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CHALLENGES OF TAPIOCA FRAMERS IN SALEM DISTRICT, TAMIL NADU

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ABSTRACT

Tapioca (Manihot esculenta Crantz) is recognized as one of the most important root crops cultivated in tropical regions, serving both as a staple food and a commercial commodity. In Tamil Nadu, Salem District has become a prominent center for tapioca cultivation and processing, making it essential to examine farmers' perceptions and the challenges they face. The present study seeks to evaluate the attitudes of tapioca farmers toward cultivation and the difficulties encountered during sales. Primary data were collected from a sample of 500 farmers, chosen through simple random sampling to ensure fair representation. A structured interview schedule was employed to document farmers' experiences and opinions. The reliability of the measurement scale was assessed using Cronbach's alpha coefficient, thereby confirming the internal consistency of the items. To analyze the data, factor analysis was conducted to identify the underlying dimensions of farmers' problems, while correlation analysis was applied to explore the relationships among variables influencing attitudes toward tapioca cultivation.

KEYWORDS: Tapioca cultivation; Farmers' attitude; Sales problems

INTRODUCTION

Tapioca, popularly known as cassava, is one of the most important food crops of the tropics, especially of the poorer areas, because of its ability to grow well even under drought condition. Tapioca also offers good scope for commercial exploitation in the starch, sago and animal feed industries. Tapioca is not only flexible in terms of uses, but also grows under a wide range of agro climatic conditions. Tapioca starch is used in textile mills, paper mills and leather industry for different purposes. Sago, another product from Tapioca, is consumed as food. It occupies a prominent place among common diet of the people, in the Northern States of India. Tapioca flour can be used in food preparations like Chappathi, cakes, biscuits and bread.

Tapioca is a starch extracted from the root of the plant species *Manihot esculenta*, which belongs to Euphorbiaceous family. This species, native to the Amazon, Brazil, Colombia and Venezuela as well as the Caribbean, Cuba, Puerto Rico, Haiti, the Dominican Republic, Honduras, most of the West Indies, is now cultivated worldwide and has many

names, including cassava, bitter-cassava, manioc, "mandioca", "aipim", "macaxeira", "manioca", "boba", "tapioca plant" and "yuca" (you-ca) (not to be confused with yucca). In India, it has different names in different regions such as, "Sagudana" (literally, Sagu drops), "Sabudana" (literally, drops of soap), (not to be confused with Sago, which is also commonly known as "Sabudana" in India) and "Kappa." In Vietnam, it is called bot nang. In Indonesia, it is called singkong. In Philippines, it is called sago.

CHARACTERISTIC OF FARMERS

In fact, a revolution in agriculture is unthinkable in terms of something happening in agriculture alone. It is to be thought of as series of interchange between agriculture and industry with rising intensity that is industry supplying the basic needs of material inputs for agriculture feeding back its surpluses for the development of industry and industry supplying back various consumer goods on which the agricultural surpluses can be spent. Any other kind of development can only be partial and will not be in conformity with the view of modernization of the country's economy.

Acharya S.S. and Agarwal N.C. in their study, "Agricultural marketing in India", have evaluated the performance of existing marketing system, institutions and policy in accelerating agricultural development of the country. They have provided an incisive analysis with special emphasis on marketing functions, institutions, efficiency, costs and margins, government efforts in the improvement of agricultural marketing and market research. Their study also provides the theoretical base for a better understanding of the problems in the marketing of farm products.

OBJECTIVE

1. To study the socio-economic and awareness characteristics on transportation and marketing of tapioca farmers

HYPOTHESES

1. The socio economic and the awareness factors have no significant influence on the opinion of the Tapioca farmers on the transportation and marketing of Tapioca cultivation

MEASUREMENT OF VARIABLES

Relevant variables for the present study are selected on the basis of review of literature and pilot survey conducted in the non-sample area and the consultation with experts.

LIMITATION OF THE STUDY

The constraints such as resources, sample size, time and other that an academic researcher will normally encounter are not entirely ruled out in this study. Since the farmers in general not maintain farm records about cultivation aspects, they are subject to real bias.

Chi-square Analysis

The Chi square test is used in any study on social science and management for testing the independence of two attributes. In this section the results of chi-square analysis is presented by dividing the factors considered in the study as two groups such as personal and the awareness of Tapioca cultivation factors & study factors. Each of the factors is compared with the study factors and chi square test is applied and the results are presented with suitable hypothesis and relevant interpretations. The study factors considered are:

- Transporting and marketing facilities of Tapioca cultivation

Personal and the awareness factors on the Transporting and marketing facilities of Tapioca cultivation

Hypothesis: The personal and the awareness factors have no significant influence on the opinion of the respondents about the Transporting and marketing facilities of Tapioca cultivation

Table 1
Chi Square: Personal and the awareness factors on the Transporting and marketing facilities of Tapioca cultivation

Personal factors	Chi-square Value	p values	Significant/ Not Significant
Age	11.835	0.066	S
Sex	0.302	0.860	NS
Literacy level	18.781	0.043	S
Family Income	4.562	0.335	NS
Number of family members	11.053	0.026	S
Nature of land holding	4.174	0.383	NS
Sources of irrigation	53.315	0.000	S
Awareness factors	Chi-square Value	p values	Significant/ Not Significant
Activity of Tapioca cultivation	27.104	0.000	S
Aware of Tapioca cultivation	1.218	0.544	NS
Types of Tapioca	19.853	0.227	NS
Engaging cultivation of Tapioca	21.116	0.002	S
Area of cultivation of Tapioca	20.402	0.000	S

S – Significant at 5% level (p value < 0.05); NS – Not Significant at 5% level (p value > 0.05)

It is found from the Table 1 that the hypothesis is rejected (Significant) in four cases of personal and three cases of awareness factors in other cases the hypothesis is accepted (Not Significant).

It is concluded that the age, literacy level, number of family members, sources of irrigation, activity of Tapioca cultivation, Engaging cultivation of Tapioca and area of cultivation of Tapioca have significant influence on the Transporting and marketing facilities of Tapioca cultivation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy

The significance (0.000) is less than the assumed value (0.05) & KMO coefficient = 0.565. This implies that the factor analysis is valid.

Table 2
Rotated Factor Loadings for the level Transporting and Marketing Facilities of Tapioca Cultivation

Variables for level of Transporting and Marketing Facilities of Tapioca Cultivation	F1	F2	F3	F4	F5	Communality
C1	.354	.025	.371	.077	-.478	0.498
C2	.064	-.040	.200	.059	.846	0.765
C3	.583	.113	.089	-.016	.109	0.372
C4	.020	-.045	.059	.858	-.009	0.743

C5	.124	.778	-.074	-.295	.083	0.719
C6	-.177	.730	.164	.410	-.075	0.765
C7	-.329	-.164	.292	.048	-.490	0.462
C8	-.716	.150	.043	.027	.059	0.541
C9	.382	-.182	.623	.129	.037	0.585
C10	.553	.019	-.206	.444	.092	0.554
C11	-.244	.176	.704	-.060	-.003	0.590
Eigen value	1.78	1.45	1.30	1.05	1.02	
% of var. explained	16.19	13.21	11.78	9.55	9.24	59.96
Cum. % explained	16.19	29.39	41.17	50.72	59.96	

Table 2 gives the rotated factor loadings, communalities, Eigen values and the percentage of variance explained by the factors. Out of the 11 level of transporting and marketing facilities of Tapioca cultivation variables, 5 factors have been extracted and these 5 factors put together explain the total variance of these variables to the extent of 59.96%. In order to reduce the number of factors and enhance the interpretability, the factors are rotated. The rotation increases the quality of interpretation of the factors. There are several methods of the initial factor matrix to attain simple structure of the data. The varimax rotation is one such method to obtain better result for interpretation is employed and the results are given in Table.3.

Table 3
Clustering of level of transporting and marketing facilities of Tapioca cultivation variables into factors

Factors	Level of transporting and marketing facilities of Tapioca cultivation	Rotated factor loadings
1. (16.18%)	1 – C10	0.553
	2 – C3	0.583
2. (13.21%)	3 – C5	0.778
	4 – C6	0.730
	5 – C8	0.150
3. (11.78%)	6 – C1	0.354
	7 – C7	0.292
	8 – C9	0.623
	9 – C11	0.704
4. (9.55%)	10 – C4	0.858
5. (9.24%)	11 – C2	0.846

Five factors were identified as being maximum percentage variance accounted. The 5 level of transporting and marketing facilities of Tapioca cultivation variables C10, C3 were grouped together as factor I and accounts 16.18% of the total variance. The 4 level of transporting and marketing facilities of Tapioca cultivation variables C5, C6, and C8 constituted the factor II and accounts 13.20% of the total variance. The 3 level of transporting and marketing facilities of Tapioca cultivation variables C1, C7, C9, and C11 constituted the factor III and accounts 11.78% of the total variance. The 2 level of transporting and marketing facilities of Tapioca cultivation variables C4 constituted the factor IV and accounts 9.55% of the total variance. The 1 level of transporting and marketing facilities of Tapioca cultivation variables C4 constituted the factor V and accounts 9.24% of the total variance.

The five level of transporting and marketing facilities of Tapioca cultivation variables namely “about the market situation” (C10), “Do you have any difficulties in the transporting of your produce” (C3) were grouped together as factor I and accounts 16.18% of the total variance.

Correlation Analysis

The Table 4 describes the results of inter-correlation analysis in terms of correlation coefficient & its significance at 1% level.

Table 4

Correlation Matrix - Transporting and marketing facilities of Tapioca cultivation variables basis of the factor I

Transporting and marketing facilities of Tapioca cultivation variables	do you know about the market situation	any difficulties in the transporting of your produce
do you know about the market situation	1	0.231**
any difficulties in the transporting of your produce		1

- **Significant at 1% level

It is found from the Table 4 that all the transporting and marketing facilities of Tapioca cultivation on the basis of factor I considered have significant inter-correlation between their in respect of Tapioca cultivation analysis.

It is concluded that all the transporting and marketing facilities of Tapioca cultivation variables such as ‘do you know about the market situation’ (C10) and ‘any difficulties in the transporting of your produce’ (C1) for Tapioca cultivation study have significant interrelationship between them.

Canonical Discriminant Function

The linear discriminant function is

$$D = 0.069 C1 + 0.326 C2 + 0.088 C3 + 0.219 C4 - 0.167 C5 - 0.174 C6 + 0.220 C7 - 1.037 C8 + 0.710 C9 + 0.417 C10 + 0.260 C11 - 6.405$$

The following Table and Table shows the group means of each of the independent variables identified and coefficients of canonical Discriminant function respectively.

Table 5

Group means of each of the independent variables

S.No	Level of transporting and marketing facilities of Tapioca cultivation	Mean value	
		Level of attitude with main activity of Tapioca cultivation	Level of attitude with allied activity of Tapioca cultivation

1	Arrangement for transporting (C1)	1.49	1.47
2	Goods carrying facility to manufacture (C2)	3.57	3.11
3	Transport difficulties (C3)	1.56	1.54
4	Problems in transport (C4)	2.19	2.01
5	Opinion about transport cost (C5)	2.40	2.63
6	Information about market conditions (C6)	2.12	1.96
7	Marketing facilities offered by intermediaries (C7)	3.30	2.92
8	Utilization of labour in harvesting and packing (C8)	1.62	1.48
9	packing materials purchase (C9)	2.05	1.80
10	Market situation (C10)	1.49	1.43
11	Bases of price fixation(C11)	1.55	1.46
Eigen Value		0.125	% of Variance
Cumulative %		100	Canonical Correlation
			100
			0.333

Relative Importance of Predictor Variable

The relative importance of each predictor variables in discriminating between the two groups is obtained and the results are presented below.

Table 6

Relative importance of ratios in discriminating between the groups

Level of transporting and marketing facilities of Tapioca cultivation	Importance value of the variable (Ij)	Relative Importance (Rj)	Rank
Arrangement for transporting (C1)	0.00	0	7
Goods carrying facility to manufacture (C2)	0.15	21	2
Transport difficulties (C3)	0.00	0	7
Problems in transport (C4)	0.04	6	4
Opinion about transport cost (C5)	-0.04	6	4
Information about market conditions (C6)	0.03	4	5
Marketing facilities offered by intermediaries (C7)	0.08	11	3
Utilization of labour in harvesting and packing (C8)	0.15	21	2
packing materials purchase (C9)	0.18	25	1
Market situation (C10)	0.03	4	5
Bases of price fixation(C11)	0.02	3	6

Among the variables under study one variable namely 'packing materials purchase' (C9) is substantially important variable in discriminating between groups namely 'Level of attitude with main activity of Tapioca cultivation' and 'Level of attitude with allied activity of Tapioca cultivation' on the Tapioca Cultivation of farmers in Salem District.

Type of activity on the level of Attitude on Tapioca cultivation

We looking at the Wilk's 1 statistic along with chi-square statistic and we test the following hypothesis:

Null Hypothesis: The Discriminant analysis is not valid

Table 7 Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	Degrees of freedom	p-value
1	.863	50.574	16	.000

Wilk's 1 is very high (0.889) and significance (0.00) is less than 0.000, so we reject the Null hypothesis, implying that the discriminant analysis is valid.

CONCLUSION

The production of tapioca framers looked in to marketing and transporting facilities most required for success growth of tapioca framers. Manufacturer and intermediate persons are main beneficiaries. Such circumstance the tapioca framers they want proper marketing place in sale of cultivated products otherwise they loss live hoods. The framers found to use mass-media sources such as Radio, Television, Posters, Charts and Agricultural film to get information on tapioca. It may become more effective if All India Radio includes special programmes and makes provisions for participation of tapioca framers.

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