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### Determinants of crop diversification in Tirunelveli district of Tamil Nadu

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#### Abstract

This paper analyzes the determinants of crop diversification in Tirunelveli district of Tamil Nadu. Knowing the determinants of crop diversification is important for improving agricultural production and for the well being of farmers. We studied about the determinants of crop diversification in Tirunelveli district of Tamil Nadu using the primary data. Non – Experimental Research design was used for this study purpose. A sample size of 120 respondents was fixed for the study purpose using proportionate random sampling technique.

The respondents were asked to express the factors which influence the crop diversification. The information gathered from the respondents were analyzed and tabulated. Crop diversification is nothing but a shift in cropping pattern, shift from traditionally grown less benefit crops to more benefit crops to increase the income as well as agricultural sustainability. By this, farmer can grow variety of crops in a given area in order to increase the production and also to lessen the risk.

Indian agriculture facing distress due to disparities in the income of the farmers and non-agricultural workers. Crop diversification can be used as a better strategy to achieve this goal and to reduce the disparities in income of the farmers and non-agricultural workers.

**Keywords:** crop diversification, determinants, crop production, crop protection, marketing factors, financial factors, social factors

#### Introduction

Tirunelveli district is predominantly an agricultural district and agriculture is the major occupation of the people. Tirunelveli district has a total geographical area of 675850 ha. The total cropped area was 206858 ha (30.61 per cent) and the net area sown was 175087 ha (25.91 per cent). Introduction of Green revolution in the country to meet the food shortage had affected the cropping pattern in the country. Many states in the country were converted into mono crop state due to the advent of fertilizer responsive and high yielding varieties in rice and wheat. Both the Central and State Government introduced many schemes to diversify cropping pattern to maintain food security, after attaining self sufficiency in food grain production. The demand for food and agricultural production has been raised due to high population and income growth, as the natural resources too deployed, crop diversification is the main course of future growth of agriculture. Crop diversification ensures employment opportunities for the small farmers as well as for agricultural labourers throughout the year. It provides the farmers with viable options to grow different crops on their land around the year. Crop diversification helps the farmer to avoid risk and uncertainty due to climatic and biological vagaries. To increase the sustainability in agriculture and to improve the agricultural production, crop diversification serves as a viable solution. In this paper an attempt was made to study the determinants of crop diversification in overall Tirunelveli district of

Tamil Nadu.

#### Objective

- To study the determinants of crop diversification among the selected respondents.

#### Review of literature

Birthal *et al.* (2005)<sup>[2]</sup> found that in North Eastern Region of India, agricultural diversification was affected by labor, occupation, irrigation, road density, market facility significantly.

Ashfaq *et al.* (2008)<sup>[1]</sup> revealed that the factors including size of land holding, age of respondent, education level of respondent, farming experience of respondent, off farm income of respondent, distance of farm from main road and farm machinery are the variables which influences crop diversification.

Ibrahim *et al.* (2009)<sup>[4]</sup> stated that the extension contact, availability of tractor hiring services, returns from crop production and road condition significantly determine the level of crop diversification respectively.

Mithiya *et al.* (2018)<sup>[5]</sup> stated that the supply – side factors including infrastructure development, technology adoption, relative income, resource endowments and the demand side factors including size of urban population and per capita income as well a climatic variable (rainfall) influences crop diversification respectively.

Sohal (2003)<sup>[6]</sup> found that socio-economic conditions and

technological development of the region and physical environment determines the crop diversification respectively. Dube and Guveya (2016) [3] reported that the factors including gender of household head, education, number of livestock units, access to irrigation, membership to a farmers group, access to markets, farming experience, farms on flat terrains, farmer to farm extension, routine extension, agro ecological zone and household income determines crop diversification.

**Materials and methods**

The study was based on the primary data collected among the selected respondents. A sample size of 120 farmers was fixed as respondents. The 120 respondents were identified from the selected six villages from three blocks by applying proportionate random sampling method.

**Study area**

Tirunelveli district having geographical area of 6759 sq.

kms, in the south eastern portion of Tamil Nadu is triangular in shape. It lies between 8°.05’ and 9°.30’ of the Northern latitude and 77°05’ and 78°.25’ of Eastern longitude. The district is located in the southern part of Tamil Nadu and surrounded by Virudhunagar district in the north, Western Ghats in the west, Kanyakumari district in the south and Thoothukudi district in the east.

**Results and discussions**

Determinants of crop diversification was collected from various related sources such as literature, discussion with extension personnel and other stake holders were classified as crop production factors, crop protection factors, marketing factors, financial factors and social factors. The respondents were asked to express the factors which influence the crop diversification. The information gathered from the respondents were analyzed and tabulated as below.

**Table 1:** Determinants of crop diversification

S. No.	Factors	Number*		Percentage	
		Yes	No	Yes	No
<b>I</b>	<b>Crop production</b>				
1.	Area under cultivation	35	85	29.2	70.8
2.	Tillage time	71	49	59.2	40.8
3.	Plough tillage	71	49	59.2	40.8
4.	Irrigation availability	109	11	90.8	9.2
5.	Availability of farm inputs	108	12	90.0	10.0
6.	Fertilizer usage	107	13	89.2	10.8
7.	Size of hired labour	104	16	86.7	13.3
<b>II</b>	<b>Crop protection</b>				
1.	Less incidence of pest and disease	102	18	85.0	15.0
2.	Less usage of chemical control measures	28	92	23.3	76.7
3.	Access to control measures	78	42	65.0	35.0
4.	Reduction of risk due to less incidence of pest and diseases	103	17	85.8	14.2
<b>III</b>	<b>Marketing factors</b>				
1.	Market distance	105	15	87.5	12.5
2.	Changing consumer demand	21	99	17.5	82.5
3.	Availability of various marketing strategies	106	14	88.3	11.7
<b>IV</b>	<b>Financial factors</b>				
1.	Less cost with increased remuneration	102	18	85.0	15.0
2.	High price for specific commodity	95	25	79.2	20.8
3.	Abundant credit / Subsidy facility	68	52	56.7	43.3
4.	Frequent income generation	105	15	87.5	12.5
<b>V</b>	<b>Social factors</b>				
1.	Social recognition	44	76	36.7	63.3
2.	Social cohesion	47	73	39.2	60.8
3.	Improved social status	47	73	39.2	60.8

\*-Multiple responses

It could be seen from the table that regarding crop production factors, most of the respondents (90.80 per cent) considered irrigation availability as the determinant of crop diversification followed by 90.00 per cent of the respondents considered availability of farm input as the determinant of crop diversification, 89.20 per cent of the respondents considered fertilizer usage as the determinant of crop diversification, 86.70 per cent of the respondents considered size of hired labour as determinant of crop diversification, 59.2 per cent of the respondents considered tillage time and plough tillage as determinant of crop diversification, 29.20 per cent of the respondents considered

area under cultivation as the determinant of crop diversification.

Concerning crop protection factors, 85.80 per cent of the respondents considered reduction of risk due to less incidence of pest and disease as the determinant of crop diversification followed by 85.00 per cent of the respondents considered less incidence of pest and disease as determinant of crop diversification, 65.00 per cent of the respondents considered access to chemical measures as the determinant of crop diversification, 23.30 per cent of the respondents considered less usage of chemical control measures as the determinants of crop diversification.

Concerning marketing factors, 88.30 per cent of the respondents considered availability of various marketing strategy as the determinant of crop diversification followed by 87.50 per cent of the respondents considered market distance as the determinant of crop diversification, 17.50 per cent of the respondents considered changing consumer demand as the determinant of crop diversification respectively.

Concerning the financial factors, 87.50 per cent of the respondents considered frequent income generation as the determinants of crop diversification followed by 85.00 per cent of the respondents considered less cost with increased remuneration as the determinant of crop diversification, 79.20 per cent of the respondents considered high price for specific commodity as the determinant of crop diversification, 56.70 per cent of the respondents considered abundant credit / subsidy facilities as the determinant of crop diversification.

Concerning the social factors, 39.20 per cent of the respondents considered social cohesion and improved social status as the determinants of crop diversification and 36.70 per cent of the respondents considered social recognition as the determinant of crop diversification.

### Conclusion

The overall assessment showed that in regarding crop production factors, most of the respondents (90.80 per cent) considered irrigation availability as the determinant of crop diversification. Concerning crop protection factors, 85.80 per cent of the respondents considered reduction of risk due to less incidence of pest and disease as the determinant of crop diversification. Concerning marketing factors, 88.30 per cent of the respondents considered availability of various marketing strategy as the determinant of crop diversification. Concerning the financial factors, 87.50 per cent of the respondents considered frequent income generation as the determinants of crop diversification.

Concerning the social factors, 39.20 per cent of the respondents considered social cohesion and improved social status as the determinants of crop diversification. Providing credit / subsidy facilities to the farmers can improve the crop diversification. Timely availability of inputs and removing the middle man intervention in marketing would improve the crop diversification. Government should take enough measure for encouraging the farmers to adopt crop diversification practices.

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