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ADOPTION OF RECOMMENDED GUAVA PRODUCTION PRACTICES

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ABSTRACT

Present research was conducted in Kaurihar block of Prayagraj district of U.P. The purpose of the study was to assist the socio-economic profile of the guava growers and the adoption regarding the recommended guava production practices. Kaurihar block was purposely selected because of the maximum production. From the block total 20 villages were randomly selected for the study, 6 respondents were selected from each village thus the total respondents 120. The results shows that majority 61.67 per cent of the respondents belongs to medium level of progressiveness, 66.67 percent belongs to medium level of risk bearing capacity and 49.17 per cent of the respondent belongs to medium level of socio-economic status. The respondents were having medium level of adoption in improved varieties, propagation methods, row-row and plant-plant distance, NPK ration, irrigation, pruning of plant and packaging. And low level of adoption in bahar treatment, intercropping, high density planting, control measures of diseases, insecticides application, mulching, training of plant and post-harvest. Majority 56.67 per cent of the respondent has medium level of adoption. Association between socio-economic profile and adoption of guava cultivation source of information 0.95, annual income 0.87, social participation 0.86 and extension contact 0.81 shows strong and positive correlation.

Keywords: *adoption, correlation, guava, recommended practices, socio-economic*

INTRODUCTION

The Guava, botanically known as Psidium guajava belongs to the family of Myrtaceae. Guava is successfully grown upto 1500 metre above mean sea level. It can grow with an annual rainfall of about 100 mm and temperature between 15 to 300 C. It requires a dry atmosphere during flowering and fruiting. However, the young plants are susceptible to drought and cold. Guava grows well in high sandy loam to clay soils. The high acceptability of guava fruit is due to its high nutritive value, pleasant aroma and availability of moderate price (Bangarva *et al.,* 2013).

Guava occupies a premier position among the tropical fruit trees. It is rich in vitamin C (75-260 mg / 100 g pulp), pectin (0.5-1.8 %), good source of thiamine (0.03-0.07 mg/ 100 g pulps) and riboflavin (0.02-0.04 mg / 100 g pulp). Besides, guava fruit is also a good source of minerals, like phosphorus (22.5-40.0 mg / 100 g), calcium (10.0-30.0 mg / 100 g) and iron (0.60-1.39 mg / 100 g). Guava is scattered throughout India and cultivated in an area of about 1,02,000 hectares with production of 12,00,000 tons (Mishra and Pandey, 2002).

In India, guava ranks fourth in area and production after mango, banana and citrus. Among the states, Uttar Pradesh tops the list with regard to acreage and production (Singh and Tyag, 2017). Guava 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. It is a good source of both thiamine and riboflavin. Its fruits have good taste, nourishing value and a lot of minerals. 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 (Nanda *et al.*, 2011).

In India, guava is commercially propagated by air-layering (marcottage) during monsoon. Application of auxin (IBA 3000-5000 ppm) increased percentage of success and survival. Propagation by veneer grafting, and patch budding have also been standardized. The Central Institute of subtropical Horticulture, Lucknow standardized the technique of wedge grafting for rapid multiplication of guava. The success of technique was reported to be 70-92% in green house and 37-77% in open. Traditionally guava is planted in square system at a distance of 6 x 6 m to 8 x 8 m. Recent trends in guava cultivation is planting at a closer spacing for obtaining higher yield per unit area. However, regular canopy management by pruning and thinning are

considered as prerequisite for high-density planting (Mitra *et al*., 2007; Desai et al., 2022).

Crop regulation is achieved by adoption and suitability of various techniques like withholding irrigation, flower bud thinning, shoot pruning and application of different chemicals. To regulate the guava crop for obtaining quality fruit produce, it is essential to reduce the fruit set during the rainy season which subsequently increases the quality fruit production during winter season. A good harvest is possible only if crop is regulated to single season bahar with better source-sink ratio otherwise the uninterrupted continuous blossoms would produce light crops over the whole year and require a high production cost involving watch and ward as well as poor marketing for inferior quality fruits, thereby increasing huge economic losses to the fruit growers (Suman and Bhatnagar, 2019).

With keeping the above detail in background, the present study was conducted at the Kaurihar block of Prayagraj district of U.P.

OBJECTIVE

To determine the adoption of recommended guava production practices by the respondents

METHODOLOGY

Prayagraj district was purposely selected for present study because guava being major fruit for the area. Kaurihar block was purposely selected because of its maximum area under Guava. 20 villages were selected purposely on the basis of maximum area under Guava cultivation. From each selected village 6 respondents were selected randomly Thus total of 120 respondents were selected for present study.

The primary data was collected with the help of personal interview technique with the help of pre-structured interview schedule designed especially in the light of objectives set up for the study. Secondary data was collected from books, journal, library, documents and government websites etc.

The dependent variable in the context of the present study was adoption of recommended guava production practices. 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 was made to include following characters under socioeconomic, socio-psychological and extension communication nature, age (X1), education (X2), land holding (X3), Annual income (X4), family size (X5), social participation (X6), extension contact (X7), source of information (X8), progressiveness (X9), risk bearing capacity (X10)

Person's Correlation statistical test was applied as per the nature of the data. The collected data was transformed into score for tabulation and analysis in the light of objectives to draw the logical conclusion.

RESULTS AND DISCUSSION

Result and discussion 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.

Table 1: Socio economic profile of the respondents. (n=120)

Sr. No.	Socio-economic Profile		Frequency	Percentage
1	**Age**	Young (20-35 year)	11	09.17
		Middle (36-55 year)	63	52.50
		Old (above56 year)	46	38.33
2	**Education**	Illiterate	68	56.67
		Primary	25	20.83
		Junior High School	08	06.66
		High School	14	11.67
		Intermediate	03	02.50
		Graduate & above	02	01.67
3	**Land holding**	< 1 hectare	65	54.17
		1-2 hectare	43	35.83
		>2 hectare	12	10.00

Sr. No.	Socio-economic Profile		Frequency	Percentage
4	**Annual income**	< ₹ 50,000	56	46.67
		₹ 50,001-100,000	49	40.83
		> ₹ 100,000	15	12.50
5	**Family type**	Nuclear	46	38.33
		Joint	74	61.67
6	**Social participation**	No Membership	60	50.00
		Membership of 1 organization	51	42.50
		2 or more Membership org.	09	07.50
7	**Extension contact**	Low	60	50.00
		Medium	51	42.50
		High	09	07.50
8	**Source of information**	Low	55	45.83
		Medium	58	48.84
		High	07	05.83
9	**Progressiveness**	Low	19	15.83
		Medium	74	61.67
		High	27	22.50
10	**Risk bearing capacity**	Low	16	13.33
		Medium	80	66.67
		High	24	20.00

The above data indicates that the majority (52.50%) of the respondents were from middle aged group (36-55 years), majority (56.67%) of the respondents were from illiterate category, majority (54.17%) has less than 1 ha of land, maximum 46.67 per cent respondents were having less than 50000 rupees as their annual income and majority (61.67%) of them having joint family, majority (50%) of the respondents were not having any membership, majority (50%) of the farmers were having low extension contact, maximum respondents 48.84 per cent were from medium source of information group, majority (61.67%) of the respondents were from medium level of progressiveness group and majority (66.67%) of the respondents were from medium risk bearing capacity group.

Table 2: Over all socio-economic status of the respondents. (n=120)

Sr. No.	Status	Frequency	Percentage
1	Low	59	49.17
2	Medium	53	44.17
3	High	08	06.66

Above data indicates that majority 49.17 per cent of the respondent belongs to low level of socio-economic status, followed by 44.17 per cent and 06.66 per cent respondents belongs to medium and high level of socio-economic status respectively.

Table 3: Extent of adoption of recommended Guava production practices (n=120)

Sr. No.	Particulars	FC	PC	NC
1	Improved varieties (Alld. Surkha, Alld. Safeda, Chittidar and Lalit)	45 (37.50)	70 (58.33)	05 (04.17)
2	Bahar Treatment Ambe (feb), Hasta (oct) and Mrig (june)	02 (01.67)	31 (25.83)	87 (72.50)
3	Intercropping in guava (peas, cowpea and gram)	01 (00.83)	17 (14.17)	102 (85.00)
4	Number of plants in High density guava orchard (5185 plant/ha)	00 (00.00)	26 (21.67)	94 (78.33)

Sr. No.	Particulars	FC	PC	NC
5	Propagation methods; seed, layering, air layering, grafting (budding or grafting), cuttings (root or shoot) or tissue culture.	14 (11.67)	104 (86.77)	02 (01.66)
6	Row to row & Plant to plant distance 2m * 1m (5000 plant/ha)	00 (00.00)	93 (77.50)	27 (22.50)
7	NPK ratio one kg each in two split doses during March and October Farm yard manure @ 50 kg	06 (05.00)	108 (90.00)	06 (05.00)
8	Number of Irrigation @ interval of 20-25 days in winter, 10-15 days in summer	05 (04.17)	106 (88.33)	09 (07.50)
11	Control methods: Carbendazim/Thiophanate methyl (1g./l) or Kavach/ Mancozeb (2 g/l)	00 (00.00)	06 (05.00)	114 (95.00)
13	Control methods: Malathion (2ml.), Phosphamidon (0.5ml/ltr), Dimethoate Monocrotophos.	00 (00.00)	05 (04.17)	115 (95.83)
14	Mulching: Black polyethylene sheet/Organic materials at least twice a year.	00 (00.00)	10 (08.33)	110 (91.67)
15	Training: clean trunk from 60-90 cm from the base, building strong framework at young age.	00 (00.00)	07 (05.83)	113 (94.67)
16	Pruning: Removal of unwanted plant parts after harvesting or in spring.	11 (09.17)	100 (83.33)	09 (07.50)
17	Packing of guava local made baskets and wooden or corrugated fiber board boxes for distance market.	22 (18.33)	97 (80.84)	01 (00.83)
18	Post-Harvest handling and value addition. (Jam & Jelly etc.)	00 (00.00)	06 (05.00)	114 (95.00)

FC = Fully Adopted PA = Partially Adopted NA = Not Adopted

Above table indicates that majority of the respondents has medium adoption in Improved Variety (58.33%), Propagation method (86.77%), Row-Row & Plant-plant distance (77.50%), NPK ratio (90.00%), Irrigation management (88.33%), Pruning of plant (83.33%) and Packaging of produce (80.84%). Low adoption in Bahar treatment (72.50), Intercropping (85.00%), High density planting (78.33%), Disease Control (95.00%), Insecticides application (95.83%), Mulching (91.00%), Training of Plant (94.67%) and post-harvest (95.00%).

Overall adoption of the respondents for Guava production practices

Table 4: Overall adoption of the respondents for Guava production practices (n=120)

Sr. No	Status	Frequency	Percentage
1	Low	46	38.33
2	Medium	68	56.67
3	High	06	05.00

Above data indicates that majority 56.67 per cent of the respondents belong to medium level of adoption, followed by 38.33 low level of adoption and remaining 5 per cent from high level of adoption categories.

Descriptive distribution of the variables with reference to respondent profile

Table 5: Descriptive distribution of the variables with reference to respondent profile (n=120)

Sr. No.	Socio-economic profile	Correlation coefficient (r)	Rank
X_1	Age	0.16*	9
X_2	Education	0.77**	5
X_3	Land Holding	0.71**	6
X_4	Annual Income	0.87**	2
X_5	Family Type	0.09(NS)	10
X_6	Social Participation	0.86**	3
X_7	Extension Contact	0.81*	4
X_8	Source of Information	0.95**	1
X_9	Progressiveness	0.68*	8
X_{10}	Risk Bearing Capacity	0.69*	7

***Strongly significant, *moderately significant, NS non-significant*

The above data shows the distribution of the 10 independent variables in term of their coefficient of variation. The ranks of their consistency have also been depicted. Age

records 0.16 coefficient of variation, education recorded 0.77, land holding got 0.71, annual income recorded 0.87, family size indicates 0.09, social participation indicates 0.86, extension contacts revealed 0.81 coefficient of variation. The other variable such as sources of information, progressiveness and risk bearing capacity indicates 0.95, 0.68 and 0.69 coefficient of variation respectively.

CONCLUSION

It was concluded that the socio-economic profile of the respondents was medium level, it was also found that the adoption level of the respondents was medium level because they've medium level of adoption in their processing of different activities. The major association of adoption and socio-economic status were source of information, annual income, social participation, extension contact and education were strong positively correlated, that means improving of these independent variables there will be improvement in the adoption too. Therefore, the suggestions for better adoption of recommended guava production practices are field demonstration, training of new technology on regular interval, extension activities should be more in reach of the guava growers, proper market channel for better return and new storages must be established.

IMPLICATIONS

Government and the first line of extension stakeholders must take the initiative to better sensitize the farmers regarding the benefit and importance of recommended production practices. Progressive farmers should be identified to influence the other farmers. Better storage facility should also be established for the storage of the produce as well as for the long-distance transportation.

CONFLICT OF INTEREST

This is to declare that there is "No conflict of interest" among researcher.

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