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Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.ror.isrj.org

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G. Dhanalakshmi

AN ECONOMIC ANALYSIS OF MARKETING EFFICIENCY OF GUAVA PRODUCTION IN TIRUNELVELI DISTRICT

G. Dhanalakshmi
Assistant Professorof Economics, Ambai Arts College, Ambasamudram.

ABSTRACT

Guava fruit is commercially grown throughout the country. The present study was focused on the trend, growth rates and the magnitudes of variability of guava cultivation in India, marketing efficiency of guava of Tirunelveli district and the effects of variation in consumer's price on the shares of the producer-sellers and the retailer. Therefore, the objective of the study was to analyze the Marketing Efficiency of Guava Market in Ayakudi and Veerakeralampudur Village of Tirunelveli district. The statistical tools like compound growth rate, Shepherd's Formula, and method of least squares, regression coefficients, F– value and Garrett's ranking technique were used in the present study. It could be seen that the Guava production in India had been reduced heavily to the tune of 10.04 per cent per annum during the period of 2004-05 to 2014-15. The Area had increased significantly at the Compound Growth Rate of 7.34 per cent per annum and Productivity had decreased at the Compound Growth Rate of 15.12 per cent per annum respectively. It could also been seen that the Guava Production in India had experienced a considerable variation of about 14.45 per cent during the Period under Study. The variation in Productivity was found to be 33.08 per cent whereas it was 14.45 per cent in case of the Area under Guava Cultivation. It can be observed that the ratio of Marketing Efficiency (M.E) was more or less equal in both Ayakudi and Veerakeralampudur village. It was worked out to 4.82 in Ayakudi and 4.37 in Veerakeralampudur village. It indicates that there is no difference regarding the marketing efficiency between two villages. Regarding the marketing efficiency, there is no difference between two villages as per the ratios. From the results of estimated regression coefficients, shares of the producer and the retailer were significantly affected by the variation in the consumer's price. The

producer's share was inversely related to the consumer's price while retailer's share was positively related. The problems pertaining to marketing of guava were identified and ranked by using Garrett's ranking technique. It was noted from the analysis that the major problem in marketing of guava was lack of transportation facilities.

KEYWORDS :guava cultivation, compound growth rate, consumer price, retailer, marketing efficiency

INTRODUCTION

India is the second largest producer of fruits in the world. India's production of fruits stands at 64 million tonnes, making up for around 12% of fruits production of world (National Horticultural Board, 2010). Guava (Psidiumguajava L.), also known locally as jambubatu, is grown commercially and in many home gardens in India. The tree is very hardy and can grow to about 7-8 metres high with characteristic smooth, pale mottled bark that peels off in thin flakes. The fruits vary in size, shape and flavour depending on the variety. The better varieties are sweet while others may be astringent. On average, the fruit contains 74–87% moisture, 13–26% dry matter, 0.5–1% ash, 0.4–0.7% fat and 0.8–1.5% protein (Chin and Yong, 1980). It is rich in ascorbic acid (vitamin C), at levels far higher than most imported and local fruits.

The fruit, in particular the pink flesh cultivar, has a fair amount of vitamin A (beta-carotene). Some vitamin B such as thiamine (B1), riboflavin (B2), niacin and pantothenic acid are also found in the fruit. In addition, it also contains a fair amount of phosphorous, calcium, iron, potassium and sodium (Lim and Khoo, 1990).Guava, as in many other fruits and vegetables, is also rich in antioxidants that help to reduce the incidence of degenerative diseases such as arthritis, arteriosclerosis, cancer, heart disease, and inflammation and brain dysfunction. In addition, antioxidants were reported to retard ageing (Feskanich et al., 2000; Gordon, 1996; Halliwell, 1996) besides preventing or delaying oxidative damage of lipids, proteins and nucleic acids caused by reactive oxygen species. It is a wilt resistant species, and was used as a wilt resistant rootstock in the different parts of the world. Psidiummontanum, was found on the mountains in Jamaica. In India, the Total area under Guava Cultivation was approximately 219.70 Thousand Hectares with an estimated annual production of 2,572 Lakh Tonnes.

Guava fruit is commercially grown throughout the country. In India, production of guava is 2.27 Metric Tons with an area coverage of 0.20 million hectares (Kumar et al., 2010). In Haryana, production of guava is 0.053 Metric Tons with an area coverage of 0.007 million hectares (Anonymous, 2010). It is one of the most common and major fruit of India and considered the fifth most important fruit in area and production after mango, banana, citrus and apple with annual production. Hence the guava is called as "Garibanchesafarchand" (Naphadeand Tingre2008).

India is the leading producer of guava with approximately 40% of guava production in the world. Guava is the fourth most important fruit in India which occupies approximately 6.5% of the area under fruit cultivation. Uttar Pradesh, Bihar, Maharashtra, Madhya Pradesh, Andhra Pradesh and Gujarat are the major guava producing states in India. Uttar Pradesh is the 3rd highest guava producing state after Maharashtra and Bihar (Indian Horticulture Database, 2011).

The present study was focused on the trend, growth rates and the magnitudes of variability of guava cultivation in India, marketing efficiency of guava of Tirunelveli district and the effects of variation in consumer's price on the shares of the producer-sellers and the retailer. Therefore, the objective of the study was to analyse the marketing efficiency of guava market in Ayakudi and

Veerakeralampudur Village of Tirunelveli district.

METHODOLOGY

The proportionate probability random sampling technique has been used to select 150Guavaorchards in each selected villages. Further, 10 market intermediaries concerned in this field, dealt with each village, consisting of5 commission agents cum wholesaler and 5 retailers were selected at random from primary data collection regarding the marketing costs, profits and the like. To study the marketing of Guavafrom both Ayakudi and Veerakeralampudur Village, commission agents cum wholesalers and retailers were contacted.

The selected respondents were contacted individually and the required data for finding out marketing cost and price spread were gathered. The field investigation work was carried out during the months of April 2014 to June 2015 which represents the harvest season for Guava. The primary data collection pertains to the agricultural year 2014-15. Secondary datawere collected from the statistical office of the district, MSME- (Micro Small & Medium Enterprises) Development Institute, Tirunelveli, District Industries Centre, Tirunelveli, books, journals and websites.The statistical tools like Compound Growth Rate, Shepherd's Formula, and method of least squares, regression coefficients, F– value and Garrett's ranking technique were used in the present study.

RESULTS AND DISCUSSION

COMPOUND GROWTH RATE AND THE MAGNITUDE OF VARIABILITY

The Annual Compound Growth Rate in the Area, Production and the Productivity of Guava and the Co-efficients of variation in India had been presented in the Table 1.

TABLE 1

TREND, GROWTH RATES AND THE MAGNITUDES OF VARIABILITY OF GUAVA CULTIVATION IN INDIA FROM 2004-05 TO 2014-15

Particulars	Semi-log		R	CGR (per cent/per annum)	CV (per cent)
	Constant	Regression co-efficient			
Area	7.241(0.094)	0.063(0.014)	0.972	7.34	14.45
Production	8.122(0.383)	–0.045(0.086)	0.635	–10.04	33.08
Productivity	6.413(0.187)	–0.081(0.072)	0.923	–15.12	14.45

SOURCE: Compiled from secondary data
CGR – Compound Growth Rate
CV – Co-efficient of Variation.

A. GROWTH RATE

It could be seen from the Table 1 that the Guava production in India had been reduced heavily to the tune of 10.04 per cent per annum during the period of 2004-05 to 2014-15. The Area had increased significantly at the Compound Growth Rate of 7.34 per cent per annum and Productivity had decreased at the Compound Growth Rate of 15.12 per cent per annum respectively. Thus, it could be observed that the decrease in Production had occurred and it might be due to the Guava Wilt Disease and the poor storage facilities that were available.

B. MAGNITUDE OF VARIABILITY

It could also been seen from the Table 1 that the Guava Production in India had experienced a considerable variation of about 14.45 per cent during the Period under Study. The variation in Productivity was found to be 33.08 per cent whereas it was 14.45 per cent in case of the Area under Guava Cultivation.

MARKETING EFFICIENCY

Marketing efficiency is the ratio of market output (consumer's price) to marketing input (total cost of marketing). An increase in this ratio represents improved efficiency and a decrease denotes reduced efficiency. Shepherd had suggested that the Ratio of the Total value of the goods sold in the Market and the Total Marketing Costs could be used as a Measure for Marketing Efficiency. According to him, the Greater the Ratio, the Higher was the efficiency and the lower the Ratio the lower was the Marketing Efficiency. Shepherd's Formula for Marketing Efficiency is (G.S.Shepherd, 1965) ME □ V/ I - 1 Where, ME denoted Marketing Efficiency, V the value of the goods sold at (Consumers' price): and I was the Total Marketing Costs (or) Inputs of Marketing.

TABLE 2
MARKETING EFFICIENCY OF GUAVA MARKET IN AYAKUDI AND VEERAKERALAMPUDUR VILLAGE

Particulars	Ayakudi	Veerakeralampudur
Value of the produce sold (V) (Consumer's price Rupee/Metric tonne)	6831.23	5903.01
Marketing cost (I) (Rupee/Metric tonne)	1649.21	1482.44
Marketing Efficiency (ME)	4.82	4.37

It can be observed from the table 2 that the ratio of Marketing Efficiency (M.E) was more or less equal in both Ayakudi andVeerakeralampudurvillage. It was worked out to 4.82 in Ayakudi and 4.37 in Veerakeralampudur village. It indicates that there is no difference regarding the marketing efficiency between two villages.

EFFECTS OF VARIATION IN THE CONSUMER'S PRICE ON THE SHARE OF THE PRODUCER-SELLER AND RETAILER

The effects of variation in consumer's price on the shares of the producer-sellers and the retailer were estimated by the method of least squares and the results are presented in the tables 3 and 4.

TABLE 3
EFFECTS OF VARIATION IN CONSUMER'S PRICE ON THE SHARES OF THE PRODUCER-SELLER

Taluk	Regression Coefficients		R_2	F-value
	$\propto_1$	B_1		
Ayakudi	2.84	-0.31* (-3.65)	0.82	395.01
Veerakeralampudur	2.52	-0.63* (-4.82)	0.81	418.91

Note: Figures in the parentheses are the percentages.
* indicates that the coefficients are significant at 5 per cent level.

TABLE 4
EFFECTS OF VARIATION IN CONSUMER'S PRICE ON THE SHARES OF THE RETAILER

Taluk	Regression Coefficients		R_2	F-value
	$\propto_1$	B_1		
Ayakudi	-4.64	3.83* (6.80)	0.83	328.01
Veerakeralampudur	-4.91	3.11* (4.01)	0.84	362.21

Note: Figures in the parentheses are the percentages.
* indicates that the coefficients are significant at 5 per cent level.

From the Tables 3 and 4, the significant regression coefficients indicated that the shares of the producer-sellers and retailers in the consumer's rupee were affected by the changes in the consumer's price. As indicated by the signs of the regression coefficients the producer's share was inversely related to the consumer's price while retailer's share was positively related. It implies that one per cent increase in the consumer's price the share of the producers of guavadecreased by 0.31 per cent and 0.63 per cent in Ayakudi andVeerakeralampudur area respectively. On the other hand, one per cent increase in the consumer's price, the shares of the retailers increased by 3.83 and 3.11 per cents in Ayakudi and Veerakeralampudur respectively. It is to be noted that much of the variations in the shares of the producer-sellers as well as retailer were explained by the consumer's price as indicated by the values of R2 which ranged from 0.81 to 0.84 per cents. The F– values show that the regression model is statistically significant at one per cent level.

TABLE 5
PROBLEMS FACED BY THE PRODUCERS IN THE MARKETING OF GUAVA

Factors	Mean score	Rank
Absence of Regulated Markets	51.62	III
Lack of Grading and Processing Facilities	45.32	IV
High marketing cost	59.31	II
Lack of transport	68.22	I
Lack of storage facilities	38.12	V

Source: Computed from Primary Data

It could be observed from the table5 that the lack of transportation facilities had been the major problem faced by the Growers with a Mean Score of 68.22. The high marketing cost had been the Second important problem with a Mean Score of 59.31. The Third important problem had been the absence of Regulated Markets with a Mean Score of 51.62. Lack of Grading and Processing Facilities and the lack of Storage Facilities had been the Fourth and the Fifth important problems with Mean Scores of 45.32 and 38.12 respectively.

CONCLUSION

Guava has great potential for extensive commercial use because of its ease of culture, high nutritive value and popularity of processed guava products. Regarding the marketing efficiency, there is no difference between two villages as per the ratios. From the results of estimated regression coefficients, shares of the producer and the retailer were significantly affected by the variation in the consumer's price. The producer's share was inversely related to the consumer's price while retailer's share was positively related. The problems pertaining to marketing of guava were identified and ranked by using Garrett's ranking technique.

It was noted from the analysis that the major problem in marketing of guava was lack of transportation facilities.In order to develop efficient and sustainable marketing system for fresh guava in Tirunelvelidistrict, India, it is important to provide accurate market information regarding price and demand, proper storage, grading and packaging facilities, efficient transportation and logistics system, credit and insurance facilities, etc. to producer and intermediaries involved in marketing supply chains. Furthermore the producers, wholesalers and retailers should be provided necessary logistics and financial support to transport fresh guava to neighbouring cities / states in order to control fluctuation in price and demand. The overall results of the study clearly revealed that it is important to evolve a single window marketing system such as cooperative marketing system for fresh guava in Tirunelvelidistrict in order to improve the socio economic condition of guava farmers and provide competitive price to the consumers.

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