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Perceptions of Changes in Farming Systems in Cauvery Delta Zone

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A B S T R A C T

Rice - Rice - Pulses/Sesame crop rotation of the study area has given way to Rice - Pulses/Sesame/Cotton crop rotation due to limited surface water availability. Increased area under cultivation of High Yielding Varieties, farm mechanisation due to labour scarcity, declining water table and low cattle population leading to limited availability and use of FYM as well as limited use of organic manure were the important changes perceived by the farmers. Split application of Inorganic fertilisers and use of biofertilisers and biopesticides were also perceived. Views of farmers on sustainable technologies like Green manuring, Crop rotation, Integrated Pest Management, Biofertilisers and Agroforestry were obtained besides their attitude towards sustainability issues.

Introduction

Farming Systems in Cauvery Delta Zone experienced Green Revolution technologies and later the focus on sustainable agricultural technologies due to extension efforts of Public and Private Extension agencies (Sustainable Development Solutions Network, 2013). As a result, the attitude and perceptions of the farmers underwent changes. An effort was made to study the Perception of changes in the Rice farming System besides attitude and views of farmers towards sustainable technologies.

Materials and Methods

Cauvery delta zone comprises of Thanjavur, Thiruvarur, Nagapattinam, Trichy, Ariyalur, Cuddalore and Pudukkottai districts of Tamil Nadu. Chidambaram and Kattumannarkovil taluks of Cuddalore district of the Cauvery delta zone were selected for the study. Two villages from each of the taluks were selected randomly.

Forty farmers from each village were then randomly selected thus constituting a sample of 160 farmers. Semi-structured interview schedules were used to collect responses from the respondents during 2015.

Results and Discussion

The study area recorded a mean annual rainfall of 1250 mm receiving a major portion of 715 mm during North-East Monsoon(October - December) followed by 375 mm during South West Monsoon(June - September). Heavy clay soil is the

predominant soil type suitable to Rice, Pulses, Sesame, Sugarcane and Cotton.

Crop Rotations

Crop Rotations followed during a normal year in the study area of Cauvery Delta Zone are presented in Table 1.

Rice - Rice - Pulses/Sesame was the popular crop rotation. Due to limited water resources (The World Bank, 2012; Kothari, 2013), Rice - Pulses/Sesame/Cotton has become popular nowadays. In some areas, Maize/Vegetables/Pulses/Sesame/Green Manure crops followed by Rice - Pulses has emerged as a popular crop rotation. In three-year rotation, Sugarcane/Ratoon Sugarcane followed by Rice - Groundnut is also recorded. The availability of surface irrigation water is the major determinant of cropping pattern in the study area.

Changes in Farming System

The respondents of the study area were asked about their perception about changes in the Rice Farming System over years and their responses are presented in Table 2.

The Table 2 reveals that all the respondents of the study perceived the increased use of inorganic fertilizers and reduced use of organic manures. Most of the farmers realized that reduction in cattle population resulted in limited availability and use of Farm Yard Manure (Lawrence, 1996). However, efficient fertilizer usage through split application and slow release techniques reveals the diffusion and adoption of scientific technology. All the farmers of the study area felt that insufficient surface irrigation water necessitated exploitation of ground water.

Consequently, the water table in the study area has gone to deep aquifers. It also had its ramifications in increased salinity or alkalinity. Increased use of High Yielding Varieties in the study area was well perceived due to the commendable efforts of extension workers and performance of the varieties. Increased pests and pesticide usage was noted with regret and at the same time the shift from pest control to pest management is a welcome sign. Similarly, the perception of increased use of biofertilizers and biopesticides deserve appreciation.

Table.1 Crop Rotations in the Study Area

S.N	First Crop	Second Crop	Third Crop
1	Rice (June-September)	Rice (October-January)	Pulses/Sesame (February-May)
2	Rice (August- January)	Pulses/Sesame/Cotton (Jan - April)	
3	Maize/Vegetables/Pulses/Sesame/Green Manure (June-September)	Rice (August - February)	Pulses (February-May)
4	Sugarcane /Ratoon Sugarcane (December-November)* Three Years Rotation	Rice (December-May)	Groundnut(June-September/October)

Table.2 Perception of Farmers about changes in Rice Farming System (n=160)

S. N	Perceived Changes	Number of Respondents	Percentage
1	Mechanization due to Labour scarcity	151	94.37
2	Reduction in cattle population resulting in reduced Farm Yard Manure availability and use	155	96.87
3	Increased use of inorganic fertilizer and reduced use of organic manures	160	100.00
4	Increased use of High Yielding Varieties	158	98.75
5	Efficient fertiliser usage through Split application and Slow Release techniques	95	59.37
6	Insufficient surface irrigation necessitating exploitation of ground water leading to decreased water table	160	100.00
7	Increased pests and pesticide usage and shift from pest control to pest management	120	75.00
8	Increased use of use of biofertilizer and biopesticides	120	75.00
9	Increase in Salinity / Alkalinity of soil	90	56.25

Table.3 Farmers' View of Recommended Sustainable Technologies (n=160)

S. N	Sustainable Technologies	Farmers' View	Number of Respondents	Percentage
1	Green Manuring	Improves soil and increases yield	160	100.00
2	Crop Rotation	Gives additional income and good for soil	160	100.00
3	Integrated Pest Management	Reduced chemical usage and utilising beneficial insects	120	75.00
4	Biofertilizers	Prolonged greenness of crops and higher yield	120	75.00
5	Agroforestry	Cultivation of trees with other crops giving multiple benefits	90	56.25

Table.4 Attitude Towards Environmental & Sustainability Issues

S. N	Farmers' View	Number of Respondents	Percentage
1	Chemicals in Agriculture - a necessary evil	160	100.00
2	Biopesticides are promising	120	75.00
3	Organic manures are good but less available	160	100.00
4	Mixed farming and crop rotation regain popularity	120	75.00
5	Farmers' wisdom should be recognised	90	56.25
6	Recognition for farmer to farmer communication	90	56.25

Sustainable Technologies

In a study on Implications of Environmental and Sustainable Issues for Organisation and Practice of Agricultural Extension, five sustainable technologies were identified (Vasanthakumar *et al.,* 1996). Green Manuring, Crop Rotation, Integrated Pest Management, Biofertilizers and Agroforestry were the referent technologies. Farmers' Views of the sustainable technologies were obtained and the results are presented in Table 3.

The Table 3 revealed that all the five sustainable technologies were known to the respondents. Green manuring and Crop Rotation were the technologies known to all the farmers and their views were right. This may be due to the traditional nature of the technologies and the compatibility with present day extension efforts. Reduced Chemical usage and utilisation of beneficial insects in pest management were the views relating to integrated Pest Management.

This was possibly due to the IPM Field Schools that operated in the study area. Similarly, the view on biofertilizers relating to prolonged greenness of crops due to Nitrogen fixation and resulting higher yield was known to seventy-five percent of the respondents. This was also due to commendable extension efforts of the State Department of Agriculture, University Extension System, NGOs and Private agencies. Agroforestry was also a familiar technology as it has been a traditional one and hence the view that cultivation of trees with other crops yielded multiple benefits.

Attitude of Farmers towards Environmental and Sustainability Issues

Attitude of the respondents towards Environmental and Sustainability Issues was studied and the results are presented in Table 4.

The Table 4 reveals that agreed with an Attitude statement that "Chemicals in Agriculture - a Necessary Evil". This is obvious due the nature of Green Revolution Technologies and efforts of MNCs in promotion of pesticides. However, it is satisfying that seventy-five percent of the farmers agreed with the statement, "Biopesticides are promising". All the respondents agreed to the statement that organic manures are good but less available. The positive note was perhaps due to the understanding that organic manures improve soil structure and fertility.

Three-fourths of the respondents happily agreed that mixed farming and crop rotation regained popularity among farmers. Over half the proportion of the respondents agreed to the statements demanding recognition for Farmers' wisdom and Farmer-to-farmer communication for diffusion and adoption of sustainable technologies. Insights from the indigenous knowledge and information from the modern technologies must be made available to the decision makers (Kothari, 2013), the farmers.

The crop rotations followed in the study area revealed the judicious operations of farmers in view of the constraints to surface irrigation. The shift from Rice - Rice - Pulses/Sesame to Rice- Pulses/ Sesame/Cotton is evidence. Major changes in the Rice farming System perceived by farmers were increased area under cultivation of High Yielding Varieties, farm mechanisation due to labour scarcity, declining water table and low cattle population leading to limited availability and use of FYM. There was a favourable attitude and candid view among farmers towards sustainable technologies.

References

Kothari, A. 2013, Development and Ecological Sustainability in India: Possibilities for the Post-2015 Framework, OXFAM India Working Paper Series, OIWPS XVI.

Lawrence, A., 1996, Sustainable Green Revolution, Lowland Farmers and the Information System in Tamil Nadu, India, AERDD Working Paper 96/4,University of Reading, UK.

Sustainable Development Solutions Network, 2013, Sustainable Agriculture and Food Systems - Technical Report for the Post-2015 Development Agenda, (www.unsdsn.org).

The World Bank, 2012, India: Issues and Priorities for Agriculture, (http://www.worldbank.org/en/news/feature/2012/05/17/india-agriculture-issues-priorities).

Vasanthakumar, J.A. Lawrence and C.J. Garforth, 1996. Proceedings of Indo-British Workshop on Extension for Sustainable Agriculture, Annamalai University, Chidambaram, India

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