The Andhra Agric. J 64 (4): 972-979, 2017

A Study on Profile of Direct Sown Rice Farmers in Guntur District of Andhra pradesh

Sowjanya Cheruku, B Mukundarao, T Gopi Krishna and M Sree Rekha
Department of Agricultural Extension, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

The present study was conducted in Guntur district of Andhra Pradesh during 2014-15 to study the profile of direct sown rice farmers. A total of 120 respondents constituted the sample of the present study. The variables selected for studying the profile of farmers were personal (Age, Education, Landholding, Occupation, Experience, Training received), socio-economic (Annual income, Source of information, Social participation, Extension contact) and psychological variables (Innovativeness, Economic motivation, Risk orientation, Scientific orientation). The findings revealed that majority of the farmers were middle aged, educated upto middle school, had small to marginal land holding, Agriculture and labour work as the main occupation, untrained on direct sown rice farming, 11 to 20 years of farming experience. Regarding socio-economic variables, findings revealed that majority of the farmers were coming under medium annual income, medium level of source of information, social participation and extension contact. Regarding psychological variables, majority of the respondents were under medium level of economic motivation and scientific orientation, low level of risk orientation and high level of innovativeness.

Key words*: Direct sown rice, Knowledge.*

Rice is an important food crop of India since it is the staple food of more than 70 per cent of the population. India has largest area under rice in the world and second largest producer of rice after China. Within the country, rice occupies one-quarter of the total cropped area, contributes about 40 per cent of total food grain production and continues to play a vital role in national food and livelihood security system.

In order to meet the nation's growing population's needs, there should be a proportionate increase in food grain production. Therefore, yields of rice should be increased because further expansion of area is not possible, in fact it is declining. Therefore, sustainability of rice eco-system and ability to increase production in pace with population growth with reduced water and labour use and climate changes are major concerns in traditional rice cultivation. Direct seeded rice (DSR) is feasible alternative with good potential to save water, reduce labour requirement, mitigation of green-house gas emissions and adaptability to climate risks.

Andhra pradesh is the third largest state in India in area and production of rice. In order to adopt recommended practices of direct sown rice cultivation, proper level of knowledge is necessary. To impart knowledge to the farmers, their personal, socio-economic and psychological variables should be known. These variables influence the farmer's adoption behaviour. The present study was conducted to study the profile characteristics of direct sown rice farmers in Guntur district of Andhra pradesh.

MATERIAL AND METHODS

The study was carried out using ex post facto research design during 2014-15 in the Guntur district of Andhra pradesh. A combination of purposive and random sampling procedure was employed. The district was purposively selected because it has vast area under Direct seeded rice cultivation. Three mandals viz., Tsunduru, Chebrolu and Duggirala were selected purposively based on highest area in the district. From each mandal, four villages were selected randomly and from each village 10 direct sown rice farmers were randomly selected to make a total sample size of 120. The data was collected using a well structured interview schedule. The statistical techniques like inclusive class interval scale method was followed to analyse the data.

RESULTS AND DISCUSSION

1. Personal variables: under personal variables, the data was collected for Age, Education, Land holding, Occupation, Experience and Training received and was presented in Table 1.

1.1 Age:

The age of the direct sown rice farmers of the study area ranged from 26 to 70 years. It could be inferred from the table 1. that 43.34 per cent of direct sown rice farmers belonged to middle age, followed by the rest belonging to old age (39.16%) and young age (17.50%).

Younger generation, because of their education, is getting attracted to employment opportunities in nearby towns and cities. Usually farmers of middle age were enthusiastic and had more work efficiency than the older and younger ones. Further, individuals of middle age group have more family responsibility than the younger ones. Middle and young age farmers can be utilized effectively by giving them better training on direct sown rice farming. The above findings were in line with the findings of Nagadev and Venkataramaiah (2007) and Sathish (2010).

1.2 Education:

Thirty per cent of the direct sown rice farmers had middle school education followed by college education (16.66%), high school (14.16%), primary school (13.33%), functionally literate (12.52%), illiterate (6.67%) and graduation (6.66%).

Thus, the findings revealed that about 93.33 per cent of the direct sown rice farmers were found with formal education. This might be because of the availability of the higher secondary schools and colleges in the study area. Only 6.67 percent of the direct sown rice farmers fell under illiterate level of education. This finding was not in conformity with the findings of earlier studies.

1.3 Landholding:

Thirty per cent of direct sown rice farmers belonged to Small land holding category followed by marginal (25.84%), semi-medium (21.66%), medium (14.16%), landless (5.00%) and large (3.34%) land holding category.

The reason for small and marginal land holdings might be due to the fragmentation of land holdings because of separation of families. Hence, there is a need to concentrate on small, marginal and semi-medium direct sown rice farmers in transfer of technology. Efforts also should be made to motivate marginal farmers. The above findings were in partial agreement with the findings of Adewale *et al.* (2007).

1.4 Occupation:

The data in table 1. revealed that 33.34 per cent of the direct sown rice farmers involved in Agriculture + labour followed by Agriculture (33.34%), Agriculture + animal husbandry (19.16%), Agriculture + business (10.00%), Agriculture + Others (2.50%) and Agriculture + service (1.66%). The findings might be due to non remuneration of agriculture, majority of the farmers were preferring animal husbandry and labour work in addition to agriculture for their livelihood. This finding was in conformity with the findings reported by Lakra (2011) and in partial agreement with Shori (2011).

1.5 Experience:

Majority (40.83%) of the farmers had 11 to 20 years of farming experience while 28.33 per cent of the direct sown rice farmers has 21 to 30 years of farming experience, 15 per cent of the farmers had 1 to 10 years of farming experience, 10 per cent of the farmers had 31-40 years of experience and only 5.84 per cent of the farmers had 41 to 50 years of farming experience. The reason might be due to the fact that most of the farmers had more interest on farming and they were dependent on farming for their livelihood.

1.6 Training received:

More than two-thirds (65.00%) of the farmers had received no training followed by one to two trainings (16.67%), three to four trainings (13.33%) and four and above (5.00%) trainings. The possible reason for this might be that efforts made by State Department of Agriculture to conduct effective training programmes at local level, could not attract the farmers. Hence, most of the direct sown rice farmers belonged to no training category. There is every need on the part of the officials and extension agencies to organize more number of need based trainings to encourage

Table 1. Distribution of direct sown rice farmers according to their personal variables. (n=120)

S. No.	Age	Direct sown rice farmers	
		Frequency	Percentage
1.	Young age (< 35 years)	21	17.50
2.	Middle age (35years-58 years)	52	43.34
3.	Old age (>58years)	47	39.16
	Education		
1.	Illiterate	8	6.67
2.	Functionally literate	15	12.52
3.	Primary school	16	13.33
4.	Middle school	36	30.00
5.	High school	17	14.16
6.	College education	20	16.66
7.	Graduation	8	6.66
	Landholding		
1.	Landless (no land)	6	5.00
2.	Marginal (0.1 to 1.0 ha.)	31	25.84
3.	Small (1.1 to 2.0 ha.)	36	30.00
4.	Semi-medium (2.1to4.0 ha.)	26	21.66
5	Medium (4.1 to 10.0 ha.)	17	14.16
6.	Large (>10.0ha.)	4	3.34
	Occupation		
1.	Agriculture	40	33.34
2.	Agriculture+Animal Husbandry	23	19.16
3.	Agriculture+labour work	40	33.34
4.	Agriculture+service	2	1.66
5	Agriculture+business	12	10.00
6.	Agriculture+others	3	2.50
	Farming Experience		
1.	1 to 10 years	18	15.00
2.	11 to 20 years	49	40.83
3.	21 to 30 years	34	28.33
4.	31 to 40 years	12	10.00
5.	41 to 50 years	7	5.84
	Training received		
1.	**Untrained farmers**	78	65.00
2.	**Trained farmers**		
a.	1 to 2 trainings	20	16.67
b.	3 to 4 trainings	16	13.33
c.	> 4 trainings	6	5.00

Table 2. Distribution of direct sown rice farmers according to their socio-economic variables. (n=120)

S.No.	Annual income	Direct sown rice farmers	
		Frequency	Percentage
1.	Low (1,35,000-3,06,000)	15	12.50
2.	Medium (3,07,000-4,78,000)	87	72.50
3.	High (4,79,000-6,50,000)	18	15.00
	Source of information		
1.	Low (17-30)	25	20.84
2.	Medium (31-44)	54	45.00
3.	High (45-58)	41	34.16
	Social participation		
1.	Low (12-17)	46	38.33
2.	Medium (18-22)	50	41.67
3.	High (23-27)	24	20.00
	Extension contact		
1.	Low (9-14)	39	32.50
2.	Medium (15-20)	46	38.34
3.	High (21-26)	35	29.16

Table 3. Distribution of direct sown rice farmers according to their psychological variables. (n=120)

S.No.	Innovativeness	Direct sown rice farmers	
		Frequency	Percentage
1.	Low (8-17)	43	35.83
2.	Medium (18-27)	32	26.67
3.	High (28-37)	45	37.50
	Economic motivation		
1.	Low (19-22)	15	12.50
2.	Medium (23-26)	70	58.34
3.	High (27-30)	35	29.16
	Risk orientation		
1.	Low (15-19)	58	48.34
2.	Medium (20-24)	30	25.00
3.	High (25-29)	32	26.66
	Scientific orientation		
1.	Low (12-18)	41	34.16
2.	Medium (19-24)	41	34.16
3.	High (25-30)	38	31.68

the participation of all age groups of farmers. The state department of Agriculture has to organise need based programmes to instill their faith. These findings were not in support of earlier findings.

2. Socio-economic variables: Under socio-economic variables, the data was collected for Annual income, Source of information, Social participation and Extension contact and was presented in Table 2.

2.1 Annual income:

Majority (72.50%) of the direct sown rice farmers had medium level of annual income, followed by the rest with high (15.00%) and low (12.50%) levels of annual income. This might be due to the low returns of direct sown rice farmers as majority being small and marginal that too without any other source of income. But, 15 per cent of the farmers had high annual income due to their comparatively good land holding size with additional sources of income as job or business. These findings were in partial conformity with the findings of Narbaria (2013).

2.2 Source of information:

Majority (45.00%) of direct sown rice farmers had medium level of source of information, followed by high and low i.e., 34.16 per cent and 20.84 per cent level of source of information respectively. Among the personal cosmopolites in the study area, majority of the direct sown rice farmers had found information regarding direct sown rice cultivation from Agricultural Extension Officers followed by Agricultural Officers and other line department officials. Among the personal localites in the study area, majority of the direct sown rice farmers had found information regarding direct sown rice cultivation from friends/relatives followed by family members and neighbours. Among the impersonal cosmopolites in the study area, majority of the direct sown rice farmers had found information regarding direct sown rice cultivation from Television followed by newspapers and agriculture related magazines. These findings were in new direction to the earlier findings of Mahesh *et al.* (2011) and Narbaria (2013).

2.3 Social participation:

Majority (41.67%) of direct sown rice farmers had medium level of social participation, followed by low and high i.e., 38.33 and 20.00 per cent level of social participation respectively. majority of the direct sown rice farmers were enrolled as members in Agricultural co-operative credit societies, Rythu mithra Groups, Water user

Table 4. Correlation coefficient of profile characteristics of direct sown rice farmers with their level of knowledge (n=120)

S.No.	Profile Characteristics	'r' value
1.	Age	0.618**
2.	Education	0.733**
3.	Land holding	0.063^{NS}
4.	Occupation	0.012^{NS}
5.	Annual income	0.094^{NS}
6.	Experience	0.818**
7.	Training received	0.761**
8.	Source of information	0.788**
9.	Social participation	0.450**
10.	Extension contact	0.885**
11.	Innovativeness	0.921**
12.	Economic motivation	-0.075^{NS}
13.	Risk orientation	0.192*
14.	Scientific orientation	0.010^{NS}

Table 5. Multiple linear regression analysis of profile characteristics of direct sown rice farmers with their level of knowledge (n =120)

S.No.	Profile Characteristics	Regression coefficient	Standard Error	't' value
1.	Age	1.520	0.599	2.537**
2.	Education	0.046	0.345	0.133NS
3.	Land Holding	0.082	0.286	0.287NS
4.	Occupation	0.161	0.239	0.673NS
5.	Annual income	0.610	0.661	0.923NS
6.	Experience	0.753	0.589	1.277NS
7.	Training received	1.478	0.525	2.815**
8.	Source of information	0.113	0.055	2.056**
9.	Social participation	-0.054	0.094	-0.570NS
10.	Extension contact	0.412	0.189	2.186**
11.	Innovativeness	0.561	0.114	4.910**
12.	Economic motivation	-0.045	0.137	-0.330NS
13.	Risk orientation	-0.030	0.088	-0.342NS
14.	Scientific orientation	-0.108	0.072	-1.496NS

a = 33.044 R^2 = 0.8835

associations and Gram panchayat and others were concentrating on their own business. The possible reason for the above findings might be due to lack of awareness of the advantages of becoming member, non-attracting activities undertaken by the organization due to local politics. Social participation could be improved by establishing more number of social organizations like Rythu Mitra Groups, Commodity Interest Groups, etc., This result is in agreement with Santhi (2006).

2.4 Extension contact:

Majority (38.34%) of direct sown rice farmers had medium level of extension contact, followed by low and high i.e., 32.50 and 29.16 per cent level of extension contact respectively. Majority of the direct sown rice farmers were in contact with the friends/relatives (77.50%) followed by department of agricultural personnel (46.66% and 35.83%), input dealers (28.33%) and ANGRAU scientists (19.16%) for technical information related to direct sown rice farming. This might be due to the fact that they were busy in their administration works and non-agricultural works, therefore it is desirable to improve the level of extension contact of the farmers through regular visits by extension personnel with emphasis on small and marginal farmers because majority of the study area farmers belong to small and marginal land holding category. This finding was in conformity with Gowda *et al.* (2011).

3. Psychological variables:

Under psychological variables, the data was collected for Innovativeness, Economic motivation, Risk orientation and Scientific orientation and was presented in Table 3.

3.1 Innovativeness:

More than one-third (37.50%) of direct sown rice farmers had high level of innovativeness, followed by low and medium i.e., 35.83 and 26.67 per cent level of innovativeness, respectively. The results might be due to the high level of education, which helped them to acquire new technologies and are quite earlier in adopting the innovations than others. This could be due to the fact that production and productivity of rice farming is decreasing due to several reasons and this might have motivated the farmers to learn and adopt innovative methods in increasing the productivity of their crops. The results were in partial agreement with Venkateswar rao *et al.* (2012).

3.2 Economic motivation:

More than half (58.34%) of direct sown rice farmers fell under medium economic motivation category followed by high (29.16%) and low

(12.50%) economic motivation. The reason for the above finding might be due to majority of farmers had small and marginal land holdings with middle school education and were mostly engaged in agriculture and labour work for their livelihood. Further, the desire to stabilize and improve their standards economically. In general farmers were profit motive and very particular about increasing their productivity. The result was in agreement with the findings of Modabber ahmed khan and Jeong (2013).

3.3 Risk orientation:

Nearly half (48.34%) of direct sown rice farmers fell under low risk orientation category followed by high (26.66%) and medium (25.00%) risk orientation categories.

This might be due to the reason that majority of the farmers had medium followed by small holdings and their conditions were mediocre. Medium level of extension contact and involvement in subsidiary occupation that might have prevented them from taking much risk in farming. Even the farmers with high levels of innovativeness are not willing to take risks in direct sown rice farming because of adverse climatic conditions prevailing in the study area which leads to low production and low profits. This finding was in disagreement with Santhi (2006) and Gowda *et al.* (2011).

3.4 Scientific orientation:

An equal per cent of the direct sown rice farmers had low (34.16%) and medium (34.16%) scientific orientation, followed by those with high (31.68%) levels of scientific orientation. This trend might be due to self contentment of the farmers with the existing technology what they are using. The above findings are in conformity with the findings of Ashok kumar (2012).

4. Relationship of profile characteristics with their level of knowledge:

The correlation results of different independent variables with level of knowledge of direct sown rice farmers was presented in Table.4. Out of fourteen independent variables studied, Age, Education, Experience, Training received, Source of information, Social participation, Extension contact and Innovativeness showed a positive and significant association with knowledge level of direct sown rice farmers at one per cent level of significance. The variable Risk orientation had showed positive and significant relationship with knowledge level of direct sown farmers at five percent level of significance. The correlation values of Land holding, Occupation, Annual income, Economic motivation and Scientific orientation had showed a negative relationship with the knowledge level of the respondents.

5. Multiple linear regression of profile characteristics with knowledge levels: Table.5. reveals the results of regression analysis between independent variables (profile characteristics) and dependent variable (knowledge). The multiple regression analysis was performed to find out the extent of contribution of each variable towards knowledge level. The variables age, training received, source of information, extension contact and innovativeness were found to be positively significant at 0.01 level of probability. The R^2 value of 0.8835 indicated that all the selected fourteen independent variables put together explained about 88.35 per cent variation in the knowledge level of direct sown rice farmers.

CONCLUSION:

The findings revealed that majority of the farmers were middle aged, educated upto middle school, had small to marginal land holding, Agriculture and labour work as the main occupation, untrained on direct sown rice farming, 11 to 20 years of farming experience. Regarding socio-economic variables, findings revealed that majority of the farmers were coming under medium annual income, medium level of source of information, social participation and extension contact. Regarding psychological variables, majority of the respondents were under medium level of economic motivation and scientific orientation, low level of risk orientation and high level of innovativeness. Out of fourteen independent variables studied, age, education, experience, training received, source of information, social participation, extension contact and innovativeness showed a positive and significant association with knowledge level of direct sown rice farmers at one per cent level of significance.

LITERATURE CITED

Adewale J G, Olaniyi OA and Adamou N A 2007 Farmers adoption of improved rice technology in Niamy. *World Journal of Agricultural Sciences,* 3 (4): 530-535.

Ashok kumar G 2012 Knowledge and adoption of System of Rice Intensification (SRI) technology among farmers in Nagapattinam district of Tamil Nadu. *M.Sc. (Ag.) Thesis.* Acharya N.G. Ranga Agricultural University, Hyderabad.

Gowda A T, Ramesh Babu Ch, Ramnaidu G B M and Rao V S 2011 Profile characteristics of sugarcane growers in Mandhya district of Karnataka. *The Andhra Agricultural Journal*, 58(2): 123-126.

Lakra P K 2011 A study on extent of adoption of hybrid rice production technology by the tribal farmers of Surguja district of Chhattisgarh. *M.Sc. (Ag.) Thesis*, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur (C.G.).

Mahesh P, Bhanuprakash M and Nirajkumar S 2011 Farmers empowerment through participatory on farm trials in rainfed rice ecosystem of Koderma, Jharkhand. *Indian Journal of Extension Education,* 9(2):23-29

Modabber Ahmed Khan and Jeong K H 2013 Adopter Categories in Respect to a Transplanted Monsoon Rice Variety in Two Selected Villages of Bangladesh. *Journal of Agricultural Science,* 5(3): 2013.

Nagadev B and Venkataramaih P 2007 Characteristics of integrated pest management (IPM) trained dry paddy farmers. *The Andhra Agricultural Journal,* 54 (3&4) : 240-242.

Narbaria S 2013 A study on adoption level of System of Rice Intensification (SRI) technology among farmers in Dhamtari district of Chhattisgarh. *M.Sc.(Ag.) Thesis*, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur (C.G.)

Santhi S 2006 A Study of System of Rice Intensification (SRI) among rice farmers of Tirunelveli District. *M.Sc. (Ag.) Thesis*. Annamalai University, Annamalai Nagar.

Sathish H S 2010 Farmers' perceptions, preferences and utilization of SRI and traditional Paddy straw for livestock. *M. Sc. (Ag.) Thesis*. University of Agricultural Sciences, Dharwad, India.

Shori R 2011 Attitude of farmers regarding of control mesearement practices of various weeds of rice crop in Dhamtari district of Chhattisgarh state. *M.Sc. (Ag.) Thesis*, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur, (C.G.).

Venkateswar rao N, Ratnakar and Jain P K 2012 Impact of farmer field schools in KVK adopted villages on level of knowledge and extent of adoption of improved practices of paddy (*Oryza sativa* L.). *Journal of Research, ANGRAU.* 40(1):35-41.

(Received on 10.08.2016 and revised on 20.02.2017)