

# Adoption Level of Respondents About Recommended Production Practices of Pigeon Pea in Shorapur Taluka of Yadgir District Karnataka State

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**Abstract:-** The research study on recommended production practices of pigeon pea was conducted during the year 2017-2018 in Shorapur taluka of Yadgir district of Karnataka. Pulse crops play an important role in Indian agriculture. Besides being rich in protein, pulses are the main sources of essential amino acids for predominantly vegetarian population of India. They contain 22-24 percent of protein, which is almost twice the protein in wheat and thrice as that of rice. In India, owing to its diverse agro-climatic conditions, pulses are grown throughout the year and plays an important role in crop rotation, mixed and inter-cropping, maintaining soil fertility through nitrogen fixation, release of soil-bound phosphorus and thus contribute significantly to sustainability of the farming systems. In the production process, pulses require less water than cereals.

## I. INTRODUCTION

Pigeonpea or redgram (*Cajanus cajan L.*) is most important pulse crop of tropics and sub tropical region of the world. it ranks second important pulse crop next to the Bengal gram. Pigeonpea is considered to be origin of peninsular India. It is a perennial shrub 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 and hence highly drought tolerant. More than 350 vernacular names of red gram have been recorded however, it is commonly known as Tur. The name Pigeonpea was first reported from Barbados, where the seeds were once considered very useful as feed for pigeons.

Pigeonpea is one of the major pulse crop, endowed with several unique characteristics. It finds a major pulse crop, endowed with several unique characteristics. It finds an important place in the farming system adopted by small holding peasants in large number of developing countries. The main use is in the form of dhal in the Indian diet. Its green seeds are used as vegetable. It has good nutritive value although, it contains considerable amount of ant nutritional polyphenolic compounds which inhibit the digestive enzymes trypsin, chymotrypsin and amylase. Besides the human diet, the green leaves and dry seeds of Pigeonpea are used as fodder for animals.

Major pulses grown in India include pigeonpea, lentil, chickpea, blackgram, mungbean, mothbean, horsegram, pea, grasspea or khesari, cowpea, and broadbean or fababean. More popular among these are pigeonpea, mungbean, chickpea, urdbean and lentil. Among various pulse crops, pigeonpea dominates with over 15 to 20 percent share of total pulse production followed by mungbean (11 %), urdbean (10-12 %), lentil (8-9 %) and other legumes (20 %) (Anon., 2013).

India is the largest producer (25% global production) consumer (27% of world consumption) and importer (14%) of pulses in the world pulses account for around 20 percent of the area under foodgrains and contribute around 7-10 percent of the total foodgrains production in the country through pulses are grown in both kharif and rabi seasons, rabi pulses contribute more than 60 percent of the total production gram is the most dominant having a share of around 40 percent in the total production followed by tur/arhar at 15 to 20 percent and urad/back matpe and moong at around 8-10 percent each. Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing states. Productivity of pulses is 764kg/ha.

Since ages, pulses have been well integrated in to the farming system of our country as the farmers could produce them by using their own seeds and family labour without depending much on external inputs. With the advent of green revolution, which promoted rice and wheat using external input and modern varieties of seeds pulses were pushed to the marginal lands. This resulted in decline in productivity and land degradation. Thus, pulses are still cultivated on the marginal and sub marginal land, predominantly under unirrigated conditions. The trend of commercialization of agriculture has further aggravated the status of pulses in the farming system.

## II. METHODOLOGY

The research study on recommended production practices of pigeon pea was conducted during the year 2017-2018 in Shorapur taluka of Yadgir district of Karnataka. In the present investigation, descriptive type of ex-post-facto research design was employed. This design was appropriate because the phenomenon had already occurred. Ex-post-facto

research is the most systematic empirical enquiry in which the researcher does not have any control over independent variables as their manifestation has already occurred or as they are inherent and not manipulatable thus, inferences about relations among variables were made without direct intervention from concomitant variation of independent and dependent variables. (Kerlinger,1973). Yadagiri district comprises of three Talukas namely, shahapur, yadagiri and shorapur. The shorapur taluka is purposively selected, because highest area under pigeon pea crop. In shorapur five hobbies were selected namely, Kembhavi, Kakkeri, Kodekal, Hunasagi and Shorapur from each hoblie 24 samples were drawn randomly such that the total sample size was 120.

Adoption was operationally defined, as the extent to which pigeon pea production techniques was adopted by the respondents. For the present study an operational measure for adoption was developed by constructing a "teacher made adoption test". The adoption test was constructed based on the package of practices developed for pigeon pea cultivation. Lists of 19 cultivation practices were developed for the purpose and each practice was administered in the form of questions to respondents to obtain the response from pigeon pea growers. The questions were provided with multiple choice answers. The questions and answers pertaining to adoption test were carefully designed in consultation with experts. The questions covered full range of cultivation practices beginning from variety selected till the crop yield. Frequency percentage calculated each statements.

The above procedure was followed by Tripathi et al. (2006) and Kadam P.B (2000)

### III. RESULTS AND DISCUSSION

The knowledge level of the farmers was assessed using the pre-structured interview schedule and the following findings are got. Table 1 revealed that (75.00%) of the respondents not adopted deep and summer ploughing weed growth followed by (58.34%) destroying the Destroying the pupae exposing them to sun light and (50.00%) maximum yield can be obtained.(33.33%) partially adopted destroying the Destroying the pupae exposing them to sun light and max yield can be obtained (16.67%) of respondents fully adopted summers and deep ploughing in max yield can be obtained purpose followed by (8.33%) the Destroying the pupae exposing them to sun light respectively.

It was revealed that (66.67%) of respondent are fully adopted maruti (ICP 8863) variety followed (36.67%) TS-3R (33.33%) Asha, (24.67%) BSMR-736 respectively. (58.63%) of respondents not adopted BSMR-736 followed by (36.73%) TS-3R (33.34%) Asha and (25.00%) maruti (ICP 8863) respectively. (33.33%) of respondents are partially adopted Asha variety followed by (26.60%) TS-3R (16.70%) BSMR-736 and (08.33%) Maruti (ICP 8863) variety respectively.

It was revealed that Around (75.00%) of the respondents are not adopted light textured sandy soil followed by (58.33%)

Red soil (33.33%) Blacksoil respectively. (41.67%) of respondents are fully adopted black soil followed by (25.00%) red soil (8.33%) light textured sandy soil respectively.

It was revealed that around (75.00%) of the respondents are fully adopted jun-july (mid) season in growing pigeonpea crop followed by (58.33%) jun (8.33%) may and after the fort night of july respectively. and (75.00%) respondent are not adopted may season followed by (58.34%) after the fort night of july (8.34%) June and (8.33%) jun-july respectively. Around (33.33%) of respondent are partially adopted jun and after the fort night of july respectively.

It was revealed that (65.34%) of the respondents are fully adopted recommended variety of seeds followed by (25.00%) common or local seed (16.67%) certified seed respectively.(50.00%) of respondent are not adopted certified seeds followed by (41.67%) common or local seed respectively around (33.33%) of respondents are partially adopted certified seed and common or local seed (26.33%) recommended variety respectively.

It was revealed that (75.00%) of the respondents are not adopted 1 kg/acre seed rate followed by (58.33%)2kg/acre (25.00%) 4kg/acre respectively.(50.00%) of respondent are partially adopted 3 kg/acre (25.00%) 4 kg/acre 1 kg/acre respectively. only (16.67%) partially adopted 2 kg/acre respectively.(50.00%) of respondents are fully adopted 4 kg/acre seed rate followed by (41.67%) 3kg/acre and (25.00%) 2kg/acre respectively.

It was observed that (75.00%) of respondents are fully adopted 90cm spacing between row to row and (32.83%) of respondents 60cm respectively (41.67%) of respondents are not adopted 60cm and (8.33%) respondents are not adopted 90cm respectively (25.00%) and respondents are partially adopted 60 cm and (16.67%) are adopted 90cm respectively.

It was observed that (66.67%) of respondents are fully adopted 30cm spacing between two plants (16.67%) fully adopted 60cm. (50.00%) respondents are not adopted 60cm and (16.66%) not adopted 30cm respectively (33.33%) of respondents are partially adopted 60cm and (16.67%) 30cm respectively

It was observed that (75.00%) of respondents are fully not adopted 4 ton/acre FYM followed by (41.67%) 2ton/acre (16.67%) 3and 5 tons/acre respectively. (66.67%) of respondents are fully adopted 5tonns/acre followed by (50.00%) 3 tons/acre (25.00%) 2ton/Acre and (16.67%) 4tonnes/acre and (33.33%) respondents are partially adopted 2and 3 tonnes/acre respectively.

It was observed that (67.00%) of the respondents are fully adopted sowing method in putting seed behind the plough followed (41.67%) line sowing (25.00%) broadcasting and (16.67%) dibbling respectively. (50.00%) respondents are partially adopted dibbling and line sowing and around (25.00%) respondents adopted broadcasting and putting seed

behind the plough respectively. (50.00%) respondents are not adopted broadcasting followed by (33.33%) dibbling (8.33%) line sowing putting seeds behind the plough .

It was observed that (75.00%) of the respondents are not adopted soybean and black gram in intercropping with pigeonpea followed by (50.00%) bajra and (16.67%) green gram respectively.(50.00%) of respondents are partially adopted green gram (33.33%) of respondents are bajra (16.67%) soybean and black gram respectively .around (33.33%) of respondents are fully adopted green gram followed by (16.67%) bajra and (8.33%) soybean and black gram respectively.

It was observed that (66.67%) respondents are fully adopted 2-3 times irrigation followed by (55.00%) 1-2 times (50.00%) 3-4 times and (16.67%) 4-5 times respectively. (66.66%) of respondents are the not adopted 4-5 times followed by (16.67%) 1-2 times,2-3 times and 3-4 times respectively.3333% of respondents are partially adopted 3-4 times irrigation followed by 25.00% 1-2 times (16.67%) 2-3 times and 4-5 respectively.

It was observed that (66.67%) of respondents are fully adopted 25:50:25 NPK dose for pigeonpea cultivation followed (40.41%) 20:30:50 and (16.67%) 30:20:40 and 40:30:50 respectively. (50.00%) of the respondents are partially adopted NPK dose20:30:50 followed by (41.67%) 30:20:40 And (33.33%) 40:30:50 and 25:50:25 respectively around (50.00%) not adopted 40:30:50 followed by (41.66%) 30:20:40 respectively.

It was observed that (50.00%) respondents are partially adopted 3 times nipping practice followed by (41.67%) 2 times (33.33%) 1 times respectively.(41.67%) fully adopted 1 times followed by (33.33%) 3 times (25.00%) 2 times respectively. (33.33 %) of the respondent are not adopted 2 times followed by (25.00%) 1 times (16.67%) 3 times respectively.

It was observed that (66.67%) of respondents are fully adopted 100-200lit of NSKE formulation spray followed by (16.67%) 300-400lit and 200-250lit respectively. (50.00%) of respondents are partially adopted 300-400 lit followed by (37-50%) 200-250lit and (16.67%) 100-200lit respectively. around (45.83%) respondents are not adopted 200-250 lit (33.33%) 300-400 lit /acre respectively.

It was observed that (66.67%) of respondents are not adopted Indoxacarb (14.5 SC) 0.3 ml/lit (Avaunt) followed by (58.33%) Flubendiamide (480 SC) 0.1 ml/lit. (50.00%) .Methomyl (40 SP) 0.6 gm/lit (lannate) respectively.around (50.00%) of respondents are fully adopted Spinosad (45 SC) 0.1 ml/lit followed by (25.00%)Flubendiamide (480 SC) 0.1 ml/lit (16.67%) methomyl (40 SP) 0.6 gm/lit (lannate) (8.33%) Indoxacarb (14.5 SC) 0.3 ml/lit (Avaunt) respectively.(33.33 %) of respondents are partially adopted Methomyl (40 SP)0.6 gm/lit (lannate) and spinosad (45 SC) 0.1 ml/lit (25.00%) Indoxacarb (14.5 SC) 0.3 ml/lit (Avaunt) (16.67%) of respondents are Flubendiamide (480 SC) 0.1 ml/lit respectively.

It was observed that (75.00%) respondents are fully adopted dec-jan time of harvesting followed by (33.33%) dec-feb and (25.00%) nov-dec. (50.00%) of respondents partially adopted nov-dec followed by (41.67%) dec-feb (25-00%) dec-jan (25.00%) of the respondents not adopted the harvesting time dec-feb and nov-dec respectively.

The reason might be that, majority of the farmers had high school level education, medium land holding, medium level achievement motivation, medium innovativeness and medium level management orientation. Hence, all these factors might have influenced them to fall under medium adoption category. Further, as the land holding and income increases naturally and they prove towards economical returns. Good education level and farming experience might have increased their knowledge level and hence fell in medium adoption category so as to gain more income.

**IV. TO FIND OUT THE EXTENT OF ADOPTION OF PRODUCTION PRACTICES IN PIGEONPEA PRODUCTION**

Statements	Adoption level					
	Fully adopted		Partiallyadoptd		Not adopted	
	F	%	F	%	F	%
1. What is the use of deep and summer ploughing?						
a. Destroying the pupae exposing them to sun light	10	8.33	40	33.33	70	58.34
b. Maximum yield can be obtained	20	16.67	40	33.33	60	50.00
c. No chance for weed growth	10	8.33	20	16.67	90	75.00
2. What are the recommended pigeon pea varieties?						
a. Maruti(ICP-8863)	80	66.67	10	8.33	30	25.00
b. Asha	40	33.33	40	33.33	40	33.34

c. TS-3R	10	8.33	30	25.00	80	66.67
d. BSMR-736	30	24.67	20	16.70	70	58.63
3. Name the suitable soil type for pigeon pea?						
a. Black soil	50	41.67	30	25.00	40	33.33
b. Red soil	30	25.00	20	16.67	70	58.33
c. Light textured sandy soil	10	8.33	20	16.67	90	75.00
4. What is the suitable season for growing pigeon pea crop?						
a. June-July(mid)	90	75.00	20	16.67	10	8.33
b. After the first night of July	10	8.33	40	33.33	70	58.34
c. May	10	8.33	20	16.67	90	75.00
d. June	70	58.33	40	33.33	10	8.34
5. Which type of seeds gives maximum yield?						
a. recommended variety	80	65.34	30	26.33	10	8.33
b. certified seed	20	16.67	40	33.33	60	50.00
c. common or local seed	30	25.00	40	33.33	50	41.67
6. What is the seed rate recommended for (Kg/acre)?						
a. 1	0	0.00	30	25.00	90	75.00
b. 2	30	25.00	20	16.67	70	58.33
c. 3	50	41.67	60	50.00	10	8.33
d. 4	60	50.00	30	25.00	30	25.00
7. What is the spacing between row to row?						
a. 60cm	40	32.83	30	25.05	50	41.67
b. 90cm	90	75.00	20	16.67	10	8.33
8. What is the spacing between two plants?						
a. 30cm	80	66.67	20	16.67	20	16.66
b. 60cm	20	16.67	40	33.33	60	50.00
9. What is the recommended quantity of FYM application (tonne/acre)?						
a. 2	30	25.00	40	33.33	50	41.67
b. 3	60	50.00	40	33.33	20	16.67
c. 4	20	16.67	10	8.33	90	75.00
d. 5	80	66.67	20	16.67	20	16.67
10. Which sowing method do you follow for pigeon?						
a. Dibbling	20	16.67	60	50.00	40	33.33
b. Broadcasting	30	25.00	30	25.00	60	50.00
c. Line sowing	50	41.67	60	50.00	10	8.33
d. putting seeds behind the plough	90	67.00	20	25.00	10	8.00
11. Do you know the crop grown as intercrop in pigeonpea ?						

a. Bajra	20	16.67	40	33.33	60	50.00
b.Green gram	40	33.33	60	50.00	20	16.67
c. Soyabean	10	8.33	20	16.67	90	75.00
d. Black gram	10	8.33	20	16.67	90	75.00
12. How many times does pigeon pea require irrigation						
a. 1-2 times	70	55.00	30	25.00	20	16.67
b. 2-3 times	80	66.67	20	16.67	20	16.66
c. 3-4 times	60	50.00	40	33.33	20	16.67
d. 4-5 times	20	16.67	20	16.67	80	66.66
13. What is the optimum dose of fertilizer for pigeon pea cultivation (Kg/Acre) NPK?						
a.25:50:25	80	66.67	40	33.33	0	0.00
b. 20:30:50	20	40.41	60	50.00	40	9.59
c. 30:20:40	20	16.67	50	41.67	50	41.66
d. 40:30:50	20	16.67	40	33.33	60	50.00
14. Do you follow nipping practice? If yes how many times						
a. 1 time	50	41.67	40	33.33	30	25.00
b. 2 times	30	25.00	50	41.67	40	33.33
c. 3 times	40	33.33	60	50.00	20	16.67
15. How many litters of NSKE formulation is required to spray 1acre?						
a. 300-400 litters	20	16.67	60	50.00	40	33.33
b. 200-250 litters	20	16.67	45	37.50	55	45.83
c. 100-200 litters	80	66.67	20	16.67	20	16.66
16. Name the major pest in pigeonpea?						
a. Pod borer ( <i>H. armigera</i> )	60	50.00	40	33.33	20	16.67
b. Pod bug	20	16.67	50	41.67	50	41.67
c. Pod fly	30	25.00	55	45.83	85	70.83
d. Maruka leaf webber	40	33.33	60	50.00	20	16.67
17. Name the control measures for pest management.						
a. Methomyl (40 SP) 0.6 gm/lit (Lannate)	20	16.67	40	33.33	60	50.00
b. Indoxacarb (14.5 SC) 0.3 ml/lit (Avaunt)	10	8.33	30	25.00	80	66.67
c. Flubendiamide (480 SC) 0.1 ml/lit	30	25.00	20	16.67	70	58.33
d. Spinosad (45 SC) 0.1 ml/lit	60	50.00	40	33.33	20	16.67
18. Indicates the important disease in pigeonpea cultivation.						
a. wilt	60	50.00	40	33.33	20	16.67
b. Sterility mosaic	20	16.67	30	25.00	70	58.33
c. Phytophthora Blight	10	8.33	20	16.67	90	75.00

d. Phytophthora Blight	20	16.67	20	36.67	80	46.66
19. What is the harvesting time for pigeonpea?						
a. Dec-Feb	40	33.33	50	41.67	30	25.00
b. Nov- Dec	30	25.00	60	50.00	30	25.00
c. Dec- Jan	90	75.00	30	25.00	0	0.00

Table 1. Extent of adoption of production practices in pigeonpea production

Overall adoption of pigeonpea growers about recommended cultivation practices

Sl.no	categories	frequency	percentage
1	Low	20	16.67
2	Medium	76	63.33
3	High	24	20.00
	Total	120	100.00
		Mean =31.03	SD=3.96

Table 2. Overall adoption of pigeonpea growers

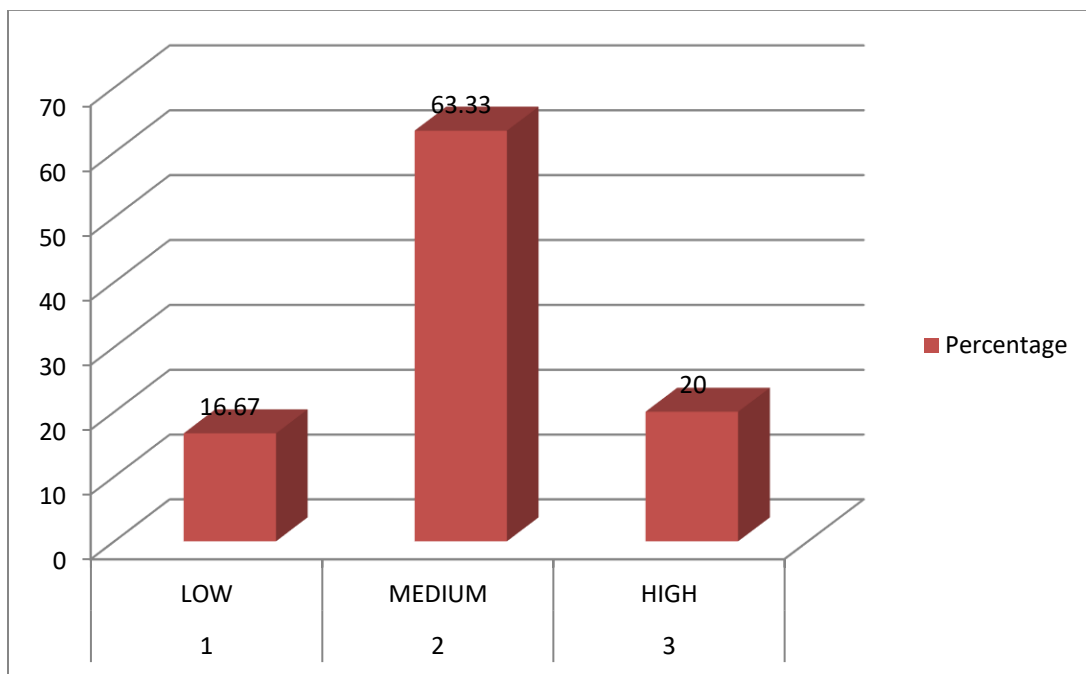


Fig 1:- Overall Adoption of pigeonpea growers

Overall adoption of recommended production practices of pigeonpea by the selected respondents is presented in Table.2 and Fig.1The results revealed that, The results presented in table indicated that more number of respondents (63.33%)were noticed in medium adopter category. but less percentage of them (20.00%) were noticedin high adoption category. (16.66%) low adoption level respectively.

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