

A Study on Knowledge Level of Farmers of Aligarh District of Uttar Pradesh Regarding Recommended Practices of Pigeon pea Cultivation

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ABSTRACT: A study was conducted to assess the knowledge level of farmers about recommended practices of pigeon pea cultivation. Sample size of the study was 105 pigeon pea growing farmers of district Aligarh of Uttar Pradesh.

Education level of maximum numbers of pigeon pea growers was up to high school and intermediate. Land holding of majority of the respondents was between two to four acres. Numbers of members in family of majority of the respondents were up to eight. Major source of irrigation was tube-well. Fellow farmers, friends/relatives, agricultural magazines, agricultural extension literature and officers/extension functionaries of department of agriculture were most frequently used information sources for agricultural information. Maximum numbers of farmers were having knowledge about appropriate time of sowing of pigeon pea followed by critical stages of irrigation and critical period of crop weed competition. A sizeable number of farmers were knowledgeable about role of summer ploughing and Neem Seed Kernel Extract (NSKE) in insect-pest management in the crop. One-third of the respondents have knowledge about appropriate seed rate followed by suitable varieties and role of potassic fertilizers in pest management. Near about one-fourth of the respondents were having knowledge about management of fruit fly and pod borer. Very few farmers were having knowledge about seed treatment with fungicide and rhizobium culture; recommended dose of potash and application of pre-emergent herbicide. Least numbers of respondents were knowledgeable about proper spacing, recommended dose of sulphur and phosphorus, use of Nuclear Polyhedrosis Virus (NPV), management of wilt and leaf folder.

Keywords: Information sources for agricultural information, knowledge level, pigeon pea growing farmers, profile of farmers of district Aligarh

INTRODUCTION

Pigeon pea (*Cajanus cajan* (L.) Millsp.) commonly known as redgram, arhar and tur, is one of the most important legume crop of India. Nutritionally it is rich in protein along with mineral supplements *viz.* iron, potassium, magnesium and calcium. It is the common component of India diet. Area under pigeon pea cultivation in the country is 3.9 million hectare. During 2013-14 India produced 3.17 million tones pigeon pea with average productivity of 813 kg/ha [1]. Due to population growth, gap in production and requirement is widening every year. There is urgent need to enhance the productivity of the crop. There are many factors which contribute in production and productivity of any crop. Knowledge levels of farmers have the central importance in enhancing the agricultural productivity. Productivity of pigeon pea cannot be enhanced until and unless the pigeon pea

growers have not received right information at right time. The first step in this regard is to assess existing knowledge level of pigeon pea growers. Keeping these facts in view, the present study was conducted with the following objectives:

1. To describe the general profile of pigeon pea growing farmers
2. To find out the extent of use of information sources by the pigeon pea growers for agricultural information
3. To assess the knowledge level of farmers about the improved practices of pigeon pea cultivation

MATERIALS AND METHODS

The study was conducted in Aligarh district of Uttar Pradesh during *kharif*-2015. Seven villages from

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different blocks were selected keeping in view the area of pigeon pea crop in the village. Total fifteen pigeon pea growing farmers from each village were selected. Total sample size of the study was 105 pigeon pea growing farmers of district Aligarh.

A personal interview schedule was used to collect the data. It was comprised of two parts *viz.* general profile of the farmer and knowledge level about pigeon pea cultivation practices. General profile related variables selected for the study were age, education level, land holding, source of irrigation, family size and extent of use of information sources for agricultural information. To assess the knowledge level a test was developed based on recommended package of practices for pigeon pea cultivation in western Uttar Pradesh. Twenty-four items of pigeon pea cultivation were selected from package of practices after reviewing the recommendations and discussion with Subject Matter Specialists of Krishi Vigyan Kendra (KVK), Aligarh. Each selected practice was put in question form to obtain responses from the respondents. The correct answer was given a score of 'one' and incorrect responses 'zero'. The maximum and minimum score obtainable for each respondent was 24 and zero, respectively. Based on their score respondents were categorized into three groups of knowledge level as low (0-8), medium (9-16) and high (17-24).

RESULTS AND DISCUSSION

General profile of the respondents

Data pertaining to general profile of the respondents is presented in Table 1. It is evident from the data that near about one-third of the respondents were from age group of 56 to 65 years followed by age group of 46 to 55, 36 to 45 years, respectively. Age of near about one-tenth of the respondents was less than 36 years and same numbers of respondents were above 66 years old. Educational level of 27.62 per cent of respondents was up to intermediate and high school, separately. Nearly fifteen percent of the respondents were educated up to primary and graduation level, separately. Near about one-tenth of the respondents were illiterate. Family size of near about half of the respondents was medium (5 to 8 members) followed by large (<8 members) and small (up to 4 members), respectively. Land holding of majority of the respondents (63.80 per cent) was between two to four acres followed by only up to two acres (18.09 per cent). Very less numbers of respondents were holding more than four acres of

land. Source of irrigation of most of the respondents was tube-well with electricity, followed by diesel pump set and canal. Few respondents were not having any personal source of irrigation

Table 1
General profile of the respondents

		n =105	
S. No.	Aspect of general profile	No. of respondents	Percentage
1.	Age		
	25 and less than 25 years	3	2.86
	26 to 35 years	9	8.57
	36 to 45 years	20	19.05
	46 to 55 years	27	25.71
	56 to 65 years	34	32.38
	Above 66 years	12	11.43
2.	Educational level		
	Illiterate	10	9.52
	Primary	16	15.24
	Middle	6	5.71
	High school	29	27.62
	Intermediate	29	27.62
	Graduate	15	14.29
3.	Family size		
	Small (Up to 4 members)	16	15.24
	Medium (5 to 8 members)	57	54.28
	Large (< 8 members)	32	30.48
4.	Land holding		
	Up to 2 acre	19	18.09
	>2 and 4 ≤ acre	67	63.80
	>4 and 6 ≤ acre	7	6.67
	>6 and 8 ≤ acre	3	2.86
	>8 and 10 ≤ acre	3	2.86
	>10 and 12 ≤ acre	3	2.86
	Above 12 acre	3	2.86
5.	Source of irrigation		
	Tube- well with electricity	60	57.14
	Tube -well with diesel pump set	29	27.62
	Canal	10	9.52
	Nil	6	5.71

Extent of use of source of agricultural information by the respondents

In order to understand the extent to which farmers use various sources for agricultural information, respondents were asked to express extent of use of information sources on five point continuum *viz.* always, often, occasionally, seldom and never.

It is clear from the data presented in Table 2 that fellow farmers, friends/relatives, agricultural magazines, agricultural extension literature and officers/extension functionaries of department of agriculture were most frequently used information sources for agricultural information with weighted mean score of 3.27, 2.95, 2.30, 2.18 and 2.18, respectively. KVK scientists were found at fifth position in rank order followed by television,

shopkeepers of agricultural inputs, radio, representatives of private agricultural input companies and mKisan, respectively. Scientists of Agricultural Research Stations, Internet, newspapers, representatives of NGOs and Kisan Call Centre were least used information sources, as these were placed on last six positions in rank order. Agbamu [2] also found similar order of preferences by the farmers for sources of agricultural information.

Knowledge of the respondents regarding pigeon pea cultivation practices

It is evident from the Table 3 that maximum numbers of the respondents (69.52 per cent) were having knowledge about appropriate time of sowing of pigeon pea followed by critical stages of irrigation, critical period of crop weed competition. A sizeable number of respondents (36.19 per cent) were knowledgeable about role of summer ploughing and Neem Seed Kernel Extract (NSKE) in pest management in the crop. One-third of the respondents were having knowledge about appropriate seed rate followed by suitable varieties and role of potassic fertilizers in pest management. Nearly one-fourth of the respondents were having knowledge about

Table 2
Extent of use of source of agricultural information by the respondents

n=105			
S. No.	Source of information	Weighted mean score	Total
1	Fellow farmers	3.27	I
2	Friends/ relatives	2.95	II
3	Agricultural magazines	2.30	III
4	Agricultural extension literature	2.18	IV
5	Officers/ Extension functionaries of department of Agriculture	2.18	IV
6	KVK scientists	2.10	V
7	Television	2.02	VI
8	Shopkeepers of Agricultural Inputs	1.86	VII
9	Radio	1.69	VIII
10	Representatives of private agricultural input companies	1.43	IX
11	Kisan mobile advisory service (mKisan)	1.38	X
12	Scientists of Agricultural Research Stations	1.34	XI
13	Internet	1.17	XII
14	News paper	1.17	XII
15	Representatives of NGOs	1.17	XII
16	Kisan Call Centre	1.06	XIII

Table 3
Knowledge of the respondents regarding pigeon pea cultivation practices

n=105				
S. No.	Technology	Number	Percentage	Rank order
1.	Suitable variety	32	30.48	VI
2.	Seed treat and sowing			
i.	Seed rate	35	33.33	V
ii.	Sowing time	73	69.52	I
iii.	Spacing	13	12.38	XI
iv.	Seed treatment with fungicide	22	20.95	IX
v.	Seed treatment with <i>rhizobium</i> culture	22	20.95	IX
3.	Nutrient Management			
i.	Recommended dose of phosphorus	3	2.86	XIV
ii.	Recommended dose of potash	16	15.24	X
iii.	Recommended dose of sulphur	13	12.38	XI
iv.	Stage of crop for foliar application of urea	10	9.52	XII
4.	Critical stages of irrigation	67	63.81	II
5.	Weed control			
i.	Critical period of crop weed competition	64	60.95	III
ii.	Application of pre-emergent herbicide	16	15.24	X
6.	Integrated pest control			
i.	Summer ploughing	38	36.19	IV
ii.	Management of pod borer	25	23.81	VIII
iii.	Use of Nuclear Polyhedrosis Virus (NPV)	13	12.38	XI
iv.	Role of potassic fertilizers in pest management	32	30.48	VI
v.	Use Neem Seed Kernel Extract(NSKE)	38	36.19	IV
vi.	Symptoms of wilt	07	06.66	XIII
vii.	Management of wilt	13	12.38	XI
viii.	Symptoms of sterility mosaic	16	15.24	X
ix.	Management of sterility mosaic	03	02.85	XIV
x.	Management of leaf folder	13	12.38	XI
xi.	Management of fruit fly	28	26.67	VII

management of fruit fly and pod borer. Near about one-fifth of the respondents were having knowledge about seed treatment with fungicide and *rhizobium* culture followed by recommended dose of potash, symptoms of sterility mosaic and application of pre-emergent herbicide (15.24 per cent). Only 12.38 per cent respondents have knowledge about appropriate planting geometry, recommended dose of sulphur, use of Nuclear Polyhedrosis Virus (NPV) and management of leaf folder insect and wilt disease. Near about one-tenth of the farmers were having knowledge about stage of crop for foliar application of urea. Very few numbers of respondents were knowledgeable about symptoms of wilt disease, management of sterility mosaic and recommended dose of phosphorus fertilization in pigeon pea. Tidke [2] *et al.* found that use biological pesticides for management of pod borer of pigeon pea was not known to more than half of the respondents.

Overall, maximum numbers of respondents (69.52 per cent) were having low level knowledge about recommended cultivation practices of pigeon pea followed by medium level of knowledge (27.52 per cent) and high level of knowledge, respectively (Table 4).

Table 4
Overall knowledge level of farmers about pigeon pea cultivation practices

S. No.	Overall knowledge level	Number of respondents	Percentage
1.	Low (0-8)	73	69.52
2.	Medium (9-16)	29	27.62
3.	High (17-24)	3	2.86

CONCLUSION

From the above-said study, it can now be concluded that maximum numbers of pigeon pea growers was

intermediate (10+2) academic qualification. Moreover, majority of respondents being hand holding between two to four acres along with tube-well as prime source of irrigation, and their family constitutes of eight persons. Study further reveals, farmers most frequently received agricultural information through fellow farmers, friends/relatives, agricultural magazines, agricultural extension literature and officers/extension functionaries of department of agriculture.

Studies clearly depict there is wide gap in knowledge amongst the pigeon pea farming community particularly to the technological intervention like seed treatment with fungicide and *rhizobium* culture; nutrient management, planting geometry, use of Nuclear Polyhedrosis Virus (NPV), management of leaf folder and wilt. There is urgent need to strengthen the agricultural information dissemination system for quick and effective dissemination of agricultural knowledge among the end-user. Bridging the knowledge gap on above based technological inventions will hope leads to further increase the pigeon pea production in the studied area.

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