technologies. The above findings were in accordance

with the findings of Raghavendra *et al.* (2010), Dhayal and Mehta (2015), Kumar *et al.* (2017) and Singh *et al.* (2017).

Table 1: Distribution of redgram growers according to overall knowledge of recommended production technologies (n=160)

Category	Frequency	Percentage
Low (<14.06)	48	30.00
Medium (14.06-16.66)	74	46.25
High (>16.66)	38	23.75
Mean=15.36		SD=3.05

Table 2: Knowledge level of redgram growers about individual recommended production technologies (n=160)

Sr. No.	Recommended practices	(n=160)	
		f	%
1.	Soil type (Shallow to medium Black soil)	124	77.50
2.	Variety recommended (GRG-811, TS-3R, BSMR-736)	145	90.62
3.	Varieties resistant/tolerant to wilt (GRG-811, TS-3R)	140	87.50
4.	Seed rate for sole crop (4-5 kg/acre)	126	78.75
5.	Seed rate for mixed red gram cultivation (2.5-3.2 kg /acre)	82	51.25
6.	Seed treatment	100	62.50
7.	Bio -fertilizer used for seed treatment (Rhizobium CC-1)	41	25.63
8.	Chemical used for seed treatment (Captan)	28	17.50
9.	Dose of bio- fertilizers for seed treatment	39	24.38
10.	Time of sowing (June-July)	160	100.00
11.	Method of sowing (Seed drill)	160	100.00
12.	Spacing (90x30 cm)	133	83.13
13.	Quantity of FYM (2.4 ton/acre)	122	76.25
14.	Time of application of FYM (2-3 Weeks before sowing)	148	92.50
15.	Fertilizer dosage (10:20:0) NPK	119	74.37
16.	Pre-emergent Weedicides (Pendimethalin and Alachlor)	0	0.00
17.	Post-emergent Weedicides (Imazethapyr)	16	10.00
18.	Pulse magic	0	0.00
19.	Inter cultivations (2-3)	160	100.00
20.	Major pests (Pod borer, Pod fly and spotted pod borer)	149	93.13
21.	Chemical to control pests (Profenofos, Imidacloprid and Emamectin benzoate)	88	55.00
22.	Major diseases		
	a) Wilt		
	c) Sterility mosaic disease	138	86.25
	b) Leaf spot		
23.	Chemical to control diseases (Captan, Metalaxyl and Thiram)	44	27.50
24.	Inter crop (Foxtail millet and green gram)	90	56.25
25.	Nipping	92	57.50
26.	Ratooning	0	0.00
27.	Ratooning in redgram is good practice	0	0.00
28.	IPM in red gram	22	13.75
29.	IPM practices in red gram	22	13.75
30.	Yield (4-5 q/acre)	155	96.88

f= Frequency

% = Percentage

Knowledge level of redgram growers about individual production technologies :

Table 2 highlighted that knowledge level of redgram growers about individual production technologies.

Soil type :

It could be observed from the table that, majority of the (77.50 %) redgram growers known that shallow to medium black soil is best suited for red gram production. The farmers knew that shallow to medium black soil is suitable for redgram cultivation and majority of the study area comes under black soil.

Variety and varieties resistant / tolerant to wilt:

In case of variety 90.62 per cent of the redgram growers had knowledge about varieties like TS-3R, GRG-811 and BSMR-736 these are recommended for this region. Regarding varieties resistant/tolerant to wilt 87.50 per cent of the redgram growers had knowledge about varieties like TS-3R and GRG-811 these are resistant/tolerant to wilt disease. Because the farmers aware of improved varieties developed by the university, which are high yielding, wilt and Sterility Mosaic Disease resistant compare to local varieties.

Seed rate for sole crop and mixed redgram cultivation :

With respect to seed rate for sole red gram cultivation 78.75 per cent of the redgram growers had correct knowledge about seed rate for sowing of sole red gram for one acre. Because they get exact 5 kg redgram seed packets from local RSKs as it is recommended for the variety. Whereas, 51.25 per cent of the redgram growers had knowledge about recommended seed rate for mixed/inter crop of red gram, majority of them grow redgram as a sole crop, so they have less awareness about seed rate for mixed or inter crop.

Seed treatment:

In case of seed treatment 62.50 per cent of the redgram growers had knowledge about the seed treatment, while, 25.63 per cent of the redgram growers had knowledge about the bio fertilizers required for seed treatment, whereas, 17.50 per cent of the redgram growers had knowledge about the chemical required for the seed treatment, about dosage of bio-fertilizers for seed treatment 24.38 per cent of respondents had

knowledge, majority of the redgram growers are illiterate to functionally literate and lack of participation in the extension activities, medium extension contact and mass media exposure, these reasons might have contributed to the above findings.

Time of sowing and method of sowing :

It fascinatingly showed that cent per cent of the redgram grower's had knowledge about the sowing time of the crop and method of sowing of the crop, farmers are practicing cultivation of redgram since many years, cent per cent of redgram growers knew it is a rainfed crop and it prefers *Kharif* season for better growth and all of them use seed drill for redgram cultivation.

Spacing :

With respect to spacing 83.13 per cent of the redgram growers had knowledge about recommended spacing of redgram crop. Because of majority of them used seed drill for redgram cultivation.

Quantity and time of application of FYM :

In case FYM application 76.25 per cent of the redgram growers had knowledge about the quantity of FYM, whereas, 92.50 per cent of the redgram growers had knowledge about the time of application of FYM. Most of them aware because this is traditionally being practiced from many years.

Fertilizer dosage :

Regarding fertilizer dosage 74.37 per cent of the redgram growers had the knowledge about the fertilizer dosage. Because majority of them apply one packet DAP per acre which is made available from local input dealers as it is recommended for the redgram crop.

Weedicides:

In the case of weedicides none of the redgram growers had knowledge about pre-emergent weedicides, whereas, 10.00 per cent of the redgram growers had knowledge about post-emergent weedicides. Because all of them practice inter cultivations to remove pre-emergent weeds and they practiced hand weeding to remove post-emergent weeds.

Pulse magic :

Regarding pulse magic none of the redgram growers had awareness about pulse magic.

Inter cultivations :

With respect to inter cultivations cent per cent (100.00 %) of the redgram growers had knowledge about recommended number of inter cultivations. Because this is traditionally being practiced from many years.

Major pests and chemicals to control pests :

Regarding pests majority 93.13 per cent of the redgram growers had knowledge about the major pests of red gram, whereas, 55.00 per cent of the redgram growers had knowledge about chemicals to control pests. Because of severe infestation of pests (Pod borer, Spotted pod borer and Pod fly) in the study area and majority of the growers follow the control measures which are suggested by input dealers.

Diseases and chemicals to control diseases :

With respect to diseases majority (86.25 %) of the redgram growers had knowledge about the major diseases in red gram, while, 27.50 per cent of the redgram growers had known about the chemicals to control diseases. Because of severe infestation of diseases (Wilt, Sterility Mosaic Disease and Leaf spot) in the study area and majority of the growers follow the control measures which are suggested by input dealers.

Intercrop :

In case of intercrop, more than half 56.25 per cent of the redgram growers had knowledge that foxtail millet and green gram are the suitable inter crops for red gram. Because this is traditionally being practiced from many years.

Nipping :

With respect to nipping more than half (57.50 %) of the redgram growers had knowledge about nipping practice in red gram cultivation. Because it is also one of the traditional practice and rest of the farmers perceived that nipping is only practiced in bengal gram.

Ratooning and ratooning practice :

With respect to ratooning none of the redgram growers had knowledge about ratooning and opinion about ratooning practice in redgram cultivation. Non-availability of ratooning variety in the study area and lack of awareness might be the reason for the above findings.

IPM and IPM practices:

Regarding IPM equal 13.75 per cent of the redgram

growers had knowledge about the IPM and IPM practices in redgram. Lack of participation in the extension activities, medium extension contact and mass media exposure, these reasons might have contributed to the above findings.

Yield :

With respect to yield almost cent per cent 96.88 per cent of the red gram growers had knowledge about redgram yield, because recommended varieties yield in the range of 4-5 quintals/acre.

The above findings were in accordance with the findings of Kiran and Aski(2014) and Pavan Kumar (2019).

Conclusion :

It can be concluded from the above findings that nearly half of the redgram growers belonged to medium knowledge level category. With respect to recommended production technology wise knowledge majority of the respondents are aware about time of sowing, method of sowing, inter cultivations, yield, major pest, time of application of FYM, recommended variety. Comparatively low proportion of the growers expressed knowledge about IPM, IPM practices in redgram, post emergent and pre-emergent weedicides, pulse magic, ratooning and ratooning practice. This trend is due to their medium extension contact, extension participation, mass media exposure, economic motivation, risk orientation, innovativeness and lack of training facilities. Hence, the development department has to conduct training programmes on redgram cultivation and establish demonstration plots in the farmer's field.

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