Socio-economic profile and constraints faced by rice farmers in tribal areas of Nalgonda district of Telangana

■ **Amtul Waris, B. Nirmala, N. Sunder Rao and B. Jangaiah**

SUMMARY : Majority of the farmers were of middle age group, illiterate, had small land holding and red soil type, bore as major irrigation source, low farming experience and medium family size. Majority of the tribal farmers had not taken any agricultural loans from Government agencies but had taken loan from informal sources *i.e.*, neighbors. More than fifty per cent of the respondents had no membership in any agricultural society/ farmer groups, no leadership in any society and had not availed any subsidy on agricultural inputs and farm machinery. More than 62.73 per cent of the respondents had not insured their crop against natural calamities and crop failure. The gross returns obtained per hectare was Rs. 68006/-. The net returns per hectare was Rs. 14,223/- with a benefit cost ratio of 1.26. Non- availability and high charges of labour during the critical operations *viz.*, transplanting and weeding, loss of crop yield due to pests and diseases were the major constraints ranked by the tribal farmers. Large scale awareness programmes need to be organized to motivate tribal farmers to avail crop subsidy, crop insurance and other benefits of government schemes specially being offered for tribal farmers to improve their socio-economic status.

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BACKGROUND AND OBJECTIVES

Rice is the most important food crop of India covering about one-fourth of the total cropped area and staple food for half of the Indian population. Paddy is one of the major crops in Telangana state and the area under the crop is 17.5 lakh hectares (AAP, 2014). On an average, the paddy is sown in an area of 9.50 lakh hectares in the *Kharif* season and 6.5 lakh hectares in the *Rabi* season in the state (Kurmanath, 2019). The forecast using Box- Jenkins method suggest that, the paddy production in the state would meet around 7.71 million tons by the year 2020-21 (Sharma and Raju, 2016). Nalgonda is the major paddy growing district of Telangana state with an area of 2,12,730 hectares and production of 6,20,453 tonnes (Agricultural Statistics at a Glance, Telangana, 2015-16,

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DES, Hyderabad). Devarkonda mandal has 1200 acres of paddy area with the production of 2,700 quintals and 22.00 quintals of productivity (Dept. of Agriculture, Telangana).

The objective of the study was to describe the socio-economic profile of tribal farmers and the constraints faced in rice cultivation so that appropriate interventions could be formulated to improve income from rice cultivation.

RESOURCES AND METHODS

Nalgonda district of Telangana state was selected purposively for this study because it has highest area and production of paddy among all the districts (Agricultural Statistics at a Glance, Telangana, 2015-16, DES, Hyderabad). Devarakonda mandal of Nalgonda district was purposively selected as it has 13 per cent of the tribal population of the Nalgonda district. From Deverkonda mandal, villages/Tandas having considerable number of tribal farmers were selected and from these villages/Tandas 120 tribal farmers who were undertaking paddy cultivation were selected following simple random sampling method. A structured schedule was designed to collect information on socio-economic profile of farmers, the cost of cultivation incurred in rice cultivation and constraints faced in rice cultivation were also elicited from tribal farmers. Statistical tools like mean, frequency and percentage were used.

Farmers' rating of the constraints in rice cultivation were ranked by using five point scales of variables comprising most, relatively more, moderate, modest and not at all using scores of 1.00, 0.75, 0.5 and 0.25 and 0, respectively. The priority index for each variable was calculated by using formula of Miah (1993).

$$\text{I prob} = \sum \frac{S_i f_i}{N}$$

where,

I prob = Index value for intensity of problem

Σ= Summation

S_i = Scale value of ith intensity

f_i = Frequency of ith respondent

N = Total number of respondents.

OBSERVATIONS AND ANALYSIS

Results from the Table 1 indicated that majority (54.55 %) of the respondents were middle aged followed by young age (24.55 %) and old age (20.90 %). Similar results were also reported by Hanumanaikar *et al.* (2011).

Socio-economic profile of the sample farmers:

The socio-economic profile of the selected tribal farmers indicated that majority of them were (77.27 %) illiterates, of them,thirteen per cent had primary level of education followed by secondary level education (6.36 %) and intermediate education (3.64 %). Similar results were also reported by Bagdi (2011); Hanumanaikar *et al.* (2011); Rao (2013) and Lal and Devanna (2016). None of the respondents were graduates. The probable reasons may be lack of awareness and encouragement from family members.

With regard to farm size it was found that more than half (57.27 %) of the respondents were small farmers, followed by medium land holding (26.36 %) and marginal land holding (10.00 %). Only 6.37 per cent of the respondents were large farmers. These results were in conformity with findings of Varaprasad *et al.* (2018). The possible reason might be that in recent times most of the families were of nuclear system and joint family system is gradually fading away. This resulted in fragmentation of land among the family members. With regard to soil type, nearly ninety (89.09 %) per cent of the respondents had red soils, 9.09 per cent had sandy soils followed by black soils (1.82 %).

Possession of irrigation sources indicated that eighty (80.00 %) per cent of the respondents had bore well as

Table 1: Social participation of selected tribal farmers			(n =120)
Sr. No.	Social participation	Number	Percentage
1.	Membership in societies		
	No	69	57.5
	Yes	51	42.5
2.	Leadership in society/ Organization		
	No	101	84.2
	Yes	19	15.8

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irrigation source, 3.64 per cent of the respondents had wells as and 16.36 per cent respondents had both bore and well as irrigation source. These findings were in conformity with findings of past studies by Kumar *et al.* (2017).

Farming experience in paddy cultivation indicated that nearly half of (46.36%) of the respondents had low level of farming experience, followed by the rest with medium (34.55%) and high (19.09%) level of farming experience. These results were in line with findings of Samarpitha *et al.* (2016). The possible reason for this trend might be due to majority of the farmers belonged to middle and young age categories and the study site had poor irrigation facilities needed for paddy cultivation.

Family size of the farmers indicated that majority (71.82 %) of the respondents had medium family size, followed by small (20.91%) and large (7.27%) family size. None of the respondents had family size with more than 9 members. Similar findings were reported by Hanumanaikar *et al.* (2011) and Jalaja and Kala (2015). The probable reasons could be that the young and middle age people preferred to live in nuclear families while the old age people preferred joint families.

It could be observed from the Table 1 that majority (57.27%) of the respondents did not have any social participation, on other hand 42.73 per cent of the respondents had social participation in various societies and organizations, the reason for low participation might be lack of awareness about the benefits of having membership in organizations. Similar results were also reported by Samarpitha *et al.* (2016) and Wadekar *et al.* (2016).

Results furnished in Table 1 indicated that majority (86.36%) of the respondents did not have any leadership in any society or organization and only 13.64 per cent of the respondents had leadership position. The possible reasons might be lack of self-confidence and encouragement for social participation.

From the findings in Table 2 it can be concluded that more that 62.5 per cent of the farmers had not insured their crop against natural calamities and crop failure. Only 37.5 per cent of the farmers had got their crop insured. The possible reasons might be lack awareness and knowledge about crop insurance because of their low literacy rate and low social participation. The farmers need to be motivated to avail the benefits of crop insurance as a protective measure against crop loss during natural calamities.

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Table 2 : Distribution of farmers based on the crop insurance availed

Sr. No.	Crop insurance	Frequency (n)	Percentage (%)
1.	No	75	62.5
2.	Yes	45	37.5
	Total	120	100.00

Table 3: Distribution of farmers based on their source of loan

Sr. No.	Loan source	Frequency (n)	Percentage (%)
1.	No loan was taken	38	31.6
2.	Neighbors	21	17.5
3.	Bank	51	42.5
4.	Input dealers	8	6.7
5.	Both from bank and neighbors	2	1.7
	Total	120	100

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literacy rate and low social participation. The farmers need to be motivated to avail the benefits of crop insurance as a protective measure against crop loss during natural calamities.

Results furnished in Table 3 indicated that majority (42.73%) of the respondents had taken loans from bank, followed by neighbors (16.36 %), input dealers (5.45%), and 1.82 per cent took loans from both bank and neighbors. However, more than thirty per cent (33.64%) of respondents had not taken any agricultural loan.

It could be observed from the Table 4 that more than fifty five per cent of the respondents were not availing subsidy for agriculture inputs. Around thirty four (33.4%) of respondents obtained subsidy for agriculture inputs like seed, fertilizers and plant protection related chemicals followed by tractors (8.3 %) and sprinklers (3.3%).

Major gaps in existing paddy cultivation practices:

The major gaps in existing paddy cultivation practices of farmers (Table 5) were identified based on the bench mark survey and the following technological interventions were suggested to the tribal farmers.

Cost of cultivation of rice in farms of selected tribal farmers:

The cost of cultivation of rice was Rs. 53,782/- per hectare (Table 6). Land preparation accounted for 27 per cent of the total variable costs followed by fertilizers and transplanting, which accounted for 12 per cent each. The cost of weeding accounted for 11 per cent of the total variable cost. The average yield of rice in the study area was 4.9 tons per hectare. The farmers realized a price of Rs.1194/quintal. The gross returns obtained per hectare was Rs.68006/-. The net returns per hectare was Rs.14,223/- with a benefit cost ratio of 1.26.

Constraints in rice production:

Rank order index (Table 7) showed that the availability of water for irrigation was the major constraint for taking up rice cultivation. During the last 6 years due to the non-availability of irrigation facilities the area under rice cultivation was reduced to one fourth of the total rice area. The other constraint was lack of remunerative price, as opined by the farmers. Availability and high charges of labour during the critical operations *viz.,* transplanting and weeding were the other major constraints ranked by the farmers. Pests and diseases also caused loss to the crop yield. The major pests were stem borer and BPH. Access to the market was not

Table 4: Distribution of farmers based on the agricultural subsidy availed

Sr. No.	Subsidy	Frequency (n)	Percentage (%)
1.	No subsidy	66	55.0
2.	Crop	40	33.4
3.	Sprinklers	4	3.3
4.	Tractors	10	8.3
	Total	120	100

Table 5 : Major gaps in existing paddy cultivation practices

Major gaps in existing paddy cultivation practices	Practices being adopted by farmers	Technological interventions suggested to the farmers
Seed rate	Farmers were using 40 kg per acre of seed which is very high	Farmers were motivated to adopt 15kg seed per acre
Age of seedlings	Thirty four day old seedlings were being transplanted	They were educated to plant young seedlings (average 22 days)
Spacing	Line sowing was not being adopted	Line sowing of paddy was undertaken on farmers' fields with recommended spacing
Seed treatment	Seed was not being treated with any fungicide	Certified and treated seed was distributed to farmers
Weed management	Weeding was being done manually incurring high labour cost and facing labour shortage for timely weeding. Farmers were not using herbicide	Trainings on weed management was imparted and farmers applied pre-emergence herbicide
Fertilizer application	Farmers were applying higher than the recommended dose of fertilizers and were not aware of bio-fertilizer and not using them	Training on use of bio-fertilizers and bio-pesticides was imparted

Table 6 : Cost of cultivation of rice in farms of selected tribal farmers

Sr. No.	Input /Operation cost	Amount (Rs./ha)
A.	**Variable costs**	
1.	Seed	3510.4
2.	Nursery	2513.6
3.	Land preparation	12454.5
4.	Tranplanting	5593.8
5.	Weeding	5062.5
6.	Fertilizer	5563.6
7.	Insecticide	2729.5
8.	Harvesting	4140.9
9.	Post harvest costs	4211.4
10.	Total variable costs	45780.3
B.	**Fixed costs**	
1.	Rental value of land	7212.5
2.	Land revenue	62.5
3.	Interest on fixed cost	727.5
B.	Total fixed costs	8002.5
A+B	Total costs	53782.8

Table 7 : Constraints in rice production

Sr. No.	Constraint	Rank
1.	Lack of irrigation facilities	1
2.	Lack of remunerative price	2
3.	Labour shortage	3
4.	Pests and disease attack	4
5.	Market access/Transportation	5
6.	Input availability	6
7.	Soil salinity	7
8.	Extension contact	8

easy and the farmers had to incur transportation charges. The problem of soil salinity was ranked the last.

Conclusion:

The findings of the study indicated that majority of the farmers were not availing agricultural subsidies and crop insurance schemes. Moreover, most of the constraints ranked by the tribal farmers in rice cultivation can be very well overcome by organizing large scale awareness programmes for motivating tribal farmers to avail the governmental schemes of crop subsidies and insurance of crops against natural calamities. The tribal farmers need to be encouraged to improve their knowledge and skills to adopt improved agricultural technologies by attending training programmes being organized for tribal farmers through Krishi Vigyan Kendras and several other agencies.

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