

Original Research Article

<https://doi.org/10.20546/ijcmas.2020.910.192>

Study on Socio Economic Characteristics of Rice Variety CO 51 Growers of Tamilnadu

P. Dharmalingam^{1*}, P. Balasubramaniam¹ and P. Jeyaprakash²

¹Department of Agricultural Extension and Rural Sociology, TNAU, Coimbatore, India

²Department of Plant Breeding and Genetics, ADAC&RI, TNAU, Trichy, India

*Corresponding author

ABSTRACT

Rice is the staple food in Tamilnadu and there is always a need to improve the yield level for the burgeoning increase in population. Rice variety CO 51 is one such variety released in Tamilnadu during 2013 and has entered into seed chain. A study was taken to study the profile of CO 51 growers in Kancheepuram district and Tiruvarur districts which was purposively selected. A total of 150 farmers in each districts were selected. Nineteen profile variables related to rice farming were identified, analyzed and reported. The respondents were interviewed personally by a well structured interview schedule. The data collected were analyzed using appropriate statistical tools. Majority of the respondents fall under old age category and nearly half of the respondents had secondary education and high level annual income. Majority respondents have farming as occupation. Majority of the respondents were small farmers (38%), had low level of farming experience (42%), high social participation (59%) besides mass media exposure (88%), information seeking behavior (50%) and economic motivation (99%). Maximum respondents had medium level of contact with Extension agency (65%), credit orientation (55%), decision making behavior (73%), training undergone (83%), scientific orientation (60%) and marketable surplus (77%). Majority of respondents lack storage facilities (98%) and marketing intelligence (83%). Majority of farmers prefer rice mills (46%) as market channel.

Keywords

Rice variety CO 51,
socio economic
profile,
Kancheepuram,
Tiruvarur districts

Article Info

Accepted:
12 September 2020
Available Online:
10 October 2020

Introduction

Globally, rice is the primary food crop for more than 3 billion people and therefore investing in rice aimed at tangible increase in rice productivity is vital; else, the demand would outstrip its supply (Robert S. Zeigler, 2014). The scenario is no different in India, with majority of states comprising South, West and Eastern part of the country having rice as their staple food. Rice is cultivated in over 40 million hectares with a production of

around 128.44 million tons. Rice is estimated to contribute about 2.5 % of GDP of India and provides employment to a larger work force in crop production and processing. In such a situation, adoption of High Yielding Varieties (HYV) and hybrids in rice is essential for continuous increase in production. With shrinking cultivable land, the most vital parameter is increasing productivity. Periodical introduction of HYV with stepped up productivity is mandatory. Most of the HYVs are region specific; best suited to the

local agro zones. Yet, some varieties due to their lineage are suitable to varied climatic zones across the nation and sometimes across the globe too. The variety CO 51 is one such variety has been adopted on a large scale in Tamil Nadu besides 12 other states in India (Minutes of the 76th Meeting of Central Sub-Committee, 2017).

The variety has a remarkable place in improving the production level which has covered 40 per cent area or 2 lakh ha of Cauvery delta after its release in 2013 (*Hindu dated Jan 15, 2015*). The performance of the variety made the farmers of Kancheepuram district and Tiruvarur districts to adopt this variety on a large scale when compared to other districts. The fact was supported by the quantum of seed distribution in these districts even during immediate phase after its release. Hence the study was made in these two districts to know the impact and socio economic factors influencing CO 51 farmers.

Materials and Methods

The rice variety CO 51 is recommended for the *Sornavari* and *Kuruvai* seasons in Tamilnadu (Robin *et al*, 2019). The districts, Kancheepuram district and Tiruvarur have a remarkable area under rice cultivation in *Sornavari* and *Kuruvai* districts respectively. Hence these two districts were purposively selected for the study. Out of the 20 blocks together in two districts, Kancheepuram block, Sriperumbuthur block, Walaja block from Kancheepuram district and Nanillam, Tiruvarur and Valangaima nblocks from Tiruvarur were selected. Totally three villages from each block and 18 villages were selected with the help of State Department of Agriculture. Three hundred farmers who cultivate CO 51 variety were randomly selected and the profile was studied under 19 variables. Primary data from the farmers were collected with the help of a well structured

and pre tested interview schedule through personal interviews.

Results and Discussion

Every individual is unique in many aspects and their response to any situation is influenced by their character which is built over ages by factors – internal and external. Yet, they can be grouped under certain common categories based on their responses which helps estimating their response for a given situation based on the data collected and analyzed by scientists over the years. Hence collection of data and analyzing the basic profile of the farmers in the study area is essential for research in Agricultural Extension.

This research work includes collection of data on the profile of farmers under commonly accepted profile characteristics and interpreted the same by using appropriate research methodologies. The findings of the data are discussed.

Age

The distribution pattern of the respondents according to their age was presented. The distribution of respondents in both the districts is on the similar pattern. Majority of the respondents were old in both the districts (60%). Ageing is not a deterrent for those who are willing to try new technologies.

These farmers who have taken up Agriculture due to inheritance still want to make it remunerative and hence willing to try new varieties that give them better dividends. Craving for urban life may be one of the reasons for low percentage in young category. Similar findings corroborate with that of Periyar (2012) who reported that majority of the respondents belonged to old aged (52.00 %) category.

Educational status

Education is a key tool to awaken the knowledge and wisdom which generally gives a capability to accept and adopt innovations. Majority of farmers belong to middle education category in Kancheepuram district (44%) while secondary education (58%) in Tiruvarur district. This implies that there is no need of higher education level for adopting any new variety. Sivaraj (2014) reported that respondents were higher in middle school education followed by secondary school education.

Annual income

Income is a very critical component in the life of any individual so much so that it will have direct and indirect influence on all the acts of the individual. Therefore, Annual income was selected as a variable in this study. Majority of the respondents in both the districts belong to high income category (47 % in Kancheepuram district and 46 % in Tiruvarur district). The results convey that high income group adopts a new variety quicker. In contrast, the result of Thangaraja *et al.*, (2008) showed that most of the dry land farmers of Dindigul district belonged to medium income category.

Occupational status

Occupational status is an indication of the individual's degree of attention paid to the activity chosen as occupation or source of bread. Studying this variable is considered important as a factor influencing the individual's attitude and decision towards technologies / input that would give scope for better revenues. Majority of the respondents in both districts (65 % in Kancheepuram district and 63 % in Tiruvarur district) had Agriculture as their only occupation. This is the reason for considering the respondents to

be chosen based on the adoption of rice variety CO51. Since Agriculture is the only source of income, they have a necessity to improve their livelihood through Agriculture. Anusuya *et al* (2020) and Thangaraja (2004) also reported that majority respondents had farming occupation.

Farm size

Farm size plays a key role in innovation decision. Farmers with larger land holdings will have the wherewithal to test an innovation in a portion of their farm unlike marginal and small farmers for whom affordability to take risk. Majority were small farmers (43 % in Kancheepuram district and 34 % in Tiruvarur district). Since this is a purposive sample on the farmers who adopted the rice variety CO 51, it can be construed that farmers irrespective of the land holding look for avenues to increase their revenue. However, Anand (2011) addressed that nearly one-third of the respondents were found to operate marginal sized farms.

Farming experience

The experience of a farmer gives the knowledge and wisdom to take decisions while going forward. The results in Table 1 revealed that majority of farmers in both districts had low level of farm experience (41% in Kancheepuram district and 43 % in Tiruvarur district). This revealed that farmers in quest of new knowledge tend to adopt new varieties like CO 51. Similar observation was recorded by Nalini (2004), who stated that majority of the respondents had low level of farming experience.

Social participation

Social participation is defined as a person's involvement in activities that provide interaction with others in the society and

expresses interpersonal interactions outside the home. The results in Table 1 revealed that farmers in both the districts had high level of social participation (54% in Kancheepuram district and 65% in Tiruvarur district).

The findings of Sangeetha (2013) revealed that 64.00 per cent of the respondents had medium level of social participation. Knowledge from fellow peasants makes them to know and adopt newer varieties like CO 51 quickly.

Mass media exposure

The impact of this variable needs to be studied from a different perspective viz., the ability of the individual to choose the right message from the available crowd of channels. It can be inferred that the mass media exposure was at high level in both Kancheepuram district and Tiruvarur districts (88% and 87% respectively). This could be attributed to penetration of farm related information through latest tools like social media.

Table.1 Distribution of respondents according to the socio economic profile (N = 300)

Categories	Kancheepuram District (n=150)		Tiruvarur District (n=150)		Total (N=300)	
	Numbers	Per cent	Numbers	Per cent	Numbers	Per cent
1.Age						
Young (< 35 years)	9	6	14	9	23	8
Middle (36 - 45 years)	51	34	47	31	98	35
Old (> 45 years)	90	60	89	59	179	60
Total	150	100	150	100	300	100
2. Educational status						
Illiterate	11	7	0	0	11	4
Functionally literate	0	0	1	1	1	0
Primary education	11	7	5	3	16	5
Middle education	66	44	38	25	104	35
Secondary education	48	32	87	58	135	45
Collegiate education	14	9	19	13	33	11
Total	150	100	150	100	300	100
3. Annual income						
High	70	47	69	46	139	46
Medium	53	35	39	26	92	31
Low	27	18	42	28	69	23
Total	150	100	150	100	300	100
4. Occupational status						
Agriculture	97	65	95	63	192	64
Agriculture + wages	41	27	32	21	73	24
Agriculture + business	9	6	17	11	26	9
Agriculture + government/private service	3	2	6	4	9	3
Total	150	100	150	100	300	100

5. Farm size						
Marginal	38	25	29	19	67	22
Small	64	43	51	34	115	38
Medium	32	21	53	35	85	28
Big	16	11	17	11	33	11
Total	150	100	150	100	300	100
6. Farming experience						
Low	61	41	65	43	126	42
Medium	51	34	38	25	89	30
High	38	25	47	31	85	28
Total	150	100	150	100	300	100
7. Social participation						
Low	2	1	0	0	2	1
Medium	67	45	53	35	120	40
High	81	54	97	65	178	59
Total	150	100	150	100	300	100
8. Mass media exposure						
Low	0	0	1	1	1	0
Medium	18	12	18	12	36	12
High	132	88	131	87	263	88
Total	150	100	150	100	300	100
9. Extension agency contact						
Low	9	6	5	3	14	5
Medium	97	65	97	65	194	65
High	44	29	48	32	92	31
Total	150	100	150	100	300	100
10. Information seeking behavior						
Low	0	0	19	13	19	6
Medium	0	0	131	87	131	44
High	150	100	0	0	150	50
Total	150	100	150	100	300	100
11. Economic motivation						
Medium (15 - 28)	1	1	2	1	3	1
High (29 - 42)	149	99	148	99	297	99
Total	150	100	150	100	300	100
12. Credit orientation						
Low (> 7)	8	5	1	0	9	3
Medium (8 - 10)	96	64	70	47	166	55
High (> 10)	46	31	79	53	125	42
Total	150	100	150	100	300	100
13. Decision making behavior						
Low	21	14	11	7	32	11
Medium	119	79	101	67	220	73

High	10	7	38	25	48	16
Total	150	100	150	100	300	100
14. Training undergone						
Low	18	12	6	4	24	8
Medium	128	85	122	81	250	83
High	4	3	22	15	26	9
Total	150	100	150	100	300	100
15. Scientific orientation						
Low	5	3	40	27	45	15
Medium	112	75	69	46	181	60
High	33	22	41	27	74	25
Total	150	100	150	100	300	100
16. Storage facilities						
Facility available	1	1	5	3	6	2
Facility not available	149	99	145	97	294	98
Total	150	100	150	100	300	100
17. Marketable surplus						
Low	20	13	3	2	23	8
Medium	83	55	147	98	230	77
High	47	31	0	0	47	16
Total	150	100	150	100	300	100
18. Market intelligence						
Yes	126	84	122	81	248	83
No	24	16	28	19	52	17
Total	150	100	150	100	300	100
19. Preference of Market channel						
Regulated market / DPC	6	4	114	76	120	40
Local trader	18	12	3	2	21	7
Commission mundies	7	5	15	10	22	7
Rice mills	119	79	18	12	137	46
Total	150	100	150	100	300	100

Extension agency contact

Extension agents are the frontline and first-hand information dissemination personnel who may be from different source like TNAU, KVK, State Department of Agriculture, private companies. Contact with extension agency by the farmers can have an impact on the first hand knowledge on new technologies. A perusal of the results revealed that majority of the CO 51 rice growers in both the districts had medium level of contact

(65% in both the district). The results showed the consistent contact with the extension personnel. This finding is in line with the Anusuya *et al.*, (2020) who reported that majority of the cashew growers had medium level of extension agency contact.

Information seeking behavior

Information seeking behavior is the attitude and action by the farmer to seek desired information from the available resources. All

the farmers in Kancheepuram district (100 %) had high information seeking behavior (100% in Kancheepuram district) while medium level in Tiruvarur district (87%). This can be interpreted as the desire for seeking information on innovations was high among farmers who had adopted rice variety CO 51. Balsubramaniam (2005) reported similar findings that more than one third of the total respondents belong to high and medium levels of information source utilization nature.

Economic motivation

Motivation is the process of stimulating people to actions to accomplish the goals. The stimulus that pushes a farmer to accomplish goals in terms on monetary benefits can be defined as economic motivation. The results collected revealed that the economic motivation was high across almost all the growers of rice variety CO 51 (99% in Kancheepuram district and 97 % in Tiruvarur district). This gives a clear indication that economic motivation plays a key role in adoption of new technologies. In contrast, Anusuya *et al.*, (2020) reported that majority of cashew growers had medium level(66.66 %) of economic motivation

Credit orientation

The perception and attitude towards availing credit for farming can be broadly described as credit orientation. Further, the source of credit may have a direct or indirect influence on the farming operations. Majority had medium level of orientation towards credit (64%) in Kancheepuram district whereas majority had high level in Tiruvarur district (53 %). Thangaraj (2004) also reported such a high level of credit orientation. Thus we can infer that farmers depend and necessarily seek credit for the farm operations. Dependence on credit has an influence on the procurement of farm input including variety of rice to be grown.

Decision making behavior

It can be explained as a process of consciously choosing action from available alternatives so as to integrate them for achieving the goal. This is vital to be studied especially to identify the reasons for adoption of rice variety CO51. Majority of respondents had a medium level (79% in Kancheepuram district and 67 % in Tiruvarur district). Muthukumar *et al.*, (2020) observed that exactly half of the paddy growers made joint decision by having consultation with the family members.

Training undergone

Farmer training programmes are conducted by various institutions for imparting knowledge and skill to the farmers aimed at converting subsistence farming to a commercial level. The training programmes give the farmers an opportunity to gain hands-on experience in new technologies. The data analyzed in both the districts revealed that majority of the farmers had medium level of training (more than 80 %).Sow (2015) reported that more than half (53.6 %) of the farmers participated in training on Agriculture in a rice cultivation workshop.

Scientific orientation

According to Supe (1969), it is the degree of farmers' orientation to the use of scientific methods in farming, decision-making as well as their attitude towards science based innovations. A farmer who has a positive inclination towards science and technology will be more open towards innovation. While, such orientation will be natural for the innovative farmers, it can be stimulated in the minds of early majority and early adopters. Majority of growers in both the districts had medium level (75% in Kancheepuram district and 46 % in Tiruvarur district) of scientific

orientation. This can be attributed to the committed efforts taken by State Department of Agriculture to inculcate knowledge on new technologies/ varieties among the rice growers. This finding corrugates with the higher level of trainings attended, decision making process, extension agency contact and mass media exposure in the present study. Dharmalingam (1990) also emphasized that paddy farmers had such a medium level of scientific orientation (55%).

Storage facilities

Almost all the farmers lack storage facility on their own. This can be attributed to so many factors namely: majority farmers being marginal and small, cannot afford to have a separate space and infrastructure for own storage, farmers are not ready to face unexpected risk due to withholding the stocks, availability of sale prospects at their proximity with traders and DPCs. Agriculture as a business opportunity in terms of commodity trade is not prevalent in crops like rice unlike crops like spices and condiments. Hence it is no surprise that there is no storage facility among rice growers.

Marketable surplus

Marketable Surplus is the volume of produce a farmer can afford to sell for generating revenue after meeting the requirements like family consumption, payment of wages in kind, feed, seed, wastage and purchases. Broadly this surplus decides the income of a farmer. The results showed that majority of the farmers had a medium level of market surplus (55 % in Kancheepuram district and 98 % in Tiruvarur district). Majority of farmers after reserving for self consumption can able to market the produce. This implies that farmers are taking up commercial cultivation of CO 51 as it fetches better revenue.

Market intelligence

Market intelligence is a crucial skill that will enable farmers to make informed decisions about what to grow, when to harvest, to which markets produce should be sent, and whether to store it or not. The most important marketing intelligence need of the farmer is price intelligence, as that will help in choosing the right time and channel to sell the produce for generating better or maximum revenue. The data on the distribution of respondents according their market intelligence indicates majority of the rice variety CO 51 growers in both the districts had very high market intelligence. This is in line with the high information seeking behavior of the selected farmers. Thus, it can be construed that farmers keep a tab on the market information and sell their produce through the source that fetches better returns.

Preference of Market channel

Farmers chose a channel to market the produce by analyzing various factors. In Kancheepuram district, majority of the farmers (79%) had indicated Rice mills as their preferred market channel while DPC is less preferred. In contrast, in Tiruvarur district, majority of farmers (76%) had preferred DPC as their market channel, followed by rice mills (12%). This clearly indicated that DPC remains the best option for the Cauvery delta district which can be attributed to the highly active institutional system like PACS, DPC, etc., The findings from the data corroborates with the results under decision making behavior. Further, the findings reveal that the market channel preference is largely influenced by the availability and proximity of the marketing structure in the locale or vicinity of farmers.

Majority of the respondents are old age group. In the era of corporate and Hi tech agriculture,

the youth participation will enhance the adoption of newer high performing varieties. Extension activities to attract more youth on a large scale are to be taken up. As nearly half of the respondents had secondary education level only, Extension methods that are more visually appealing are to be adopted. Majority of respondents belong to high level of annual income will have access to modern communication tools that made them to adopt newer varieties quickly.

More Extension strategies aimed at creating conviction that adopting new varieties will uplift their standard of living as majority respondents were small farmers, farming as their occupation and had low level of farming experience.

Maximum respondents had high level of social participation, mass media exposure and economic motivation but medium level of contact with Extension agency, information seeking behavior, credit orientation, decision making behavior, training undergone, scientific orientation and marketable surplus. This implies that the respondents profile on social and mass media exposure seems to be not focused on critical inputs related to farming. Hence, strategies to orient their focus on technologies through extension methods like result demonstrations, sharing success stories through social media, participatory training methods, opinion leaders, etc.,

Storage facilities are not available for majority of the respondents, as farmers have the habit of moving the stocks to markets directly from the field. Majority of respondents had high level of marketing intelligence and hence chose the right channel to sell their produce. Majority of farmers prefer rice mills as market channel for better remuneration.

References

- Anand. K. 2011. Study on critical analysis on adoption of dryland technologies Unpub. MSc(Ag.)Thesis, Agricultural College and Research Institute, Coimbatore.
- Anusuya, A., Balasubramniam, P and SrideviKrishnaveni, T.R. 2020. Socio economic characteristics of the cashew growers of Taminadu.- An analysis. *Int. J.Curr. Micobiol. App. Sci.*, 9(7): 1790-1801.
- Balasubramaniam, P. 2005. Developing TOT strategy for water management in canal command area of lower Bhavani project. Unpub PhD Thesis, TNAU, Coimbatore
- Dharmalingam, P. 1990. Weedicide technology diffusion among rice farmers. Unpub. M.Sc.(Ag.) Thesis, AC&RI, TNAU, Madurai.
- Hindu E newspaper, Jan 15, 2015.<https://www.thehindu.com/news/cities/Coimbatore/new-paddy-variety-becoming-popular/article6790760.ece>
- Minutes of the 76th Meeting of Central Sub-Committee on Crop Standard's, Notification and Release of Varieties for Agricultural Crops. No. 3-52 / 2016 – SD- IV, GOI, Ministry of Agriculture and Family Welfare, dated 27.04.2017
- Muthukumar, R., Sindhuja, R and Jayasankar, R. 2020. Socio economic and pshychological characteristics of the paddy growers in Nagapattinam district of Tamilnadu. *Plant Archives*. Vol 20. Supplement 1. 1619-1624.
- Nalini, M. 2004. Ecofriendly technologies utilization among paddy farmers. Unpub. MSc (Ag.) Thesis AC&RI, TNAU, Madurai
- Periyar Ramasamy. 2012. Study on the influence of climate change and socio economic factors on the livelihood of farmers in tank command area. Unpub.

- Ph D Thesis, AC&RI, TNAU, Coimbatore
- Robin, S., Mohanasundaram, K., Manonmani, S., Rajeswari, S., Jeyaprakash, P., Pushpam, R., Rabindran, R., Suresh, S., Ravichandran, V. and Radhamani, S. 2019. TNAU Rice CO 51 (IET 21605) - A high yielding short duration fine grain rice variety for Tamil Nadu. *Electronic Journal of Plant Breeding*, 10 (2); 324-333.
- Sangeetha. S. 2013. Assessment of perceived impact of climate change on Agriculture and developing suitable strategies for sustainable development. Unpub. Ph D Thesis, AC&RI, TNAU, Coimbatore
- Sivara, P. 2014. Impact of climate change on livelihood and food security among small and marginal farmers – An analysis. UnpubMSc(Ag.) Thesis, AC&RI, TNAU, Coimbatore
- Sow, Mounirou Seck, Papa Abdoulaye, Maiga, Illiassou Mossi Laing, Mark Ortiz, Rodomiro Ndjioudjop, Marie-Noelle 2015 “Farmers’ rice knowledge and adoption of new cultivars in the Tillabéry region of western Niger” *Agriculture & Food Security*, Vol 4 (1): p 5
- Supe, S.V.1969. Factors related to different degrees of rationality in decision making among farmers. Unpub PhD Thesis, Division of Agricultural Extension, IARI, New Delhi.
- Thangaraja, K. 2004. Socio economic analysis of dry farming in Dindugul district of tamilnadu. Unpub MSc (Ag) Thesis TNAU, Coimbatore.
- Thangaraja Karthikeyan, Asokhan and Rajasekar. 2008. Socio economic analysis of dry farming in Dindugul district of Tamilnadu. *MAJ*.95 (1-6): 120-128.

How to cite this article:

Dharmalingam, P., P. Balasubramaniam and Jeyaprakash, P. 2020. Study on Socio Economic Characteristics of Rice Variety CO 51 Growers of Tamilnadu. *Int.J.Curr.Microbiol.App.Sci*. 9(10): 1607-1616. doi: <https://doi.org/10.20546/ijcmas.2020.910.192>