

Research Note

Factors Influencing Crop Diversification in Tirunelveli District of Tamil Nadu

Mohammed Ghouse L.^{1*} and S. Nazreen Hassan²

ABSTRACT

To cope up with the risk involved in mono cropping system, a shift in cropping pattern, from traditionally grown less benefit crops to more benefit crops can be used as a strategy to increase the income as well as agricultural sustainability. It reduces the risk to farmer from total crop failure by providing alternative means of income through other crops grown. It also helps in conservation of natural resources, increases food and nutritional security and helps in poverty alleviation by providing employment opportunities to the farmers. This paper analyzes the factors influencing crop diversification in Tirunelveli district of Tamil Nadu. We studied the factors influencing crop diversification in using the primary data. Non – Experimental Research design was used and a sample size of 120 respondents was selected using proportionate random sampling technique. Out of twenty two variables, family size, distance to the market economic motivation, risk orientation, innovativeness and scientific orientation had positive and significant association with crop diversification at one per cent level of significance.

Keywords: Crop diversification, Credit orientation, Factors, Family size, Scientific orientation

INTRODUCTION

Indian agriculture is facing distress due to disparities in the income of the farmers and non-agricultural workers. To overcome this problem, Government of India set a goal for doubling the income of farmers by 2022-2023. Crop diversification is being used as one of the strategy to achieve this goal and to reduce the disparities in income of the farmers and non-agricultural workers. The aim of crop diversification is to grow more number of crops in a given area such that the farmer may not depend on a single crop. Risk may be reduced by growing more number of crops than growing single crop. Introducing variety of crops also leads to increase in production as well as agricultural sustainability as in India, small farm size characterizes agriculture. The About 93 per cent of the farmers have farm size smaller than 4 ha with average farm size of about 1.57 ha. and contribute about 55 per

cent of total cultivable land. Only 1.6 per cent of farmers having farm size of more than 10 ha and they contribute about 17.4 per cent of total cultivable land. After green revolution, there is continuous rush for diversified agriculture and Indian agriculture shifted towards non-cereal crops in order to increase the income and agricultural sustainability. Various researches (Benin *et al.*, 2004; Joshi *et al.*, 2004; Bithal *et al.*, 2005; Van Dusen and Taylor, 2005; Minot *et al.*, 2006; Ashfaq *et al.*, 2008; Rahman, 2008; Ibrahim *et al.*, 2009; Kasem and Thapa, 2010; Aneani *et al.*, 2011; Kankwamba *et al.*, 2012; Sichoongwe *et al.*, 2014; Basavaraj *et al.*, 2016; Aheibam *et al.*, 2017; Lawin *et al.*, 2017; Mithiya *et al.*, 2018) have established that the crop diversification is dependent on so many socio personal factors. The study is an attempt to find out the factors influencing crop diversification in Tirunelveli district of Tamil Nadu.

¹PG Scholar, Department of Social Sciences, Agricultural College and Research Institute, Killikulam, Tamil Nadu

²Assistant Professor, Krishi Vigyan Kendra, Thiruppathisaram, Kanyakumari, Tamil Nadu

*Corresponding author email id: lmdghouse95@gmail.com

METHODOLOGY

The study was based on the primary data collected from a sample size of 120 farmers fixed as respondents. The 120 respondents were identified from the selected six villages from three blocks by applying proportionate random sampling method. A list of 22 independent variables that could possibly influence the crop diversification was prepared. The variables were age (X_1), gender (X_2), educational status (X_3), occupational status (X_4), family size (X_5), farming experience (X_6), farm size (X_7), annual income (X_8), labour availability (X_9), area under diversification (X_{10}), source of irrigation (X_{11}), distance to the market (X_{12}), social participation (X_{13}), information source utilization (X_{14}), decision making (X_{15}), economic motivation (X_{16}), risk orientation (X_{17}), innovativeness (X_{18}), scientific orientation (X_{19}), credit orientation (X_{20}), attitude of farmers towards crop diversification (X_{21}) and trainings undergone (X_{22}). To find out the degree of relationship between the variables and crop diversification Pearson's product moment correlation co-efficient was calculated. It was calculated by using the following formula:

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{n}\right) \times \left(\sum y^2 - \frac{(\sum y)^2}{n}\right)}}$$

Where, N is Sample size, $\sum xy - (\sum x)(\sum y)/n$ is Sum of product of x and y, $\sum x^2 - (\sum x)^2/n$ is Sum of square of x and $\sum y^2 - (\sum y)^2/n$ is Sum of square of y

The 't' test of significance was used to test the significance of the 'r' value, using the formula.

$$t = \frac{r \times \sqrt{n-2}}{\sqrt{1-r^2}} \sim t_{(n-2)} \text{ df}$$

Where n is sample size and r is Correlation co-efficient value

RESULTS AND DISCUSSIONS

Correlation analysis was performed to find out the association of independent variables with crop diversification. The results are presented in the Table 1. It could be seen from the Table 1, where the correlation

Table 1: Association of profile characteristics with crop diversification

S.No.	Characteristics	Coefficient of correlation (r)
1.	Age	0.085 ^{NS}
2.	Gender	-0.0151 ^{NS}
3.	Educational status	0.042 ^{NS}
4.	Occupational status	-0.055 ^{NS}
5.	Family size	0.646**
6.	Farming experience	-0.078 ^{NS}
7.	Farm size	0.026 ^{NS}
8.	Annual income	-0.047 ^{NS}
9.	Labour availability	0.108 ^{NS}
10.	Area under diversification	0.008 ^{NS}
11.	Source of irrigation	0.127 ^{NS}
12.	Distance to the market	0.333**
13.	Social participation	0.045 ^{NS}
14.	Information source utilization	-0.147 ^{NS}
15.	Decision making	-0.149 ^{NS}
16.	Economic motivation	0.297**
17.	Risk orientation	0.252**
18.	Innovativeness	0.307**
19.	Scientific orientation	0.438**
20.	Credit orientation	0.059 ^{NS}
21.	Attitude of farmers towards crop diversification	-0.041 ^{NS}
22.	Trainings undergone	0.139 ^{NS}

*Significant at 0.005 level; **Significant at 0.001 level; NS – Non significant

value of the variables, family size (X_5), distance to the market (X_{12}), economic motivation (X_{16}), risk orientation (X_{17}), innovativeness (X_{18}) and scientific orientation (X_{19}) had positive and significant association with crop diversification at one per cent level of probability.

The rest of the variables age (X_1), gender (X_2), educational status (X_3), occupational status (X_4), farming experience (X_6), farm size (X_7), annual income (X_8), labour availability (X_9), area under diversification (X_{10}), source of irrigation (X_{11}), social participation (X_{13}), information source utilization (X_{14}), decision making (X_{15}), credit orientation (X_{20}), attitude of farmers towards crop diversification (X_{21}) and trainings undergone (X_{22}) showed non-significant association with crop diversification.

CONCLUSION

The overall assessment showed that out of twenty two variables, six variables viz. family size, distance to the market, economic motivation, risk orientation, innovativeness and scientific orientation had positive and significant association with crop diversification. This clearly evident regarding factors influencing crop diversification. There existed a medium level of expression from the farmers with the psychological variables like economic motivation, risk orientation, scientific orientation and credit orientation. These are the factors that directly influenced adoption. This indicates the need for an integrated extension effort to motivate the farmers for improved diversification practices. It was also found that most of the farmers had medium level of innovativeness and medium level of information source utilization may be taken as lead to intensify extension efforts by narrowing down the farmers' extension ratio in the state department.

Paper received on : January 18, 2020

Accepted on : January 30, 2020

REFERENCES

- Aheibam, M., Singh, R., Feroze, S.M., Singh, N.U., Singh, R.J. and Singh, A.K. (2017). Identifying the determinants and extent of crop diversification at household level: an evidence from Ukhrul District, Manipur, *Economic Affairs*, **62**(1), 89.
- Aneani, F., Anchirinah, V.M., Owusu-Ansah, F. and Asamoah, M. (2011). An analysis of the extent and determinants of crop diversification by cocoa (*Theobroma cacao*) farmers in Ghana, *African Journal of Agricultural Research*, **6**(18), 4277-4287.
- Ashfaq, M., Hassan, S., Naseer, M.Z., Baig, I.A. and Asma, J. (2008). Factors affecting farm diversification in rice-wheat. *Pakistan Journal of Agricultural Science*, **45**(3), 91-94.
- Basavaraj, N.D., Gajanana, T.M. and Satishkumar, M. (2016). Crop diversification in Gadag district of Karnataka, *Agricultural Economics Research Review*, **29**(347-2016-17228), 151.
- Benin, S., Smale, M., Pender, J., Gebremedhin, B. and Ehui, S. (2004). The economic determinants of cereal crop diversity on farms in the Ethiopian highlands, *Agricultural Economics*, **31**(2 3), 197-208.
- Birthal, P.S., Joshi, P.K. and Gulati, A. (2005). *Vertical coordination in high-value commodities: Implications for smallholders*, MTID discussion paper no. 85, IFFPRI, Washington.
- Joshi, P.K., Gulati, A., Birthal, P.S. and Tewari, L. (2004). Agriculture diversification in South Asia: Patterns, determinants and policy implications, *Economic and Political Weekly*, pp 2457-2467.
- Kankwamba, H., Mapila, M.A.T.J. and Pauw, K. (2012). Determinants and spatiotemporal dimensions of crop diversification in Malawi. *Project Report produced under a co-financed research agreement between Irish Aid, USAID and IFPRI, Paper*, (3).
- Kasem, S. and Thapa, G.B. (2011). Crop diversification in Thailand: Status, determinants, and effects on income and use of inputs. *Land Use Policy*, **28**(3), 618-628.
- Lawin, K.G. and Tamini, L.D. (2017). *Risk preferences and crop diversification amongst smallholder farmers in Burkina Faso* (No. 1910-2017-1299).
- Minot, N. (Ed.). (2006). *Income diversification and poverty in the Northern Uplands of Vietnam* (Vol. 145). Intl Food Policy Res Inst.
- Mithiya, D., Mandal, K. and Datta, L. (2018). Trend, pattern and determinants of crop diversification of small holders in West Bengal: A district-wise panel data analysis, *Journal of Development and Agricultural Economics*, **10**(4), 110-119.
- Sichoongwe, K., Mapemba, L., Ng'ong'ola, D. and Tembo, G. (2014). *The determinants and extent of crop diversification among smallholder farmers: A case study of Southern Province, Zambia* (Vol. 5). IFPRI, Washington.
- Van Dusen, M.E. and Taylor, J.E. (2005). Missing markets and crop diversity: evidence from Mexico. *Environment and Development Economics*, **10**(4), 513-531.