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Correlation analysis and socio-demographic profile of pigeon pea (*Cajanus cajan*) growers in Gulbarga district

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Abstract

The study was conducted in Gulbarga district of North East Karnataka region during the year 2014-15. The 120 respondents were selected from the district as sample size and the purposive sampling method was adopted to collect the relevant data. The data was elicited through personnel interview method and analyzed using mean, standard deviation, frequency, percentage and correlation. Majority (44.17 %) of the respondents had medium level of knowledge and one third (41.67 %) of the respondents belonged to medium level of adoption category of about post-harvest management practice. Out of eleven variable studied one important variable annual income were highly significant ($P < 0.01$) with knowledge level while a significant relationship ($P < 0.05$) was observed with education, achievement motivation and economic motivation of Peogenpea growers. Variables like education and annual income exerted highest positive correlation coefficient ($P < 0.01$) with extent of adoption of post-harvest management practices. Variable like education, Achievement motivation and Economic motivation had positive significant relationship ($P < 0.05$) with extent of adoption.

Keywords: knowledge, adoption, post-harvest management practices, socio-demographic profile, correlation and pigeonpea

Introduction

Pigeonpea or redgram (*Cajanus cajan* L.) is most important pulse crop of tropics and subtropical 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. In India, tur or Arhar accounts for 20 per cent of the total output of all pulses. Indian accounts for 90 per cent of the world output of Tur. While, Uttar Pradesh, Madhya Pradesh, Maharashtra and Gujarat account for a major share in the production whereas small quantities are also cultivated in Rajasthan, Haryana, Punjab, Karnataka, Tamil Nadu, Orissa and Bihar. It is consumed in almost all the states in India. It is a major ingredient of south Indian sambhar curry, which is eaten with a number of south Indian dishes like idli, vada, dosa, uttappa, etc. The process of developing of post-harvest technology, management practices and its purposeful use needs an inter-disciplinary and multi-dimensional approach, which include political scientific creativity, technological innovations and commercial entrepreneurship. But, there is no objective information on these aspects and no reliable study has been done so far. Keeping these facts and figures in mind, the present study was conducted to with an objective to know the extent of knowledge and adoption of post-harvest management practices adopted by the Pigeonpea growers.

Material and Methods

The research study was conducted in Gulbarga district of North Karnataka. This district was purposively selected as it ranks first in area and production of Pigeonpea. Gulbarga district consists of seven taluks and Pigeonpea is grown in all seven taluks. Two taluks namely Gulbarga and Jewargi were selected for the study. Since they occupied first and second place in area under Pigeonpea cultivation, respectively. The List of villages was prepared from the selected taluks and from each talukas, top four villages under Pigeonpea cultivation were selected, hence 8 villages were selected based on simple random sampling method. The List of farmers from each selected village was prepared in consultation with the department of agriculture, and out of Pigeonpea growers list, and from each villages 15 respondents were

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selected randomly. Thus total sample size constitutes 120 respondents. Based on the objectives of the study, an interview schedule was prepared. The information was elucidated from respondents with the help of structured schedule. The interview schedule was pre-tested in non-sample area for its practicability and relevancy. The information was collected by personally interviewing respondents using pre-structured interview schedule. The data was elicited by administering interview method and analysed using frequency, percentage and correlation coefficient.

Results and Discussion

Socio-demographic profile of pigeonpea growers

The data presented in the table 1 revealed that, majority (64.17%) of the respondents were in middle age group followed by young age (25.00%). Education level of the respondents result indicates that, nearly one third (30.00%) of the respondents were illiterate, followed by middle school

(27.50%) of the respondents and primary school (17.50%). The rural people are still traditional bound, they generally do not prefer to send their children to colleges and expect their children to assist in farm and household activities, and also due the distance of the higher education centers from the village might have prevented the parents from providing higher education to their children. The above finding got support from the studies conducted by Shashidhara (2003)^[11] and Raghunandan (2004). Majority (72.50%) of the respondents' belonged to big family size ranging from more than 5 members, whereas 27.50 per cent of respondents belonged to small family (1-4 members). In case of income category indicated that, majority (42.50%) of the respondents belonging to medium income category (₹ 17000-51000). The possible reason might be that majority of Pigeonpea growers have 5 to 25 acres of land holding indicating better economic conditions of the Pigeonpea growers.

Table 1: Socio-demographic profile of the Pigeonpea growers n=120

Sl. No.	Particulars	Category	Frequency	Percentage
Age				
1	Young	Up to 35 years	13	10.83
2	Middle	36-50 years	77	64.17
3	Old	Above 51 years	30	25.00
Mean= 45.06/ SD= 7.39				
Education				
1	Illiterate	Cannot read and write	36	30.00
2	Primary school	1 to 4th standard	21	17.50
3	Middle school	5 to 7th standard	33	27.50
4	High school	8 to 10th standard	19	15.83
5	Pre-university	11 and 12th standard	7	5.83
6	Graduate	Degree and above	4	3.33
Family size				
1	Small	1-4 members	33	27.50
2	Big	5 and above members	87	72.50
Annual income				
1	Low (Up to ₹. 17,000)	Less than Mean - 0.425*SD	21	17.50
2	Medium (₹.17,001 - 51,000)	Between Mean + 0.425*SD	51	42.50
3	High (Above ₹. 51,000)	More than Mean + 0.425*SD	48	40.00
Mean=194958.3/ SD=137352.7				
Land holding				
1	Marginal farmers	Up to 2.50 acres	5	4.16
2	Small farmers	2.5 -5 acres	23	19.17
3	Semi-medium farmer	5.1-10 acres	49	40.83
4	Medium farmers	10.1-25 acres	31	25.83
5	Big farmers	>25 acres	12	10.00
Farming experience				
1	Low (Up to 21.55)	Less than Mean - 0.425*SD	19	15.83
2	Medium (21.55-26.76)	Between Mean + 0.425*SD	67	55.83
3	High (Above 26.76)	More than Mean + 0.425*SD	34	28.33
Mean=24.15 / SD=6.13				
Mass media utilization				
1	Low (Up to 2.45)	Less than Mean - 0.425*SD	4	3.33
2	Medium (2.45-3.41)	Between Mean ± 0.425*SD	49	40.83
3	High (Above 3.41)	More than Mean + 0.425*SD	67	55.83
Mean=2.93 / SD=1.13				
Extension participation				
1	Low (Up to 2.93)	Less than Mean - 0.425*SD	13	10.83
2	Medium (2.93-4.41)	Between Mean ± 0.425*SD	46	38.33
3	High (Above 4.41)	More than Mean + 0.425*SD	61	50.83
Mean=3.67/ SD=1.73				
Achievement motivation				
1	Low (Up to 3.80)	Less than Mean - 0.425*SD	30	25.00
2	Medium (3.80-5.23)	Between Mean ± 0.425*SD	51	51.50
3	High (5.23)	More than Mean + 0.425*SD	39	39.50
Mean=4.52 / SD=1.69				

Economic motivation				
1	Low (Up to 18.56)	Less than Mean - 0.425*SD	36	30.00
2	Medium (18.56-20.58)	Between Mean \pm 0.425*SD	46	38.33
3	High (20.58)	More than Mean + 0.425*SD	38	31.67
			Mean=19.58/ SD=2.39	
Risk orientation				
1	Low (Up to 2.51)	Less than Mean - 0.425*SD	48	40.00
2	Medium (2.51-3.74)	Between Mean \pm 0.425*SD	59	49.17
3	High (Above 3.74)	More than Mean + 0.425*SD	13	10.83
			Mean=3.15/ SD=1.45	
Total			120	100

The findings were in accordance to the findings as reported by Vijay Kumar (2001), Vedamurthy (2002) [12] and Sharanappa G (2011). It is clear from Table 1 that, 40.83 per cent of the respondents had semi-medium land holding (5.1-10 acres), followed by medium farmers (25.83%) and small farmers (19.17%), whereas only 10.00 and 4.16 per cent of them were big and marginal farmers respectively. The farming experience of respondents shown in table that, More than half (55.83%) of the respondents belonged to medium farming experience. It is clearly indicated in the table 1 that, more than half of the respondents (55.83%) had high followed by medium (40.83%) and low (3.33%) level of exposure to the mass media in study area. The extension participation of respondents shows that, more than half of the (50.83%) respondents had high followed by medium (38.33%) and low (10.83%) level of extension participation in the study area.

Achievement motivation of respondents is indicated in Table 1 which shows that, half (51.50%) of the respondents comes under medium level of achievement motivation category, followed by 39.50 per cent and 25.00 per cent of the respondents had high and low level of achievement motivation, respectively. Since, achievement is an important indicator to be developed among the farmers for sustained results in agricultural sector. The extension personnel should concentrate their efforts in developing need for achievement motivation. The above finding was in conformity with finding of Budihal (2001) [3], Birajdar (2002). The data in Table revealed that, about (38.33%) of the respondents belonged to medium economic motivation group, followed by high level of economic motivation with (31.67%). Whereas, (30.00%) of the Pigeonpea growers belonged to low economic motivation category. The price of the Pigeonpea is fluctuating every year. Low yield due to heavy incidence of pests and diseases and high cost involved in adoption of post-harvest management practices resulted in medium level of economic motivation.

The above findings were in agreement with the findings of the studies conducted by Chauhan and Patel (2003) [4], Sandesh (2004) and Raghavendra (2005) [8].

The result presented in table that, nearly half (49.17%) of the farmers had medium risk orientation followed by low risk orientation (40.00%) and high risk orientation (10.83%). It should be mentioned here, that the individuals will be very critical and cautious in understanding different aspects of technology. There is a tendency in farmers to take risk based on their income, land holding and other resources. Risk taking varies with socioeconomic status of the individuals. In the study most of the respondents belonged to medium annual income category and also had medium land holdings. Hence, the above results could have been obtained. These findings are in accordance with the findings of Vijaykumar (2001), Vedamurthy (2002) [12] and Pallavi (2006).

Distribution of respondents according to their knowledge level of respondents

The data in table 2 indicates the overall knowledge level of the respondents about post-harvest management practices. Majority (44.17 %) of the respondents had medium level of knowledge about post-harvest management practices, followed by high (35.00 %) and low level of knowledge (20.83 %). While, administrating the knowledge test questions to respondents about post-harvest management practice, it was noticed that, majority of the farmers had knowledge, with respect to post-harvest management practices when compared to improved technologies. This fact might be the reason for having majority of the respondents to belonging to medium level of knowledge of post-harvest management practices. The findings were in accordance with the results reported by Raghavendra (2004) [8], Sunil Kumar (2004) and Ravikumar (2010) [9].

Table 2: Distribution of respondents according to their knowledge of post-harvest management practices n=120

Sl. No.	Particulars	Categories	Knowledge	
			Frequency	Percentage
1	Low	Less than Mean - 0.425*SD	25	20.83
2	Medium	Between Mean \pm 0.425*SD	53	44.17
3	High	More than Mean + 0.425*SD	42	35.00
Total			120	100.00
			Mean=18.89/ SD=3.48	

Distribution of respondents according to their adoption level of post-harvest management practices of Pigeonpea growers

The data in Table 3 also indicates the adoption of the respondents about post-harvest management practices. One third (41.67 %) of the respondents belonged to medium level of adoption category followed by low (30.00 %) to high (27.50 %) adoption category, respectively. The adoption of

any technology in general and post-harvest management in Pigeonpea particularly depends on various factors such as awareness about the technology and characteristics of farmers. This results might be due to majority of the farmers had medium knowledge level about post-harvest management practices of Pigeonpea. The findings were in line with the results reported by Raghavendra (2004) [8], Sunil Kumar (2004) and Ravikumar (2010) [9].

Table 3: Distribution of respondents according to their adoption level of post-harvest management practices n=120

Sl. No.	Particulars	Categories	Adoption	
			Frequency	Percentage
1	Low	Less than Mean – 0.425*SD	37	30.83
2	Medium	Between Mean \pm 0.425*SD	50	41.67
3	High	More than Mean + 0.425*SD	33	27.50
Total			120	100.00
			Mean=18.5/ SD=2.2	

Relationship between socio-demographic profiles of respondent with knowledge

Table 4 indicates that, out of eleven variable studied one important variable annual income were highly significant ($P < 0.01$) with knowledge level while a significant relationship ($P < 0.05$) was observed with education, achievement motivation and economic motivation of Pigeonpea growers. The positive non-significant correlation of mass media utilisation and risk orientation observed in the present study may be attributed to the fact that these socio-economic variables definitely will not have any bearing on the knowledge level of respondents. The age, land holding, farming experience and extension participation was found negatively non-significant correlation with knowledge. It means, these variables has no bearing with extent of knowledge level of post-harvest management practices of Pigeonpea. The highly significant positive correlation coefficient of annual income is use of education and only significant correlation of achievement motivation and economic motivation with knowledge level of post-harvest management practices may lead to conclusion that these socio-economic independent variables play a pivotal role in increasing the dependent variable knowledge of Pigeonpea growers. These results are in agreement with Surkar *et al.*, (2014) and Arora *et al.*, (2006) [2].

Table 4: Relationship between selected characteristics of the respondents with knowledge

Sr. No.	Independent variables	Coefficient of Correlation (r)
		Knowledge
1	Age	-0.123 NS
2	Education	0.165*
3	Family size	0.084 NS
4	Annual income	0.296**
5	Land holding	-0.147 NS
6	Farming experience	0.132 NS
7	Mass media utilisation	0.079 NS
8	Extension participation	-0.064 NS
9	Achievement motivation	0.164*
10	Economic motivation	0.173*
11	Risk orientation	0.048 NS

**Significant at 1 percent level of probability, *Significant at 5 percent level of probability NS=Non-Significant

Relationship between socio-demographic profiles of respondent with adoption

The results in the table 5 indicated that, out of the eleven selected characteristics of Pigeonpea growers, education and annual income exerted highest positive correlation coefficient ($P < 0.01$) with extent of adoption of post-harvest management practices. Variable like education, Achievement motivation and Economic motivation had positive significant relationship ($P < 0.05$) with extent of adoption whereas family size, farming experience, mass media utilisation and risk orientation had positive non-significant relationship with extent of adoption of post-harvest management practices. The probable reason could be higher income from their Pigeonpea crops, and

gained knowledge about post-harvest management practices. Another probable reason might be, knowledge of the Pigeonpea growers can be increased through education. Since, one forth respondents had middle school education. The findings of the results with are in contrast with Sethi, (1982) [10], Anuradha, G (1983) [1].

Table 5: Relationship between selected characteristics of the respondents with Adoption

Sr. No.	Independent variables	Coefficient of Correlation (r)
		Adoption
1	Age	0.047 NS
2	Education	0.251**
3	Family size	0.062 NS
4	Annual income	0.197**
5	Land holding	-0.068 NS
6	Farming experience	-0.085 NS
7	Mass media utilisation	-0.049 NS
8	Extension participation	0.122 NS
9	Achievement motivation	0.198*
10	Economic motivation	0.212*
11	Risk orientation	-0.063 NS

**Significant at 1 percent level of probability, *Significant at 5 percent level of probability NS=Non-Significant

In conclusion post-harvest losses of fruits and vegetables are 22 to 40 per cent, pulses, oilseeds and cereals is 10 to 30 per cent. (These losses mainly arise because of improper harvesting methods, problems of threshing, storage, transportation and processing leads to large scale losses in food grains). Thus, the post-harvest losses obviously have an impact on the economy. Farmers based on their experience do adopt post-harvest management practices. Some innovative farmers had adopted the important practices in post-harvest management, which is less scientific and standardized rational. So in order to improve the same an extension agent has to work on the social participation of the Pigeonpea growers which is having direct effect on knowledge and adoption of post-harvest management practices followed by the farmers. Education and annual income are also having significant relation which can be effectively utilized by the extension agent for post-harvest management practices in rural areas.

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