

Adoption behavior of guava (*Psidium guajava* L.) growers in relation to scientific cultivation of guava

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ABSTRACT

An experiment was conducted to study the adoption behavior of guava growers in relation to scientific cultivation of guava in Nadia district of West Bengal. Fifty guava growers were randomly selected from Saguna gram panchayat under Chakdaha block in Nadia District of west Bengal. This block was selected purposively. To meet the demand, the data were processed by using some statistical tool and the result shows that The causal variables exhibited a more or less consistent behavior. The variables as ranked according to their consistency was economic status(16.29%), family size(30.11%)family education status (30.96%), age (30.97%), herd size (33.00%),land holding (41.06%),income from agriculture (45.35%) education (49.48%).income from guava (66.16%), land under guava (72.07%)guava yield (77.47%) social participation (78.68%) respectively.

Key words: Adoption behavior, purchasing power, scientific cultivation practices, socio-economic.

In the global scenario, it has been found that in agricultural front there is a distinct gap between developed and developing as well as underdeveloped countries in the context of productivity, sustainability and so on. While the developed countries have achieved a great success in meeting their food demand by producing extra over their need, the developing and underdeveloped countries are still now struggling with their food crisis and far away from their desired goal of food for all. Indian has got a wide range of agro-climatic condition providing a conducive atmosphere for growing a vast and diversified range of fruit crops. With an annual production of 30 million tons from an acreage 3.5 million hectares, India has establish herself as the third largest producer of fruits in the world. The past three decades have witnessed a threefold jump in the production of fruits owing to the adoption of high yielding cultivars and adherence to modern scientific management practices.

Guava (*Psidium guajava* L.) originated, along with a number of other fruits, in tropical Mexico to Peru. It is grown in Ceylon from sea level to an elevation of 5,000 feet (1515 m) and thought Burma. At present the major guava producing countries are Southern Asian countries, the Hawaiian Island, Cuba and India. Records suggest that it has been cultivation in India since early 17th century and gradually became a crop of commercial significance. In India it is successfully cultivated all over the country. Guava is rich source of vitamin - C and pectin, 250 gm vitamin C/100 g of fruit, which differ with the variety, stage of maturity and season. It is a good source of both thiamine and riboflavin. Its fruits have good taste, nourishing value and a lot of minerals. It ranks third in vitamin C content after barbadose cherry and anola. The fruits are consumed as fresh as well as used for manufacturing jam, jelly and other processed product. Guava jelly is well

known to all and the common sour wild guava makes the best jelly. It's juice is used for the preparation of 'Sherbets' and ice cream.

With this thought keeping in background, the present research work on different Guava growers was conducted at the Saguna gram panchayat, Nadia District of West Bengal during the year 2007-2008 with the boarder objectives to study the adoption behavior of guava growers in relation to scientific cultivation of guava.

This study was conducted to examine the financial viability of guava (Baruipur, Kadmkhaja, Khaja, Dudhekhaja variety) cultivation in Nadia and South 24-parganas, West Bengal, India, during 2007-2008. Based on the analysis, it may be inferred that cultivation of guava in West Bengal is economically viable, not only for the farm owners, but also for the entrepreneurs who would like to grow guava on commercial basis in leased-in land. However, other added advantages like higher potential of employment generation, additional return that can be realized by introducing vegetables as intercrops have not been taken into consideration while estimating economic return which could have otherwise strengthen the economic viability of guava cultivation.

Any transformation has become a resultant to a process of adoption. So, transformation and adoption are usually interdependent. The quality and nature of adoption have bred on transforming life-style taking agricultural enterprise integral to it. Since adoption basically goes psychological and motivational, objectives indicators are types of innovation in the form of inputs, implements, techniques, tools etc thus in turn characterize the resultant adoption. Thus in studying the nature and degree of adoption process measure through psychological and cultural ingredients, some factors

have been considered that serve as measurement of the complexity of the human mind.

MATERIALS AND METHODS

Three villages under Saguna gram panchayat were purposively selected for the present investigation. The villages were Ghoragachha, Basantapur and Katabelia. The total number of guava growers were 117 and the 50 no. of respondents selected by disproportionate random sampling method, Blalock (1960).

Schedule was constructed based on the selected variables to be studied in the specific situation with the help of various literatures as well as in consultation of experts.

The dependent variable in the context of the present study was adoption of guava cultivation. The selected independent variables were grouped on the basis of socio-economic, socio-psychological and extension communication characteristics. The acceptability of an innovation to an individual depends on its permissibility to his socio-economic and psychological orientation. Thus in the present study, the selection of independent variables were made to include following characters under socio-economic, socio-psychological and extension communication nature, age (X_1), education (X_2), family size (X_3), family education status (X_4), social participation (X_5), land holding (X_6), area under guava (X_7), economic status (X_8), income from others source (X_9), income from guava (X_{10}), herd Size (X_{11}), guava yield (X_{12})

After data collection, data was processed and analyzed in accordance with the outline laid down for the purpose at the time of developing the research plan. Processing implies editing, coding, classification and tabulation of collected data so that they are amenable to statistical analysis.

RESULTS AND DISCUSSION

These deal with frequency, percentage, average, distribution of various economic and psychological characteristics of the guava grower as well as the correlation of scientific guava cultivation with the adoption of growers.

Descriptive distribution of the variables with reference to respondent profile

Table-1 presents the distribution of the 12 casual variables in term of their mean, standard deviation and the coefficient of variation. The ranks of their consistency have also been depicted. The mean age of respondents was about 38 years exhibiting a standard deviation of 11.89; the variable education recorded a mean about 6.62 and a standard deviation of 3.27. The family size got a mean of 6.76 and a standard deviation of 2.03. The family education status recorded a mean of about 3.04 with a

standard deviation of 0.94. The social participation indicates a mean score of 0.82 and standard deviation of 0.59. The land holding by the respondent's average at 1.50 acre with a standard deviation of 0.61. The area under guava cultivation operated by the standard deviation 0.4. The economic status of the respondent revealed a mean of about 10.9 with a standard deviation of 1.77. The other variable such as annual income from agriculture, income from guava, herd size and guava yield indicated the mean score of 14.2, 29.54, 4.86, 27.47 and the same variables recorded a standard deviation 19.01, 19.55, 1.60, 21.28 respectively.

The causal variables exhibited a more or less consistent behavior. From table -1 the variables as ranked according to their consistency was economic status (16.29%), family size (30.11%), family education status (30.96%), age (30.97%), herd size (33.00%), land holding (41.06%), income from agriculture (45.35%), education (49.48%), income from guava (66.16%), land under guava (72.07%), guava yield (77.47%), social participation (78.68%) respectively. These are discussed below.

Correlation coefficient between the independent variable and adoption quotient

Table-2 shows that Age of respondents was negatively and significantly related with adoption behavior of guava grower regarding scientific guava cultivation. Generally experienced and higher ages farmer giving attention to grow vegetables and other crops. As a result they cannot properly followed up the cultivation from time to time the guava growers having high school level education had higher adoption perhaps raise the compatibility factors i.e. present scientific technology and cultural values of young growers play an important roles that lends towards higher adoption of guava cultivation

As correlation coefficient is negative so there is no significant impact of family size on adoption of guava growers although it becomes helpful. Perhaps family size was potential determinant in case of other business sectors. Big family members engaged themselves as labour, rickshaw pulling, auto driving, small shop keeping etc. generally they prefer instant economic return from their own work. Thus it has no significance with adoption of guava cultivations.

The respondents having higher education status have more adoption of scientific guava cultivation because they can develop input because they can develop knowledge from different source of information. *i e.*, distribution of inputs and its management practices which can be provided by means of better return from the field.

If social participation was higher the level of adoption of scientific guava cultivation also higher. Higher social participation means more interaction with composite sources and channels of individual

group and mass contact, result greater adoption behavior of the scientific guava cultivation.

Larger the size holding, higher was the level of adoption of scientific guava cultivation. Larger holding size indicates better and sound economic status of the grower; it results to adequate and timely supply inputs and services.

Guava growers who have large size of guava garden are characterized by better economic status .so their adoption behavior are higher than the grower who has small size guava garden variables economic status of the study comprising of house type, material possession and physical status. Better economic status means grower having better type of house, more modern valuable domestic materials and appliances and improved condition of land. The grower of higher economic status generally posses higher social prestige and recognition in a social system.

The respondents having higher income from vegetable jute and cereals have more adoption of scientific guava cultivation because they can invest more money towards guava garden. Modern garden demands more money which can be provided by accelerating the income from other than guava cultivation.

Higher income from guava leads to higher the adoption of scientific guava cultivation that means growers who can earn more from guava have tendency to invest more which improve their adoption behavior.

There is a significant impact of herd size on adoption behavior of growers so far as economically viable concern. Perhaps herd size is potential determinant of economic status of the guava grower.

They keep and maintain herds for ploughing and carrying loads towards the regulator market.

Thus it has got significant relationship with adoption of scientific guava cultivation.

More the guava yield means better economic condition .adoption behavior depends on economic condition of the adopters. Thus sound economic condition influenced adoption.

This chapter presents the precise form of the research work, explaining certain intricacies through subsequent interpretation of the result. The final conclusions are thereby drawn from the earlier attained results.

Fruit crops have got high cost benefit ratio in terms of others crops and have got a great scope in trade and industrial development. Guava has got a huge potential in West Bengal due to its favorable agro-climatic condition. The guava acreage in West Bengal is growing rapidly due to its high demand and profit.

If we see the records in India i.e. productivity we can found a huge gap between the states like Maharashtra, Tamil Nadu and West Bengal. So there is a need to adopt the scientific and improved method of guava cultivation to raise productivity. As a process of Agricultural development the adoption of innovation plays an important role in raising the socio-economic condition of farmers in the farming community. In the ultimate stage the transfer of technology remains with the farmers.

Through this study it can be inferred that adoption of scientific guava cultivation is largely depend upon the socio-economic and psychological characteristics of guava grower.

Table :1 Descriptive distribution of the variables with reference to respondent profile:

Variables	Mean	SD	Coefficient of		
			Percentage	Rank	
X ₁	38.4	11.89	30.97	iv	0.359*
X ₂	6.62	3.27	49.48	viii	0.605*
X ₃	6.76	2.03	30.11	ii	-0.170(NS)
X ₄	3.04	0.94	30.96	iii	0.616**
X ₅	0.82	0.59	78.68	xii	0.527**
X ₆	1.50	0.61	41.06	vi	0.646**
X ₇	0.59	0.43	72.07	x	0.647**
X ₈	10.9	1.77	16.29	i	0.648**
X ₉	41.92	19.01	45.35	vii	0.582**
X ₁₀	29.54	19.55	66.16	ix	0.363**
X ₁₁	4.86	1.60	33.00		0.502**
X ₁₂	28.47	21.28	77.47	xi	0.666**

Note :age (X₁), education (X₂), family size (X₃), family education status (X₄), social participation (X₅), land holding (X₆), area under guava (X₇), economic status (X₈), income from others source (X₉), income from guava (X₁₀), herd Size (X₁₁), guava yield (X₁₂)

** Significant at 0.01 level of probability, * significant at 0.05 level of probability, NS not significant

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