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Socio-economic characteristics of the dryland farmers in Dindigul district of Tamil Nadu

K. THANGARAJA, C. KARTHIKEYAN, M. ASOKHAN AND R.RAJASEKARAN
Department of Agrl. Extension and Rural Sociology, TNAU, Coimbatore -3

Abstract : The study was taken up with sample size of 90 farmers consisting 45 Maize growers and 45 Sorghum growers in the Reddiarchathiram block of Dindigul district in Tamil Nadu with an objective to analyse the socio-economic characteristics of the dryland farmers The profile characteristics that were studied revealed that most of the maize and sorghum growers were old aged, possessed high educational status, did agriculture as main occupation, majority of them belonged to nuclear family, possessed large farm size and medium level of farming experience, annual income, possession of livestock, mass media exposure, economic motivation, high level of contact with extension agency, risk orientation and credit orientation.

Key words : Dry land, Socio-economic characteristics, Maize and Sorghum

Introduction

Dry land area receives less than 750 mm rainfall. Out of the net sown area of 136.18 m ha, the dry land accounts for 93.13 m ha (68.4%) and contribute 55 million tonnes of food grain production. This dry land agriculture from 93.13 m ha supports 40 per cent of human population, 60 per cent of cattle heads and contributes 44 per cent to total food grain production in India (Kannaiyan *et al.*, 2001). So, for meeting the targeted food grain production of 240 million tonnes in the beginning of 21st century, production from dry lands has to be increased from 60 million tonnes to about 144 million tonnes by 2000 AD (Veerabadran *et al.*, 2000).

In Tamil Nadu, the area under dry farming constitutes 52 per cent of the total cultivable area contributing to 40 per cent of total food production. The productivity of crops grown in dry land is not only low but also remains stagnant over years. Tamil Nadu has a total geographical area of 13 m ha, of which 7 m ha is cultivable area. From the total cultivable area, around 3.1m ha are occupied by dry land crops. Most of the areas in Tamil Nadu come under semi arid tropical climate except the hilly regions and East coast. Out of 5.50 m ha of net sown area, nearly 3.20 m ha are rain fed (Kannaiyan *et al.*, 2001).

Majority of the dryland farmers are small farmers with scarce resources. The poor resource base allows only low input subsistence farming with low and unstable crop yield. The low productivity of agriculture in dry farming regions is due to the cumulative effect of many constraints for crop production. Such constraints need to be identified to overcome with suitable remedies. Keeping this

fact in view a study was conducted with an objective to analyse the socio-economic characteristics of the dryland farmers. Increased population and less per capita availability of land created an immediate necessity to increase productivity in dry land area and hence there's a strong need to channelise the efforts to increase the crop yield by dry land farmers.

Materials and Methods

The study was taken up in Dindigul district of Tamil Nadu. Reddiarchathiram block was purposively selected for the study, since their main occupation was agriculture, which depended on poor and erratic rainfall. Majority of the farmers in the sampled block had been practicing dry farming. The sample size was 90 farmers consisting 45 Maize growers and 45 Sorghum growers. The selection of 30 farmers was done at random in each village. Remaining 10 farmers were selected from each of the nine villages covering three revenue villages using simple random sampling technique. The data were collected with well-structured and pre-tested interview schedule. Percentage analysis was used for data analysis.

Results and Discussion

In any social science research, a clear discernment on the composition of the object helps in a better way to interpret the data gathered for the study. Hence, the compositions of the study were analyzed and the findings are presented as follows:

l. Age

It could be observed from Table 1, that nearly half (44.41%) of the maize growers belonged to the old age group (46-85 years), one-third (33.40%) of growers belonged to the middle age group (36-45 years) and 22.2 per cent to the young age group (25-35 years).Similarly it could be seen with regard to sorghum growers that a majority (66.70%) were of old aged (56-67 years) followed 24.4 per cent of them belonged to middle age (46-55 years) and the rest (8.9%) of them belonged to young age group (27-45 years). It could be inferred that a majority of the dryland farmers belonged to the old age group (55.55%), about one-third (28.90%) belonged to middle age group and the remaining (15.55%) were of young age group.

2. Educational status

Nearly half (46.7%) of the maize growers possessed high level of education (above 8th class), one-fifth of them had education upto the medium level (6th to 7th) and rest one-third (33.3%) of the maize growers had low level (illiterate to 5th) of education. Sorghum cultivators, (42.2 %) had high level of education (above 8th class), nearly one-third (31.1 %) had medium level of education (5th to 7th), more than one-fourth (26.7%) of sorghum cultivators had low level of education (Illiterate to 4th). It could be inferred that nearly half (44.45) of the dryland farmers had high level of education, one-fourth (25.55%) had medium level of education, followed by cultivators who had low level of education (30.00%). It was observed that most of the dryland farmers were able to read and write. This might be the reason for the higher proportion of educational status observed among dryland farmers.

3. Occupation

A majority (62.22%) of the maize growers did agriculture as their main occupation and more than one-fourth (26.66%) respondents practiced agriculture as main in combination with other occupation as subsidiary. A negligible proportion of respondents did agriculture as subsidiary with other occupation as main.

Table 1. Socio-economic characteristics of the dryland farmers (n=90)

S. No.	Variables	Category	Maize grower (n=45)		Sorghum grower (n=45)		Over all (n=90)	
			Number	%	Number	%	Number	%
1.	Age	Young	10	22.20	4	8.90	14	15.55
		Middle	15	33.40	11	24.40	26	28.90
		Old	20	44.40	30	66.70	50	55.55
2.	Educational status	Low	15	33.30	12	26.70	27	30.00
		Medium	9	20.00	14	31.10	23	25.55
		High	21	46.70	19	42.20	40	44.45
3.	Occupation	Agrl.only	28	62.22	31	68.88	59	65.55
		Agrl. as main + other occupation as subsidiary	12	26.66	8	17.77	20	22.23
		Agrl. as subsidiary + other occupation as main	5	11.11	6	13.33	11	12.22
4.	Nature of family							
a)	Size of family	Upto5	26	57.80	27	60.00	53	58.90
		More than 5	19	42.20	18	40.00	37	41.10
b)	Type of family	Nuclear	24	53.33	25	55.55	49	54.44
		Joint	21	46.67	20	44.45	41	45.56
5.	Farm size	Low	15	33.30	12	26.70	27	30.00
		Medium	15	33.40	16	35.50	31	34.45
		High	15	33.30	17	37.80	32	35.55
6	Farming experience	Low	13	28.90	15	33.30	28	31.11
		Medium	17	37.80	15	33.40	32	35.60
		High	15	33.30	15	33.30	30	33.30
7.	Annual income	Low	13	28.90	15	33.30	28	31.10
		Medium	17	37.80	15	33.40	32	35.60
		High	15	33.30	15	33.30	30	33.30
8.	Farm power	Low	18	40.00	18	40.00	36	40.00
		Medium	9	20.00	12	26.70	21	23.35
		High	18	40.00	15	33.30	33	36.65

Table 1. Contd...

S. No.	Variables	Category	Maize grower (n=45)		Sorghum grower (n=45)		Over all (n=90)	
			Number	%	Number	%	Number	%
9.	Possession of livestock	Low	13	28.90	15	33.30	28	31.10
		Medium	17	37.80	15	33.40	32	35.60
		High	15	33.30	15	33.30	30	33.30
10.	Mass media exposure	Low	8	17.80	13	28.90	21	23.35
		Medium	22	48.90	16	35.50	38	42.20
		High	15	33.30	16	35.60	31	34.45
11.	Social participation	Low	14	31.10	10	22.20	24	26.65
		Medium	0	0.00	0	0.00	0	0.00
		High	31	68.90	35	77.80	66	73.35
12.	Contact with extension agency	Low	14	31.30	14	31.10	28	31.20
		Medium	15	33.30	14	31.10	29	32.20
		High	16	35.60	17	37.80	33	36.70
13.	Risk orientation	Low	6	13.30	13	28.90	19	21.10
		Medium	18	40.00	16	35.50	34	37.75
		High	21	46.70	16	35.60	37	41.15
14.	Economic motivation	Low	3	28.90	12	26.70	25	27.80
		Medium	7	37.80	18	40.00	35	38.90
		High	5	33.30	15	33.30	30	33.30
15.	Credit orientation	Low	15	33.30	14	31.10	29	32.20
		Medium	14	31.10	15	33.30	29	32.20
		High	16	35.60	16	35.60	32	35.60
16.	Decision making pattern	Low	15	33.30	15	33.30	30	33.30
		Medium	15	33.40	15	33.40	30	33.40
		High	15	33.30	15	33.30	30	33.30
17.	Extent of adoption	Low	17	37.80	19	42.20	36	40.00
		Medium	15	33.33	17	37.80	32	35.56
		High	13	28.90	9	20.00	22	24.45
18.	Yield gap	Low	8	17.80	11	24.40	19	21.10
		Medium	14	51.10	0	35.40	14	43.25
		High	23	31.10	34	40.20	57	35.65

Similar trend of results were observed among Sorghum growers and total respondents too. It was observed that most of the dryland farmers did agriculture as their main occupation because there was no employment avenue in the locale. Other reasons were existence of less number of industries, low investment by dryland farmer coupled with poor economic status. Hence a majority of dryland farmers were engaged mainly in agriculture.

4. Nature of family

a) Size of family

It is evident from table that a maximum (57.8%) of the maize growers had family members upto 5. The rest of (42.2%) of the maize growers had family members greater than 5. Almost a similar trend of result was noted among Sorghum growers. From the table it could be inferred that most (58.9%) of the dryland farmers had family members upto 5 followed by more than 5 members (41.1%).

b) Type of family

The maximum (53.33%) of the maize growers possessed nuclear family and 46.67 per cent of the respondents come under joint family system. Almost a similar trend of result was noted among sorghum growers. The farmers had nuclear family followed by (54.44%) joint family (45.56%)

5. Farm size

One-third (33.3%) of the maize growers possessed lesser extent of farm size (1.0 ac to 3.0 ac) and one-third (33.4%) of the respondents, had medium sized farms (3.25 ac to 5.0 ac), followed by one-third (33.3%) of respondents operated bigger farms (5.75 ac to 35.00 ac). Almost a similar trend of result was noted among Sorghum growers. From the Table it is revealed that more than one-third (35.55%) of the dryland farmers belonged to bigger land holding group followed by medium (34.45%) and low (30.00%).

6. Farming experience

It could be observed that 37.8 per cent of maize growers had medium level of farming experience (20 to 25 years), one-third (33.30%) high (27 to 60 years) and less than one-third (28.9%) low level of farming experience (2 to 16 years). It is also evident from the Table that in the case of sorghum growers, one-third (33.30%) of them had low (5 to 25 years), medium (27 to 30 years) and high level (35 to 50 years) of farming experience. More than one-third (31.11%) had low level of farming-experience followed by medium (35.60%) and one-third (33.3%) had high level of farming experience.

7. Annual income

In the case of maize growers more than one-third farmers (37.8%) had medium level of annual income (ranging from Rs. 15,000 to 27,000) followed by (33.3%) high (Rs. 28,000 to 54,000) and (28.9) low level of annual income (Rs. 3000 to 14,500). One- third (33.3%) of the sorghum growers had lower level of income (Rs. 1500 to 8000) followed by medium (Rs. 9,000 to 17,000) and high level of annual income (Rs. 18,500 to 1.0 lakh).

It could be observed that more than one-third (35.6%) of the farmers possessed medium level of annual income, followed by high (33.3%) and low (31.1%) levels of annual income. The probable reason might be that the cost of inputs like seeds, fertilizers were high. Some times crop failure, fluctuating market price during crop harvesting stage also could have been the possible reasons for the farmers having medium level of annual

income. Also most of the dryland farmers generated income through agriculture and dairy. This is also the possible reason for the medium level of annual income for dryland farmers.

8. Farm power

The Table indicated that 40.00 per cent of the maize growers had low and high level of farm power status. One-fifth (20.00) of them possessed medium level of farm power status. Further more 40.00 per cent of the sorghum growers possessed low level of farm power status, followed by 33.3 per cent and-more than one-fourth (26.7%) of the growers belonged to medium and high level of farm power status.

9. Possession of livestock

About 37.8 per cent of the maize growers accounted for livestock resources at medium level followed by high (33.3%) and low level (28.9%) of livestock possession. One-third (33.3%) of equal distribution pattern was also observed among the three levels of sorghum growers. This implies that livestock resource was not a distinguishing feature among sorghum growers. It might be concluded that most of the dryland farmers had nearly equal proportion of livestock possession which facilitated them to get additional income, employment opportunity, proper utilization of available resources like manure, straw etc. This might be the reason for most of the dryland farmers having equal proportion of livestock possession.

10. Mass media exposure

Nearly half (48.9%) of the maize growers had medium level of mass media exposure, followed by one-third and 17.8 per cent under high and low levels of mass media exposure. It further indicated that among the sorghum growers more than one-third (35.5%) of the growers had medium and high level of mass media exposure followed by one-fourth (28.9%) of the farmers under low level of mass media exposure.

From the Table it is revealed that under dry farming condition nearly half (42.2%) of the respondents had medium level of mass media exposure, followed by 34.45 per cent with high and the rest (23.35 %) had low level of exposure to mass media. It was further revealed that use of radio was a common sight in the area under study. Besides people have been listening the community television and habituated to listen and read newspapers and magazines. Farmers usually attended meetings and trainings organized by the Fertilizers and Pesticides Companies (SPIC), Development NGOs and by the state department of agriculture. All these exposures and opportunities would have enhanced the dryland farmers to have medium level of mass media exposure.

11. Social participation

Most of the maize growers (68.9%) had high level of social participation and the remaining (31.1%) had low level of social participation. In case of sorghum growers, that a majority of them (77.8%) had high level of social participation followed by 22.20 per cent of the farmers under low level of social participation. Further a majority (73.35%) of the dryland farmers had high level of social participation and the remaining one-fourth (26.65%) had low level of social participation.

12. Contact with extension agency

Among maize growers more than one-third (35.6%) of the respondents had high level of contact with extension agency, 33.3

per cent had medium level of contact while the rest of the farmer had low level of contact with extension agency. It could be noticed that among the sorghum growers, 37.8 per cent had high level of contact with extension agency, followed by medium and low (31.1%) levels of contact with extension agency.

It could be inferred that on the whole 36.7 per cent had high level of extension agency contact, followed by medium (32.2%) and low (31.2%) levels of contact with extension agency. This finding contradicts the finding of Sophia (1991) who stated that half of the dryland farmers had medium level of extension agency contact. It is understood that the farmers are being contacted by the extension staff at periodical intervals. More over fertilizers and pesticide traders also frequently contact and offer technical advices to the farmers. For the immunization and treatment for diseases of livestock, veterinary doctors also extended services for the village people. More often the companies and development NGOs are visiting the village. This might be the probable reason for the respondents having high level of contact with extension agency.

13. Risk orientation

Nearly half of the maize growers (46.7%) had high level of risk orientation, followed by medium (40.0%) and low (13.3%) levels of risk orientation. More than one-third (35.5%) of the sorghum growers had medium and high level of risk orientation. The remaining less than one-third (29.0%) of them had low level of risk orientation.

It is inferred that 41.15 per cent of dryland farmers had high level of risk orientation followed by medium (37.75%) and low (21.1%) levels of risk orientation respectively. This finding contradicts with the findings of Puspha (1996) and Sujatha (1996) where in it is noticed that 56.67 per cent of the garden land farmers and 51.67 per cent of farm women had low risk orientation.

High level of risk preference might be due to the uncertainty of income from their farm, because of crop failure due to unassured rainfall during the cultivation of sorghum and maize crops in dryland areas. Most of the dryland farmers obtained inputs like seeds and fertilizers from input dealers through credit and also few farmers got credit from other private money lenders for an exorbitant interest. So, most of the dryland farmers had been practicing crop production through credit orientation. This might be the reason for dryland farmers facing high risk during crop production.

14. Economic motivation

It is observed that more than one-third (37.8%) of the maize growers had medium levels of economic motivation, followed by high (33.3%) and low (28.9%) level of economic motivation. It is also observed that among the sorghum growers 40.0 per cent of the farmers had medium level of economic motivation, followed by high (33.3%) and low (26.7%) levels of economic motivation.

It may be noticed that 38.9 per cent had medium level of economic motivation, followed by high (33.3%) and low (27.8%) levels of economic motivation. Existence of medium level of economic motivation might be due to the poor returns from their farm which might be due to the dry spell prevailed in the study area. However timely supply of inputs like seeds and fertilizers would increase the profit and hence the result is justified.

15. Credit orientation

One-third (35.6%) of the maize growers had high level of credit orientation. Nearly one-third (31.1%) had medium level of credit orientation followed by one-third (33.3%) of the farmers who had low level of credit orientation. It could be indicated that among sorghum growers, more than one-third (35.6 %) had high level of credit orientation, followed by medium (33.3%) and low (31.1%) levels of credit orientation.

It may be concluded that more than one-third (35.60%) of the dryland farmers had high level of credit orientation followed by medium (32.22%) and low level of credit orientation. It is obvious that most of the dryland fanners were dependant on local sources (village money lenders, friends and relatives) of credit than institutional sources (Bank, Co-operative society) of credit. Facing hardship to get credit in time from sources, would have delayed the agricultural operation'. Moreover they were not able to sell the product in right market place in right time. This might be the probable reason for most of the dryland farmers having medium level of credit orientation.

16. Decision making pattern

Each one-third (33.3%) of the maize farmers had low, medium and high levels of decision making pattern. It is also evident from the Table that, in case of sorghum growers each one-third (33.3%) of the respondents had low, medium and high levels of decision making pattern.

It could be observed that most of the dryland farmers in each category (33.3%) had low, medium and high levels of decision making pattern with respect to agricultural and allied activities like dairy and poultry. No variation in decision making pattern was observed in the study. It is revealed that decision making regarding purchase of agricultural inputs, loans/credit, investment decisions, seeds and sowing, intercultivation, harvesting, quantity of produce to be stored, allied activities and marketing were done by the farmers alone, consulting the spouse or elders in the family and also equally by consulting with others (neighbours, progressive fanners, relatives and extension officers). This might be the reason for no variation regarding the decision making pattern among the dryland farmers.

17. Extent of adoption

More than one-third (37.8%) of the maize growers had low levels of adoption, followed by medium (33.33%) and high (28.9%) levels of adoption. It is further noticed that 42.2 per cent of the sorghum growers had low level of adoption, followed by medium (37.8%) and high (20.0%) levels of adoption.

It could be inferred that while taking into account both the crops (sorghum, maize) it was found that almost 40.00 per cent of the respondents were found to come under low level extent of adoption category, 36.55 per cent of the respondents had medium level extent of adoption in dryland technologies. The rest one-fourth (24.45%) of the dryland farmers had high extent of adoption of dryland technologies. It was observed that the dryland farmers due to inadequate investment could not get timely inputs, like seeds and fertilizers and other agricultural inputs. Lack of farm power and lack of contact with agricultural officers. These would have been the possible results for low level of adoption of dryland technologies.

18. Yield gap

The data regarding the potential yield of the best farmer in selected revenue villages (Reddiarchatram block) cultivating maize and sorghum, their area and average yield per acre obtained by the farmers (maize, sorghum) were taken into account to assess the yield gap. To gain a better understanding the respondents were categorized into low, medium and high based on cumulative frequency.

It is obvious that, 51.1 per cent possessed medium level of yield gap on maize crop. Nearly one-third (31.1 %) of the respondents possessed high level of yield gap. The rest (17.8 per cent) of the respondents possessed low level of yield gap. Among the sorghum growers, 40.2 per cent of them had high level of yield gap on sorghum production followed by 35.4 per cent of the sorghum growers had medium level of yield gap. The rest (24.4%) of the respondents had lower level of yield gap.

It could be inferred that in both the crops, it was found that 43.25 per cent of the respondents were found to be medium category in relation to yield gap followed by 35.65 per cent of them high level of yield gap. The rest 21.10 per cent of the respondents had low level of yield gap. The medium level of yield gap obtained by the dryland farmers might be attributed to the level of input use (or) due to extent of adoption of the recommended practices (or) due to some constraints confronted by the farmers.

The salient findings of the study are as follows : The profile characteristics that were studied revealed that most of the maize and sorghum growers were old aged, possessed high educational status, did agriculture as main occupation, majority of them belonged to nuclear family with family members upto 5, possessed high farm size and medium level of farming experience, annual income, possession of livestock, mass media exposure, economic motivation and had low level of farm power, high level of contact with extension agency, risk orientation and credit orientation. Maize and sorghum growers each had low, medium and high level of decision making pattern. The assessment of the extent of adoption and yield gap showed that most of the maize and sorghum growers had low and medium level of gap.

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