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Socio-economic characteristics and information seeking behaviour of livestock farmers of Namakkal district of Tamil Nadu

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Abstract
Climate change is one of the most serious threats for sustainable agriculture and livestock development, with adverse impacts expected on the environment, human health, food security, economic activity, natural resource management, and physical infrastructure. The aim of the study is to identify the socio-economic characteristics of the livestock farmers and information seeking behaviour of veterinary and climate related knowledge. The study was carried out in the Namakkal district of Tamil Nadu and the data was collected through structured interview schedule, collected data was analysed using descriptive statistics and association was studied by using chi square test. The results revealed that majority of the respondents were male (75 per cent), literate (85 per cent), belonged to backward community (85 per cent), had family size up to five members (88 per cent), old aged (69 per cent), had agriculture as primary occupation with livestock as secondary occupation (85 per cent) and 95.00 per cent were land holders. Majority of the respondents had not attended any training (85 per cent), had an annual income of more than 0.5 lakh (72 per cent) and contacted veterinary assistant surgeons for seeking veterinary related information (96 per cent). They were member in one organisation (42 per cent) and they utilised television for seeking climate related information (30 per cent). The socio-economic characteristics of livestock farmers and their information seeking behaviour was helpful in designing extension programmes to mitigate and adaptation measures to cope up the climate change.

Keywords: Namakkal District, climate change, sustainable agriculture, livestock farmers, socio-economic characteristics, information seeking behaviour, veterinary knowledge, climate adaptation, extension programmes, descriptive statistics

Introduction
Climate change and food security are two emerging issues being faced by the people in all over the world, particularly those in the developing countries. Agriculture is the livelihood for 800 million people globally and the effect of climate change in agricultural sector is multifaceted. Livestock is an asset of poor and it is highly vulnerable to climatic variabilities and extreme (Calvosa *et al*. 2009) [1] and about 12% of the world population depends solely on livestock for their livelihood (FAO, 2006) [2] and about 20.5 million people depend upon livestock for their livelihood in India (Ministry of Fisheries, Animal Husbandry and Dairying. 2019) [5]. South Asia will be hard hit since agriculture provides employment for 60% of the population. India is one among the most vulnerable countries (Pandit *et al*. 2014) [6] with a geographic disadvantage as it is already in the warmer part of the world. The pace and extent of warming across India is wide spread and undisputed. Tamil Nadu is one of the water starved states in India. It experiences widespread, consecutive droughts (over two or three years) every two decades and in every second year there could be a drought in some part of the state. Climate change is further expected to decrease the number of rainy days and increase the temperature, leading to severe drought which will have more intense impacts on agriculture and allied sector (United Nations Development Programme, 2013) [7]. Thus this research was taken with the objectives to understand the socio-economic characteristics of farmers and their information seeking behaviour in Namakkal district of Tamil Nadu.

Methodology

The study was carried out in Namakkal district of Tamil Nadu state which is located in 11.23°N latitude and 78.17°E longitude in the west centre of Tamil Nadu. It is a semi-arid region and hence agriculture normally depends on seasonal and monsoon characteristics of rainfall. The major soil types found in this district is black soil, brown soil, alluvial soil and mixed soil. The major crop found in this district is Groundnut, Paddy, Cotton, Cumbu, Tapioca, Ragi, Pulses and Millets. In Namakkal district, the dairy population is 1, 70, 508 cattle, 27,315 buffaloes, 2, 98, 029 goat, 36987 sheep and 7 crore poultry as per 20th livestock census. An ex-post facto research design was employed for this study. Four blocks each from irrigated and rainfed areas with highest livestock intensity were selected from Namakkal district. Village panchayats in each selected block were classified into high and low categories based on standard livestock units. Four village panchayats from each block were selected based on standard livestock units. From each village panchayat 10 livestock farmers were randomly selected, thus 320 livestock farmers constituted the respondents for the study. The data were collected by personal interview method using pre-tested structured interview schedule to understand the profile and their information seeking behaviour of the livestock farmers of Namakkal district.

Table 1: Socio-economic characteristics of the livestock farmers, (N=160 +160)

S. No.	Category	Irrigated, No (%)	Rainfed, No (%)	Chi-square value
Age				
1	Young	8 (5.00)	7(4.37)	1.649^{NS}
2	Middle	36 (22.50)	46(28.75)	
3	Old	116(72.50)	107(66.88)	
Gender				
1	Male	128(80.00)	112(70.00)	4.267*
2	Female	32(20.00)	48(30.00)	
Community				
1	Backward community	133(83.12)	142(88.75)	13.828**
2	Most backward community	12(7.50)	15(9.37)	
3	Scheduled caste	2(1.25)	3(1.88)	
4	Scheduled tribe	13(8.13)	0(0.00)	
Marital status				
1	Unmarried	3 (1.88)	2(1.25)	2.587 ^{NS}
2	Married	150(93.75)	149(93.13)	
3	Widow	7(4.37)	9(5.62)	
Educational status				
1	Illiterates	28(17.50)	25(15.62)	2.449 ^{NS}
2	Primary school education	29(18.12)	27(16.88)	
3	Middle school education	26(16.25)	32(20.00)	
4	High school education	44(27.50)	36(22.50)	
5	Higher secondary education	17(10.63)	19(11.88)	
6	Collegiate education	16(10.00)	21 (13.12)	
Family type				
1	Nuclear	86(53.75)	93(58.12)	0.621 ^{NS}
2	Joint	74(46.25)	67(41.88)	
Family size				
1	Up to 5 members	138(86.25)	145(90.62)	1.497 ^{NS}
2	More than 5 members	22(13.75)	15(9.38)	
Occupational status				
1	Livestock farming + Agriculture	3 (1.88)	6 (3.75)	5.140^{NS}
2	Livestock farming + Non-farm occupation	0 (0.00)	3(1.88)	
3	Agriculture + Livestock farming	139(86.87)	137(85.62)	
4	Non-farm occupation + Livestock farming	2 (1.25)	3 (1.88)	
5	Non-farm occupation + Agriculture with livestock	16 (10.00)	11(6.87)	
Land holding				
1	Landless	4(2.50)	6 (3.75)	3.120 ^{NS}
2	Marginal farmers	43(26.87)	45(28.13)	
3	Small farmers	51(31.88)	61(38.12)	
4	Large farmers	62(38.75)	48(30.00)	
Trainings attended				
1	Not attended any training	130(81.25)	142(88.75)	7.017*
2	Attended one training	19(11.87)	16(10.00)	
3	Attended more than one training	11(6.88)	2(1.25)	
Annual income				
1	Up to 0.5 lakh	38 (23.75)	51(31.88)	7.385*
2	0.5 lakh to 1 lakh	55 (34.38)	64 (40.00)	
3	1 lakh to 3 lakh	53 (33.12)	38 (23.75)	
4	Above 3 lakh	14 (8.75)	7 (4.37)	
Risk orientation				
1	Low (up to 20)	34 (21.25)	30 (18.75)	0.314^{NS}
2	Moderate (21 to 24)	53 (33.12)	55 (34.37)	
3	High (above 24)	73 (45.63)	75 (46.88)	
Organisational participation				
1	No participation	28 (17.50)	28 (17.50)	1.799 ^{NS}
2	Member in one organisation	68 (42.50)	67 (41.87)	
3	Member in more than one organisation	53 (33.12)	59 (36.88)	
4	Office bearer in one organisation	11(6.88)	6 (3.75)	
5	Office bearer in more than one organisation	0 (0.00)	0 (0.00)	

Results and Discussion

Socio-economic profile of the livestock farmers in irrigated and rainfed area

The socio-economic profile of the livestock farmers in irrigated and rainfed area *viz*., age, gender, community, marital status, educational status, family type, family size, occupational status, land holding, training attended, annual income, risk orientation and organizational participation were studied and presented in Table 1.

The average age of the respondents in irrigated and rainfed areas was 55 years and 53 years respectively and mostly old aged and the same was also reported by Mandleni and Anim (2011) [4]. Engagement of young one in non-farm sector provides better income than agriculture and allied sector might be the reason for meager participation of young age group. Most of the livestock farmers were male (80.00 per cent) in irrigated and rainfed (70.00 per cent) area. Majority of the respondents in irrigated (83.12 per cent) and rainfed (88.75 per cent) areas belonged to backward community. Most of the livestock farmers in the study area were married in irrigated area (93.75 per cent) and rainfed area (93.13 per cent). Jianjun *et al*. (2015) [3] also state that most of the respondents were married. Further, 27.50 and 22.50 per cent of the respondents in irrigated and rain fed area had high school education respectively and this is in concurrence with the finding of Varadan and Kumar (2014) [8].

More than half of the respondents in both irrigated (53.75 per cent) and rainfed (58.12 per cent) areas were in nuclear family and mostly had up to 5 members in their family and this is also supported with the finding of Varadan and Kumar (2014) [8]. In irrigated and rainfed areas 86.87 per cent and 85.62 per cent of the respondents had agriculture as their primary occupation and livestock farming as their secondary occupation respectively. All the farmers have livestock as primary or secondary source of income. It supports the livestock farmers to increase the economic status and improve the social status in the climate vagaries. While, 10.00 per cent and 6.87 per cent had non-farm employment as primary occupation with livestock as secondary occupation in irrigated and rainfed areas respectively. Livestock as primary occupation with agriculture as secondary occupation was represented by both in irrigated (1.88 per cent) and rainfed (3.75 per cent) areas which was the reflection of landless farmers in the study area.

In irrigated and rainfed areas, the small farmers were 31.88 per cent and 38.12 per cent; large farmers were 38.75 per cent and 30.00 per cent; and marginal farmers were 26.87 per cent and 28.13 per cent respectively. Meager respondents were landless in irrigated (2.50 per cent) and rainfed (3.75 per cent) areas.

Majority of the respondents in irrigated (81.25 per cent) and rainfed (88.75 per cent) areas had not attended any training. Around one-tenth of the respondents both in irrigated (11.87 per cent) and rainfed (10.00 per cent) areas attended one training. The remaining 6.88 per cent in irrigated and 1.25 per cent in rainfed areas attended more than one training. Significant difference was noticed between two farming systems due to the resource rich farmers in irrigated area have tendency to seek technical information for utilizing the available resources effectively to make the farming profitable and this might be the reason for significant difference.

In irrigated area, 34.38 per cent of the respondents had an annual income of 0.5 to 1 lakh followed by 1 to 3 lakh (33.12 per cent), up to 0.5 lakh (23.75 per cent) and more than 3 lakh (8.75 per cent). Two-fifth (40.00 per cent) of the respondents had an annual income of 0.5 to 1 lakh in rainfed area followed by up to 0.5 lakh (31.88 per cent), 1 to 3 lakh (23.75 per cent) and more than 3 lakh (4.37 per cent). Significant difference was noticed between two farming systems and this difference might be due to relatively large land holding, better irrigation sources to cope up adverse climatic effects and information seeking behaviour of the respondents in irrigated area. In irrigated and rainfed areas 45.63 per cent and 46.88 per cent of the respondents had high risk orientation; 33.12 per cent 34.37 per cent had medium risk orientation; and 21.25 per cent and 18.75 per cent had low risk orientation respectively. Education and experience might have motivated the respondents to become a member in social organisation which helps to seek new ideas and information both from formal and informal sources to take high risk.

In irrigated area, 42.50 per cent of the respondents had membership in one organisation followed by more than one organisation (33.12 per cent), no participation (17.50 per cent) and office bearer in one organisation (6.88 per cent). Similarly, 41.87 per cent, 36.88 per cent, 17.50 per cent and 3.75 per cent of the respondents had membership in one organisation, more than one organisation, no participation and office bearer in one organisation respectively. None of the respondents were office bearer in more than one organisation in both farming situations. Milk producers' co-operative society and primary agricultural co-operative credit society available in the study area providing opportunities for the livestock farmers to become a member in these organizations.

Information seeking behaviour

Veterinary related information

Figure 1 depicts that vast majority in both irrigated (96.25 per cent) and rainfed (95.63 per cent) areas contacted Veterinary Assistant Surgeons for seeking technical information. In irrigated area, 11.88 per cent of the respondents contacted Krishi Vigyan Kendra and 20.00 per cent of the respondents in rainfed area contacted milk producer's co-operative society for information. A meagre per cent of the respondents contacted non-institutional and mass media sources for seeking information on livestock farming in both areas (Figure 2 and 3). The above results indicate that the respondents contacted locally available technical persons for seeking information than other sources.

Climate related information

Among the institutional, non-institutional and mass media sources the respondents used mass media for seeking climate related information. Among the mass media sources television was preferred by 37.50 per cent and 22.50 per cent of the respondents in irrigated and rainfed areas respectively. The radio and newspaper were the next preferred media by 11.88 per cent and 5.63 per cent of the respondents in irrigated area respectively (Figure 4). In rainfed area, none of the respondents contacted either institutional or non-institutional sources for climate / weather related information.

The respondents relied more on television to gather information rather than extension agencies. Weber and Stern (2011) [9] also supported that people often depend on intermediary sources, including mass media to understand the complex climate information rather than getting information from scientists. Further, the respondents gathered only weather related information and they were not seeking climate related information. Awareness on climate related information is generally low among the respondents for not seeking climate related information.

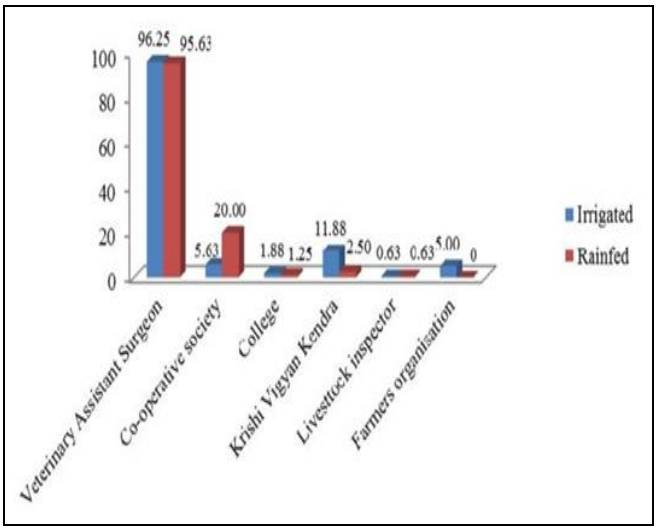

Fig 1: Veterinary related information seeking behaviour-institutional sources

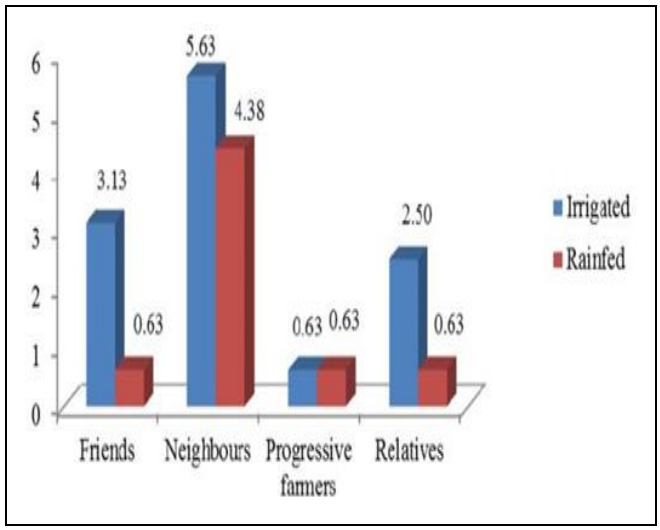

Fig 2: Veterinary related information seeking behaviour-non-institutional sources

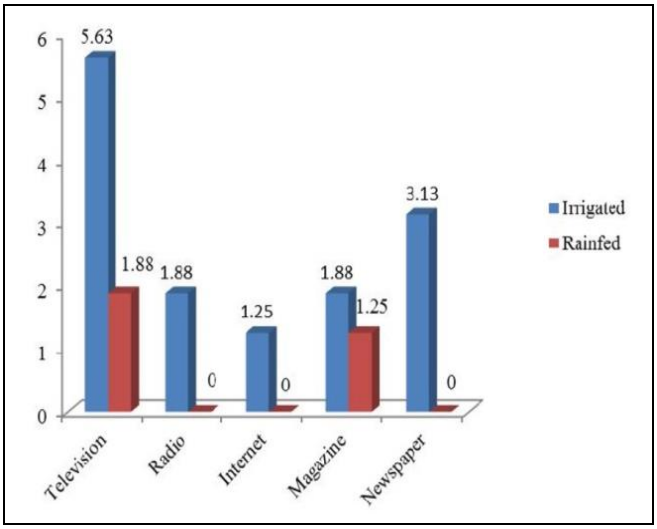

Fig 3: Veterinary related information seeking behaviour-mass media sources

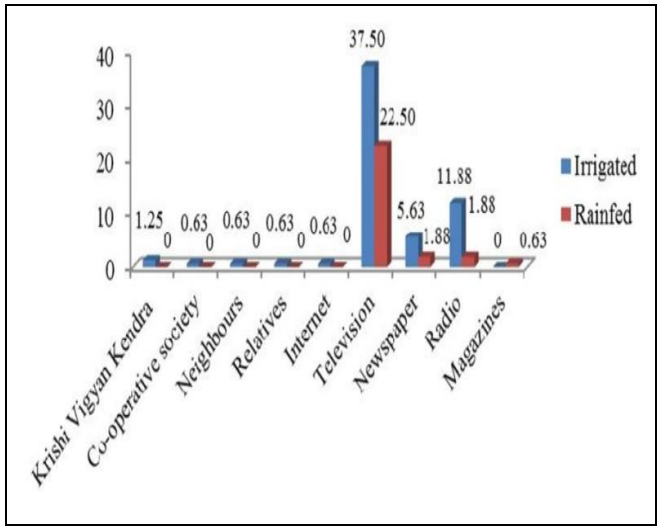

Fig 4: Climate related information seeking behaviour

Conclusion

Significant difference was noticed in gender, community, training attended and annual income among the livestock farmers in irrigated and rainfed system. Most of the farmers contacted institutional sources for availing latest veterinary information and television to avail information pertaining to climate resilient livestock farming technologies. In this regards, government and non-government developmental agencies should think on alternative means and methods for technology dissemination apart from conventional methods. They might have utilised ICT tool especially mobile based advisory service as the best method for providing timely information on climate resilient livestock farming technologies.

Conflict of Interest

Not available

Financial Support

Not available

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