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Knowledge and Adoption levels of Respondents about Transplanting Method of Pigeon Pea Cultivation Practices in Kalaburagi District of Karnataka

Ashok Kumar Melkeri* and Syed H. Mazhar

Department of Agricultural Extension & Communication, Sam Higginbottom Institute of Agriculture, Technology and Sciences, Naini, Allahabad-211 007, U.P. India

*Corresponding author: ashokkumarmelkeri@gmail.com

ABSTRACT

The study was conducted to know the knowledge and Adoption level of transplanting method of pigeon pea cultivation practices in Kalaburagi district of North Eastern Karnataka, during the year 2014-15. The total sample of 120 was derived from three each taluks of a district using random sampling method. The study revealed that the maximum (47.50%) respondents had medium level of overall knowledge about transplanting method of pigeon pea cultivation. Whereas nursery management practices majority (100.00%) of the respondents had high level of knowledge regarding BSMR-736 Variety. With respect to main field management practices, majority of the farmers had high level knowledge regarding transplanting time June (81.67%). The overall adoption level of respondents about transplanting method of pigeon pea cultivation had medium level of adoption (45.00%). Whereas nursery management practices majority (70.83%) of the respondents had fully adopted BSMR-736 Variety. With respect to main field management practices, majority of the farmers had fully adopted five tonne/acre FYM application (61.66%).

Keywords: Adoption, Knowledge, Pigeon pea, transplanting

Pulses play an important role in Indian agricultural economy as they are rich sources of proteins and constitute 10 to 15 per cent of India's food grain diet. Major portion of Indian population belongs to vegetarian group and every person on an average is required to consume 70 to 80 gm of pulses per day in order to maintain good health and physique, according to the recommendations of Indian Council of Medical Research. Pigeon pea [*Cajanus cajan* (L) Mill sp.] is the second most important pulse crop of India after chickpea. It is cultivated in a multitude of production systems for a diversity of uses – grain as dhal, green seed as vegetable and stalk as fuel wood. It is an important pulse crop in the country as well as in the state. It is mainly grown in almost all the states and larger portion of the area is in the states of Maharashtra, Uttar Pradesh, Madhya Pradesh, Karnataka and Gujarat.

India is the largest producer and consumer of pulses in the world contributing around 33 per cent of the world area and 25-28 per cent of world production of pulses. About 90 per cent of the global redgram, 75 per cent of bengalgram and 37 per cent of lentil area is contributed by India. The country produced 19.78 million tonnes of pulses from 17.21 million hectare area, with an average yield of 694 kg per hectare during 2013-14. These figures make India the largest producer of pulses in the world (Anonymous, 2012 a). In Karnataka pigeon pea is largely grown in northern parts, especially in Kalaburagi district. Kalaburagi district is called as pulse bowl of Karnataka and pigeon pea is one of the most important pulse crop grown in this region. The agro-climatic conditions are best suited for pulse crops cultivation. The area under pigeon pea crop in Karnataka state during the year 2013-14 was 5.95 lakh hectares with Kalaburagi district is 3,70,523 hectares and production is 1,32,987 tonnes.

Recent the production of 2.57 lakh tones, whereas the total area under the cultivation of pigeon pea in technological intervention of transplanting method of pigeon pea cultivation is one of the alternate agronomic practices to overcome late sowing and related lower yields of pigeon pea. In addition to advantages of low pest and disease occurrence and higher marginal returns. This technique involves rising of seedlings in polythene bags in the nursery for one month and transplanting the seedlings with the onset of monsoon after the soil profile is uniformly wet. Now it is cultivated mainly in Kalaburagi district in the days to come it may occupy larger pigeon pea cultivated area in the state especially in northern parts of Karnataka. It is one of the recently adopted techniques in the study region and gaining importance in pigeon pea farming community. The specific objective of the study was to analyse the extent of knowledge possessed and adopted by the transplanting method of pigeon pea growers.

Database and Methodology

The present study was conducted by using ex-post-facto research design. The study was carried out purposively in Kalaburagi district because the district is considered as pulse bowl of Karnataka state. Kalaburagi district comprises of seven taluks namely, Afzalpur, Aland, Chincholi, Chittapura, Kalaburagi, Jewargi and Sedam. Out of seven taluks, three taluks namely, Afzalpura, Chittapur and Kalaburagi were purposively selected, because highest area of transplanting was done in these taluks. The list of transplanting pigeon pea farmers were taken from department of Agriculture. A list of villages was prepared for the selected taluks and from the list four villages in each taluk were randomly selected. From each village, 10 respondents were selected constituting a total sample of 120 respondents. Rogers and Shoemaker (1971) defined adoption as a decision to continue full use of an innovation. In this study, a teacher made adoption test was developed to measure the adoption of transplanting method of pigeon pea cultivation. The respondents were categorized into low, medium and high level of adoption on the basis of mean ± S.D. Based on the objectives of study, an interview schedule was prepared. The information was elucidated from respondents with the help of structured scheduled. The information was collected by personally interviewing respondents using structured interview schedule. The collected data were then analysed using appropriate statistical tools namely, frequency, percentage, mean and standard deviation.

RESULTS AND DISCUSSION

Knowledge is the cognitive behaviour of an individual. The body of knowledge is the product of learning process. Once the knowledge is acquired it produces changes in the thinking process of an individual which leads to further change in attitude and helps the farmer in making rational decision. Knowledge is prerequisite for adoption of any new technology. On the basis of knowledge the transplanting pigeon pea growers were classified into three levels and the data are given in Table 1.

Table 1: Overall knowledge level of the respondents about transplanting method of pigeon pea cultivation (n = 120)

Sl. No.	Category	Frequency	Percentage
1	Low (Mean - 0.425*SD)	34	28.33
2	Medium (Mean ± 0.425*SD)	57	47.50
3	High (Mean + 0.425*SD)	29	24.17
	Total	**120**	**100.00**
	Mean	20.60	
	S.D	2.70	

The results from Table 1 revealed that, 47.50 per cent of respondents were belonged to medium knowledge level about transplanting method of pigeon pea cultivation practices, while 28.33 per cent and 24.17 per cent of respondents were belonged to low and high knowledge categories respectively. This was due to the fact that the transplanting was slowly increasing in this region and farmers of this reason still were not exposed to improved agriculture practices used in the pigeon pea cultivation. The results are in line with the findings of Raghavendra (2007).

Without sufficient knowledge to the individual it is very difficult to convince the farmers for adoption of any improved technology. Knowledge is the prerequisite condition for adoption. It is observed in the Table 2 that, with regards to nursery

management practices of transplanting method of pigeon pea cultivation a large majority of the farmers had knowledge about recommended variety BSMR-736 (100.00%), deep black soil (85.00%), and seed rate 1kg/acre (71.67%) respectively. With respect to main field management practices, majority of the farmers had knowledge about transplanting time June (81.67%) and depth of pit in the main field and seedling required per pit (79.17%).

The possible reason for the transplanting method of pigeon pea farmers to be medium knowledge about the almost all transplanting method of cultivation practices might be the fact that, majority of farmers had middle age group, high school education level and medium extension participation. Hence transplanting pigeon pea farmers had medium level knowledge about the transplanting method of pigeon pea cultivation practices. The results are in line with the findings of Kanavi (2000), Budihal (2001) and Sasane (2010).

Table 2: Knowledge level of the respondents about the individual practices of transplanting method of pigeon pea cultivation (n = 120)

Sl. No	Practices	Frequency	Percentage
I. Nursery management practices			
1	Variety (BSMR-736)	120	100.00
2	Suitable soil (deep black soil)	102	85.00
3	Seed rate (1 Kg/acre)	86	71.67
4	Seed treatment (trichoderma @ 4gm/kg)	68	56.67
5	Size of the polythene bag (6" × 4" (l × b) with 200 μ gauge)	68	56.67
6	Materials required for filling the polythene bag (soil, sand and compost)	74	61.67
7	Two seeds per polythene bag with 1 cm depth	100	83.33
8	Thinning practice	68	56.67
9	Two times daily watering to the seedlings	77	64.17
10	Age of the seedling (30-40 days old)	102	85.00
II. Main field management practices			
11	Summer ploughing (1-2 times done in March-April)	81	67.50
12	Transplanting time (June)	98	81.67
13	Quantity of FYM application (5 tone/acre)	75	62.50
14	Time for FYM application (3 Weeks before transplanting)	85	70.83
15	Depth of pit in main field (15 cm)	95	79.17
16	Spacing (6×3 ft)	68	56.67
17	Total number of plants per acre (2420 plants)	85	70.83
18	Seedlings required per pit (One seedling)	95	79.17
19	Total number of labour per acre (5 labour)	70	58.33
20	Dose of fertilizer (10:23:50 kg/acre NPK)	90	75.00
21	Micro-nutrient application (Gypsum @ 45-50 kg/acre)	66	55.00
22	Weedicide (Glyphosate 40 SL @ 10 ml /lit)	49	40.83
23	Growth regulator (NAA @ 0.5 ml/ lit)	58	48.33
24	Irrigation scheduling (3-4 times)	58	48.33
25	Intercultivation practices (1-2 times)	87	72.50
26	Nipping practice (50 DAT)	69	57.50
27	Important pest (pod borer)	75	62.50
28	Pest control (Indoxacarb (14.5 SC) 0.3 ml/lit)	71	59.17
29	Important disease (Wilt)	78	65.00
30	Disease control (Carbendizim 50 WP@1.0 gm/lit)	56	46.67
31	Intercrop (Green gram)	51	42.50
32	Recommended yield (12-14 quintals/acre)	48	40.00

Table 3: Overall adoption level of the respondents about transplanting method of pigeon pea cultivation (n = 120)

Sl. No.	Category	Frequency	Percentage
1	Low (Mean- 0.425*SD)	42	35.00
2	Medium (Mean ± 0.425*SD)	54	45.00
3	High (Mean + 0.425*SD)	24	20.00
	Total	**120**	**100.00**
	Mean	12.95	
	S.D	2.69	

The adoption of any technology is largely depends upon awareness and knowledge about the particular technology. Adoption is not possible without the awareness and knowledge. Increased awareness leads towards the adoption process. On the basis of adoption index the respondents were classified

into three levels and data of the same are presented in Table 3.

It was observed the maximum of transplanting pigeon pea growers 45.00 per cent belongs to medium adoption level followed by 35.00 per cent of farmers had noticed in low adoption category, whereas 20.00 per cent of farmers were in high adoption category. Thus, it could be inferred that, majority of the transplanting pigeon pea growers had medium level of adoption. The findings are in agreement with the finding of Raghavendra (2005).

Table 4: Adoption level of the respondents about individual practices of transplanting method of Pigeon pea cultivation (n = 120)

Sl. No.	Statements	FA		PA		NA	
		F	%	F	%	F	%
I. Nursery management practices							
1	Variety (BSMR-736)	85	70.83	0	0.00	35	29.17
2	Seed rate (one Kg/ acre)	53	44.17	34	28.33	33	27.50
3	Seed treatment (with Trichoderma)	25	20.83	8	6.67	87	72.50
4	Two seeds per polythene bag	22	18.33	10	8.33	88	73.34
5	Thinning practice	28	23.33	12	10.00	80	66.67
6	Two times daily watering to the seedlings	44	36.67	10	8.33	66	55.00
7	Age of the seedling (30-40 days old)	57	47.50	0	0.00	63	52.50
II. Main field management practices							
8	Summer ploughing (1-2times done in March-April)	65	54.17	21	17.50	34	28.33
9	Transplanting time (June-july)	70	58.33	20	16.67	30	25.00
10	FYM application (5 tone/acre)	74	61.66	26	21.67	20	16.67
11	Time for FYM Application (3 weeks before transplanting)	50	41.67	27	22.50	43	35.83
12	Depth of pit in main field (15 cm)	64	53.33	25	20.84	31	25.83
13	Recommended spacing (6x3 ft)	63	52.50	24	20.00	33	27.50
14	Total Number of plants per acre (2420 plants/acre)	57	47.50	16	13.33	47	39.17
15	One seedling required per pit	68	56.67	0	0.00	52	43.33
16	Total number of labour per acre (5labour)	34	28.33	18	15.00	68	56.67
17	Recommended dose of fertilizer (10:23:50 kg/acre NPK)	56	46.67	28	23.33	36	30.00
18	Soil applications (Gypsum applications @45-50 kg/acre)	30	25.00	18	15.00	72	60.00
19	Growth regulator (NAA @ 0.5 ml/lit)	35	29.17	17	14.16	68	56.67
20	Weedicide (Glyphosate 40 SL @ 10 ml /lit)	41	34.17	21	17.50	58	48.33
21	Irrigation required (3-4 times)	36	30.00	38	31.67	46	38.33
22	Intercultivation practices (1-2 times)	36	30.00	24	20.00	60	50.00
23	Nipping practic (After 50 DAT)	25	20.83	19	15.84	76	63.33
24	Pest management-pod borer (Indoxacarb (14.5 SC) 0.3 ml/lit)	36	30.00	16	13.33	68	56.67
25	Disease management-wilt (Carbendizim 50 WP 1.0 gm/lit)	63	52.50	18	15.00	39	32.50
26	Intercrop (Green gram)	41	34.17	17	14.17	62	51.66
27	Recommended yield obtained (12-14 quintals/acre)	59	49.17	12	10.00	49	40.83

The practice wise adoption of transplanting method of pigeon pea cultivation is presented in the Table 4. It is observed that, with regards to nursery management practices, majority of the farmers had fully adopted about recommended variety BSMR-736 (70.83%), and seed rate fully adopted (44.17%), respectively. With regard to main field management practices, majority of the farmers had fully adopted FYM application (61.66%) and transplanting time june fully adopted (58.33%), respectively. Majority of the respondents had seen in low adoption level for the above mentioned recommended transplanting practices; the reason may be lack of knowledge and awareness about the benefits of transplanting for the pigeon pea crop.

CONCLUSION

It can be conclude from above findings that majority of the respondents belonged to medium level of knowledge and adoption regarding transplanting method of pigeon pea cultivation. With regard to transplanting practice wise knowledge majority of the respondents are aware of the variety and most of them have adopted BSMR-736 variety. Comparatively low proportion of respondents expressed knowledge about use of weedicide and intercrop cultivation and had found in partial adoption of these mentioned above practices. This implies a vast scope for the Developmental Departments to intervene and improve the knowledge level of farmers about transplanting method of pigeon pea practices. The study indicated that though the pigeon pea is cultivated by all the farmers in the study area, but their scientific knowledge about the transplanting in pigeon pea crop and scientific adoption of the recommended practices was not up to the mark in certain individual practices. So, one of the best ways to overcome this is to vigorously utilize the scientific expertise of Krishi Vigyan Kendras for organising Field and Farmer's Day and trainings regarding new technology adoption.

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