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A STUDY ON FARMER'S ECONOMIC SATISFACTION TOWARDS MARKETING INFRASTRUCTURE OF UZHAVAR SANTHAI IN TIRUNELVELI CITY, TAMILNADU

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Abstract

Marketing infrastructure for agriculture are essential for developing and maintaining the pace of rural economic growth. In Tamil Nadu, the Farmers Market (Uzhavar Santhai) is one such worthwhile endeavour that has endured several difficulties over the course of twenty years. Uzhavar Sandhai's major goal is to assist farmers in bringing and selling their food to customers directly at fair prices determined every day, cutting out middlemen and commission brokers. Even while farmer's markets help farmers and offer some solutions, there are still real obstacles that make it difficult for farmers to reap the rewards they deserve. The survey was carried out among 71 vegetable farmers who participated in direct vegetable marketing through Uzhavar Santhai in Melapalayam and Maharaja Nagar in Tirunelveli city. Through the use of SPSS 20, the elements relating to marketing infrastructure, such as cold storage and transportation facilities, lack of information about agriculture, and price volatility, were statistically analysed. The study's result showed that price volatility and lack of cold storage facilities have a high impact on farmers' levels of satisfaction than other variables. The findings imply that significant initiatives are required to encourage the availability of better marketing infrastructure related to cold storage. As a result, the farmers market will assist the farmers in improving their socioeconomic condition. This would enable local farmers to provide fresh vegetables that is affordable for consumers while also enabling them to make a greater profit. This will also have implication in country's agricultural economy.

Keywords: Agricultural Economy, Farmer's Market, Marketing Infrastructure, Uzhavar Santhai, Cold Storage Facility.

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1. INTRODUCTION

Agriculture is one of the key industries that is vital to the Indian economy (Bhale and Rao, 1981). In India, 70% of the population relies on agriculture for a living, either directly or indirectly. India is the world's second-biggest producer of vegetables and the greatest producer of fruits. Agricultural markets are crucial in giving millions of marginal and small-scale farmers the resources to support their livelihoods. India's agriculture industry is now undergoing a revolution. The bedrock of Indian economy is agriculture. A rough 70% of the population relies directly or indirectly on agriculture for their daily survival. In that, 20% of the villagers today directly rely entirely on agricultural revenue for their subsistence. The agricultural sector for products has historically been one of India's most important economic sectors. The output of grain crops, commercial crops like cotton, tea, in addition to fruits and vegetables, other commercial crops, significant progress must be made (Agwu Dimelu and Madukwe, 2008).

One might think of a regulated agricultural market as one that offers better space and a location enabling farmers to sell their produce. To carry the commodities from the farmers' gate to the market, this market needs also include a transportation facility. Large intermediaries predominate in rural markets, and the market chain is mostly disorganized with hardly any benefit to the key stakeholders (Sailaja, 2022). The nation's domestic agricultural marketing system has to be linked and improved in order to take advantage of the new chances for accessing the global market on behalf of the farming community. The Indian government is working to have the country's agricultural markets and marketing infrastructure ready so that it can compete with the international markets while also benefiting farmers as much as possible. Vegetable marketing and sales efficiency in India has posed major

challenge in recent years. It is thought that insufficient marketing infrastructure and ineffective marketing channels are to blame for both the high and variable consumer pricing as well as a small segment of consumer revenue reaches farmer. Indian farmers often rely significantly on intermediaries, especially in sale of fruits and vegetables. The intermediaries dominate the market but offer little value while producers and customers frequently receive the short end of the stick. In his study, Saravanan (2013) notes that there is also significant waste, quality reduction, frequent mismatches supply and demand, temporally and geographically. In order to increase marketing effectiveness through pricing volatility and marketing infrastructure features like cold storage, research looked at a variety of factors of the marketing of vegetables and fruits in wholesale marketplaces.

As per NSSO survey and CES, average per-person consumption in India is 82.2 kg, costing 1151.2/- per person (Motkuri et al, 2022). We consume vegetables at the second-highest rate in the world. According to estimates, the nation would produce 341.63 million tons in 2021–2022, a rise of 7.03 million tons over the figures from previous year. In addition, there are numerous uncounted horticultural productions. India and Tamilnadu are both relatively active in horticulture, particularly on rainfed agricultural land and area used for canal feeding. Vegetables and fruits are more readily available in farmers markets during the season, coming from small, medium, and large-scale farms. The price automatically drops when a large supply arrives, which causes the farmers to lose a lot of money. And during expiration so they may sell them when the crop is less plentiful (Jagdish Prasad and Arbind Prasad, 1995). In other cases, small farmers aren't even able to cover the expense of transporting their crop from the field to the farmers' market. This article emphasizes the need of cold storage facilities that can increase shelf life and also on other factors

like transportation facility, market information, price volatility etc.,

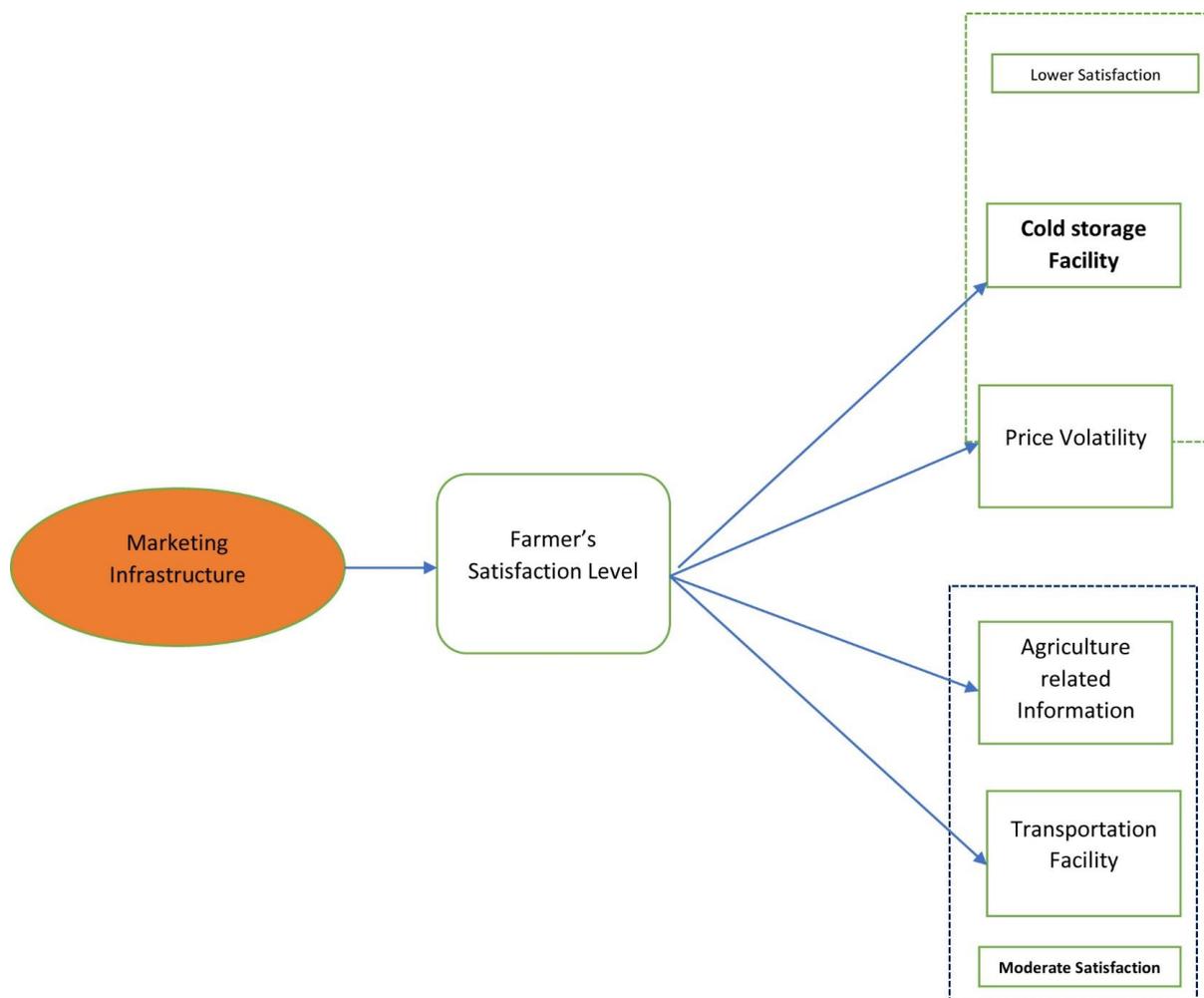
2. UZHAVAR SANTHAI IN TAMILNADU

In contrast to other field crops, the marketing of vegetables and fruits is more complex due to their unique characteristics, such as their seasonality, high perishability, and bulkiness, which necessitates specific handling and prompt disposal. In a study on the marketing issues affecting South Gujarati vegetable producers, Parmar et al. (1994) found that rotting and improper weighing techniques were the main issues. The report made the case for the necessity to regulate marketing activities, construct an effective transportation system, and create a cooperative marketing organization. The middleman handles the largest portion of agricultural produce marketing. By engaging in a variety of improper activities regarding measuring, processing, payments, etc., they abuse farmers and customers. In 2019–20, India produced 191.77 million metric tons of vegetables, based on National Horticulture Board. 10.35 million hectares were dedicated exclusively to the growth of vegetables. In terms of vegetables, world's leading cultivator of okra and ginger is India (FAO, 2019). 3.9 percentage of India's vegetable production comes from Tamil Nadu. Marketing in the agriculture sector establishes the monetary worth of agricultural product and distributes it to the consumer. The majority of farmers sell their goods through local markets,

mandies, fairs, cooperative societies. The intermediaries in the aforementioned agricultural marketing process take advantage of both farmers and customers. The Government of Tamilnadu established new idea, called "UZHAVAR SANTHAI," in 1999 to get rid of the intermediaries between farmers and customers and to regulate the fruits and vegetables market (Rengasamy et al, 2003). The District Agricultural Produce Marketing Committee under Agricultural Marketing and Agribusiness Department is in charge of maintaining Uzhavar Santhais. There are currently more than 180 Uzhavar Santhais functioning throughout the state of Tamil Nadu. Uzhavar Santhai's primary goals include fostering direct relationships between farmers and the general public, offering consumers fresh food every day at a fair price without the involvement of intermediaries, and ensuring that the produce is measured correctly for consumption. The main goal of Uzhavar Santhai organization established in the region is to link farmers and customers while also protecting farmers' economies from the abuse of intermediaries and wholesalers. In the agriculture sector, wholesalers and intermediaries benefit from price independence and receive the majority of the profits, while farmers only receive a very small portion (Kannan 2014).

3. LITERATURE REVIEW

Marketing infrastructure factors that influence vegetable farmer's satisfaction on Uzhavar Santhai



Picture: 1 (Research Module – By Author Model)

Cold Storage Facility

Cold storage has become the sole focus of present agricultural revolution, which strives to lessen post-harvest losses that occur along the whole supply chain. Evidently, vegetables and other products may be stored at low temperatures to stave off microorganisms that could make the food spoil. Even though India is one of the world's top producers of fruits and vegetables, around 30% of its output ends up as garbage in landfills. The government has given the go-ahead for the construction of facilities for cold storage at every farmer market after taking into account the many benefits it offers. Through cold storage and market sales a few days later, the farmers will be able to keep their produce fresh. Arivazhagan et al. (2012) identified a number of causes for food loss and waste,

with a shortage of cold storage being identified as the main factor contributing to the greatest amount of waste. Increased price labels and increased damage were problems brought on by increased distribution channels. Unsold wastage was the third main factor. From his study, Rathinam (2015) came to the conclusion that local government should also educate the farmers about the most recent marketing techniques and assist them in becoming productive and self-sufficient farmers. Additionally, farmers need to be taught how to properly store their produce to preserve its freshness. The productivity will rise when hybrid types are introduced. They were able to store their food that could have otherwise been considered unsuitable for sale attributable to the farmers market's cold storage facilities. In reality, there are a

number of national and state-level programs and incentives that encourage big corporations to enter the cold chain industry. As a result, there is significantly less fruit and vegetable waste. To encourage farmers to keep the unsold goods and cut down on wastage, the Government of Tamil Nadu has installed 27 cold storage units at various farmers markets.

H1: lack of cold storage facility has significant impact on vegetable farmer's satisfaction of Uzhavar Santhai.

Transportation Facility

Produce must be prepared for handling which might be experienced during transportation to the market before it leaves the farm. Because there is a short period between production and market, locally grown fruits can indeed be relatively mature and ripe. Food from far-off places may be bit less ripe than produce grown nearby, and it must be free of mechanical damage and other circumstances that might cause it to lose quality after a lengthy post-harvest handling phase (Shailesh, Gyanendra and Yadav, 2013). A) Produce quality: Fruits and vegetables, particularly those with soft skins or succulent fruits and vegetables like tomatoes, leafy greens, and peaches, are more prone to cross-contamination by human and plant infections. Fruit that is damaged, ill, or overripe should not have been carried. Before transferring other produce, take it out of the cardboard boxes. B) Humidity and temperature: These two factors are crucial to the preservation of vegetables and other products. The temperature danger zone, which is between 40- and 140-degrees Fahrenheit, is where many infections develop quickly. Numerous infections that are present on food can be prevented from growing by immediately cooling it after harvest and maintaining its cold temperature during storage and transportation (Ziveng, E. and Karavina, C., 2012). A majority of farmers, approximately 54% of travel between 11 and 30 kilometres to reach

Uzhavar Sandhai, and another 36% travel less than 10 km to sell their goods (Sivakumar R, 2003). An investigation revealed that 28 percent of those surveyed utilized their own vehicle and 56 percentage relied on a free town bus to deliver their products. 14 percentage of farmers reported driving rented cars. But obvious distinction becomes apparent in the following study. Surprisingly, impoverished farmers (those with less than an acre of land) had their own automobiles (37%) and were using them to carry vegetables when the data was compared to land holding size. The town bus is not offered by government at this hour to travel such a distance. The Sandhais were impacted by this, and fewer farmers are now present than before the introduction of free bus service. Only 22 of the 330 participants who completed the survey for this study travelled more than 50 kilometres to sell their goods in Uzhavar Sandhai.

H2: Transportation facility has a significant impact on vegetable farmer's satisfaction of Uzhavar Santhai.

Price Volatility

One of the key elements for all kinds of businesses is price consistency. The stability is evaluated in light of changes throughout a specific timeframe or season. Seasonality and increased climatic fluctuation may be less of an issue if there is a greater variety of crops grown, improved irrigation and water retention systems, crops that have adapted to their environment, and adequate infrastructure. Seasonality is fundamental to small-holder farmers' livelihoods (Chambers et al., 1981). It also takes into account cyclical shifts in marketing, income, wellbeing, and profit, which can be particularly important for staple goods with a single annual crop and a constrained window for sale. Seasonality "induces variations in employment to occur when labour time is transferred from lower- to higher- return occupations," (Ellis, 2000). On-farm tasks take up a lot of time during farming's

busiest times, such planting and harvesting. The newly picked product must then be transported from fields to supermarkets or distribution centres by farmers (Ellis, 2000). Farmers are operating in a safe mode if the price is constant or rising. If the price fluctuates and is influenced by the harvest volume, the season, and other variables such as the availability of storage, transportation, climate, and other political reasons, then farmers are not operating in a safe mode.

H3: Price volatility has a significant impact on vegetable farmer's satisfaction of Uzhavar Santhai.

Agriculture related Information

Production procedures have been affected by direct customer choice data that has been obtained in marketplaces. The two key adjustments are a rise in the diversity through the cultivation of a larger variety of vegetables and intensification through the lengthening of production cycles and repeated harvests. According to Reddy, K.R., and Sateesh (2012), this enables small farmers to make the most of their access to land and water throughout the year. The marketing methods used by manufacturers are further impacted by a greater awareness of the requirements and preferences of various consumer groups based on economic levels, dietary choices, and religious festivities. It appears that accessibility to market information is more efficient than receiving something through government extension agents. Farmers' markets encourage the exchange of knowledge and communication among farmers, which includes knowledge of crop types and cultivation methods, information on market demand for particular produce, and the development of rotating savings groups. These connections broaden farmers' social networks and boost their access to peer assistance, both financial and nonfinancial, which is crucial for small and marginal farmers in particular (Rajkala and Arunachalam, 2020). One of the major avenues for tackling rural poverty and

hunger has been agricultural extension programs. This is because it may help farmers solve problems, enhance adult learning in rural areas, transfer technology, and engage farmers in the agriculture information and knowledge infrastructure (Christoplos and Kidd, 2000).

H4: Lack of agriculture related information has a significant impact on vegetable farmer's satisfaction of Uzhavar Santhai.

A model was developed utilizing the literature reviews to better understand the dependent and independent variables and its interactions. This figure above, which was developed after a comprehensive literature review, will serve as the foundation for the exploratory study. Farmer's satisfaction is the dependent variable and marketing infrastructure related factors are independent variable in the study. This study's main objective is

1. To research the Uzhavar Santhai marketing infrastructure aspects of cold storage, price volatility, informational inadequacies in the agricultural market, and transportation.
2. To determine how satisfied vegetable farmers in Tirunelveli districts' Uzhavar Santhai are with Uzhavar Santhai's marketing infrastructure.
3. To examine how Uzhavar Santhai's marketing infrastructure affects farmers' levels of satisfaction, taking into account the effects of cold storage, transportation, agricultural-related information, and price volatility.

4. RESEARCH METHODOLOGY

A descriptive study using a survey methodology underlies the research. In order to acquire primary data, a well-designed, structured questionnaire was used. Secondary data were gathered from books, newspaper articles, publications, recognized researchers, and sites. This study used convenience sampling method to choose a sample from two Uzhavar Santhais, Melapalayam and Maharaja

Nagar, in Tirunelveli, Tamil Nadu, using a diverse set of respondents with varying ages, genders and locations. To improve the study's external validity, this was performed. Using the interview schedule data was gathered from vegetable growers who were using direct marketing in Uzhavar Santhais to sell their produce. The respondents were also informed of the privacy of their replies and their names. In all, 79 questionnaires, 71 were used for study after being checked for inadequate or incomplete submissions.

5. MEASURES

The questionnaire was made using the Likert scale, and analysis was done. Age, gender, marital size of respondents was all taken into account in a specific category. The study considered 20 statements for the transportation facility, price volatility, absence of agricultural market information, and cold storage facility across four independent variables. The dependent variable is considered to be farmer satisfaction. For each measurement, validity and reliability tests were conducted. These were the evaluations: Ratings ranged from Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1). The reliability analysis was used to calculate Cronbach's Alpha consistency. According to the study, the reliability coefficient, or Cronbach's alpha, which measures how reliable all variables are, was 0.851.

6. DATA ANALYSIS AND RESULTS

Data analysis is done using software SPSS 20. The demographic characteristics of respondents were analysed using frequency and percentage analysis. Using ANOVA, and multiple regression, it was possible to pinpoint the element that most influenced. For farmer's satisfaction and rating of factors relating to, descriptive statistics are employed.

Table 1 demonstrate socio- demographic data of sample participated in study. The vegetable farmers participated in the study were 76% men and 24% women. Majority were between the 41-50 years. 76 % of them were married and 26 % were unmarried. 76% of vegetable farmers travel more than 10 kms from their farm to Uzhavar Santhai and 24% travel less than 10 kms from their farm to Uzhavar Santhai. 53% of farmers travel with their own vehicle such as cycle and two-wheelers, 27% of them use public transport, 17% use minivan and auto rentals, only 4% uses refrigerated trucks. 66% of them were not satisfied with the marketing infrastructure provided by Uzhavar Santhai, 25 % were partially satisfied and only 9% of them were satisfied. 62% have said price fluctuation and wastage of excess vegetables during seasonal time affected their livelihood and 38% were not affected.

Table 1: Socio-demographic details respondents

		n= 71	%
Gender	Male	54	76
	Female	17	24
Age	Less than 30	7	11
	31-40	8	12
	41-50	39	54
	51 and above	17	23
Marital Status	Married	54	76
	Unmarried	12	26
	Others	5	8
	More than 10 kms	51	76

Distance of farm from Uzhavar Santhai	Less than 10 kms	20	24
Mode used for transporting vegetables	Public Transport (Bus)	19	27
	Own vehicle- Cycle, Two-wheelers	37	52
	Minivan/Auto rentals	12	17
	Refrigerated trucks	3	4
Are you satisfied with the marketing infrastructure provided by Uzhavar Santhai?	Yes	6	9
	No	47	66
	Partially satisfied	18	25
Does price fluctuation, wastage of vegetables during excess production during seasonal time affect the livelihood?	Yes	44	62
	No	27	38

The level of farmers' satisfaction with the Uzhavar Santhais marketing infrastructure is seen in Table 2 below. The respondents gave the transportation facility first ranking. Information on agriculture is

available in the second section. The absence of a cold storage facility and price fluctuation caused reduced satisfaction among farmers.

Table 2: Satisfaction Level of Vegetable Famers on Uzhavar Santhai

Marketing Infrastructure related factors	N	Min	Max	Mean	Rank
Lack of Cold Storage Facility	71	1	5	3.24	4
Transportation Facility	71	1	5	3.58	1
Availability of Agricultural Market Information	71	1	5	3.57	2
Price Volatility	71	1	5	3.41	3

Testing of Hypothesis:

Multiple Regression: To evaluate the research's hypothesis, regression was employed. The results of the farmer satisfaction survey were shown in Tables 3, 4, and 5. The study's results revealed that these four independent variables, with a F

value 68.133 and p-value 0.000, represented 84 percent of the variation in farmers' satisfaction with marketing infrastructure (Table 3 and 4). Consequently, it is evident that these four factors have a significant influence on how satisfied farmers are with the Uzhavar Santhais marketing infrastructure.

Table 3: Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.928	0.862	0.84	0.328
a. Predictors: Lack of Agriculture related Information, Price Volatility, Transport Facility, lack of Cold Storage Facility				
b. Dependent Variable: Famer's Satisfaction				

Table 4: ANOVA

Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	36.478	6	7.495	68.133	0.000
	Residual	5.962	54	0.107		
	Total	42.44	60			
a. Predictors: Lack of Agriculture related Information, Price Volatility, Transport Facility, lack of Cold Storage Facility						
b. Dependent Variable: Famer's Satisfaction						

ANOVA, is used to compare two or more means simultaneously. Additionally, it produces values that may be used to assess if there is a meaningful relationship among variables. The ANOVA is used to assess level of significance. The hypotheses centers on the individual effects of independent factors on farmers' satisfaction with Uzhavar Santhai's marketing infrastructure. Testing these hypotheses leads to the accomplishment of the study's objectives. Table 5 exhibits the results of **Table 5: Coefficient of Regression Model**

determining the extent of each independent variable's impact on the farmer's satisfaction. All of the aforementioned hypotheses are significant and have a substantial influence on how satisfied customers are with the marketing infrastructure of Uzhavar Santhai in Tirunelveli city. This study has shown that price stability and addition of cold storage are crucial elements in boosting farmer satisfaction.

Model 1	Unstd. Coeff		Std Co-eff	t	Sig.
	B	Std. Error			
Constant	-3.989 E-	0.043		0.000	1.0
Lack of cold storage facility	0.378	0.041	0.378	9.851	0
Price Volatility	0.391	0.042	0.391	8.853	0
Lack of Agriculture related Information	0.402	0.044	0.402	8.120	0
Transportation Facility	0.386	0.041	0.386	8.412	0
Dependent Variable: Farmer's Satisfaction					

7. DISCUSSION AND CONCLUSION

In order to better understand the variables influencing direct marketing to farmers, research was done. The research uses the four hypotheses to examine the interaction between independent and dependent variables. The variables included in this study demonstrate their importance in

farmers' satisfaction on marketing infrastructure. All independent and dependent variables were significantly linked when proper statistical software was used. According to the report, the variables that have the greatest impact on farmer's satisfaction who participate in direct marketing sales in Melapalayam and maharaja Nagar Uzhavar Santhai in

Tirunelveli are price volatility and a shortage of cold storage. Since the beginning, government organizations have regularly reviewed the activities at the Farmers Market to find ways to make them more efficient and to solve the different issues that farmers and customers have encountered. Uzhavar Santhai has its own benefits and drawbacks for the farmers who work there, just like a coin with two sides (Reddy, K.R., and Sateesh, H., 2012). The farmers strongly value the advantages of this market, such as direct sales, ease of marketing, etc. Many farmers have come to the Uzhavar Santhai because of the many amenities given there. Farmers and consumers can interact directly at farmers' markets or Uzhavar Santhai. Uzhavar Santhais can serve as information hubs for the selling of fresh produce and can assist to keep the cost of these items stable. It can also improve cooperation between the horticulture and agriculture departments. To satisfy the farmers, the government must provide better support in the areas of infrastructure, marketing, administration, and transportation. It is highly desired for more targeted activities to be accompanied with stringent limitations and monitoring to ensure the efficient operation of the market. Agriculture related information can also be provided to farmers to improve their farming effectiveness. It is preferable to base price on quality rather than on quantity. It provides instruction in this area and improves understanding of preservation and perishable fruit and vegetables storage. Farmers may be given access to a variety of facilities for product transportation. Regarding transportation, many farmers carry their produce mostly from far off places. There could be some arrangements made for transport facilities. Improvements to the infrastructure inside the marketplaces, notably the construction of cold storage equipment allowing farmers to store their unsold produce. This will be one of the key factors in the progression of farmers markets to a best position. It will assist the farmers in offsetting the income

loss by preventing waste and low pricing that often occur at the end of the day and during seasons, which will reduce price volatility. The availability of inexpensive, consistently high-quality vegetables benefits the customer and support the livelihood of farmers.

Limitations and scope for further research

The aforementioned makes it clear that a wide range different marketing infrastructure factors that influence satisfaction of farmers must be investigated before broad generalizations can be made to guide the Uzhavar Santhai development and expansion. More research is needed to examine these concerns in Uzhavar Santhais in Tamil Nadu using additional populations before generalization can be made. In addition, it is essential to extend outside Tamil Nadu through comparative study of farmer's market. The investigation of other internal and external factors is also a possibility.

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