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To study the adoption rate of post-harvest management practices in banana cultivation

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Abstract

To study the adoption rate of post-harvest management practices in banana cultivation in Barabanki District were carried out in the year 2018-19 by following the random sampling, 120 respondents were selected from the two blocks. Out of total respondents 52.5 percent of respondent were belong to joint family system. 55.8 percent of respondents were belong to Rs.1.5 lac to 0.3 lac annual income. Pre harvesting spraying practices was fully adopted of cultivators. 55.8 percent of farmers partially adopted Pre-harvest sprays. And 52.5 percent of farmers does not graded their fruits. while, 55.0 percent of farmers transport their fruits by other ways of transportation, These point out the need for increased research and extension services as well as improvement in postharvest handling (transportation, storage, packaging and ripening) and marketing infrastructure and facilities. Small fruits, sun burn, harvesting injury and cracks and cankers at farm level; physiological dryness, physical damaged fruits and over ripened fruit at retailer's level were the major causes responsible for post- harvest losses in banana. Over ripening loss at wholesale.

Keywords: Farmers, fully adopted, marketing, post-harvest, transportation

Introduction

Banana is one of the widely grown and consumed fruits due to their distinct aroma and taste, in all parts of the world. It is the staple food and economic life line for many countries. It is cheap source of carbohydrate and rich source of potassium, calcium, antioxidants, and other micronutrients. Banana is one of the most appreciated fruit all over the world because of its multipurpose use as food. Banana crop has always ensured good profit. It is due to the minimum risk factor that the area of banana cultivation has grown in the state in the cast decade. These plants are sources of foods, silage, fragrance, rope cordage, garlands shelter clothing, smoking material, numerous ceremonial and religious uses. Banana is harvested when the fruit is slightly or fully mature depending on the market preferences. For long distance transportation, harvesting is done at 75-80% maturity. The fruit is climacteric and can reach consumption stage after ripening operation. The planted crop gets ready for harvest within 12-15 months of planting and the main harvesting season of banana is from September to April. Bunches attain maturity from 90-150 days after flowering depending upon variety, soil, weather condition and elevation. Bunch should be harvested when fingers of second hand from top are 3/4 rounded with the help of sharp sickle 30 cm above the first hand. Harvest may be delayed up to 100-110 days after opening of the first hand. Harvested bunch should generally be collected in well-padded tray or basket and brought to collection site. Bunches should be kept out of light after harvest, since this hastens ripening and softening. For local consumption, hands are often left on stalks and sold to retailers. The dwarf varieties are ready for harvesting within 11 to 14 months after planting while the tall varieties take about 14 to 16 months. For getting good quality banana, only 7 to 8 berries are to be retained in a bunch.

Research Methodology

The study entitled, "Impact of technology adoption on marketing of produce as well as income generation of farmers" was conducted in Barabanki District during 2018-19 and two blocks selected in this study. From each selected block, a list prepared. From each block, three villages were selected for study purpose and 20 respondents selected from each village. These areas shall present different segment of Banana farming Dependent and independent variables namely age, education, religion, caste, type of house, type of family, size of family, annual income, land holding etc. were used the collected data were subjected to statistical analysis for which statistical tools, percent, weighted mean, arithmetic mean, rank and standard deviation.

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Results

Table 1: Distribution of farmers according to family type

Age group	Frequency	Percent	Mean \pm SD
30 to 40 years	8	6.7	38 \pm 1
40 to 50 years	55	45.8	45 \pm 3
50 years and above	57	47.5	55 \pm 5
Total	120	100.0	50 \pm 5

Table 1. The data pertaining table shows that distribution of Banana cultivators according to family type. maximum 52.5 percent of respondent were belong to joint family system followed by 47.5 percent of respondent belong to the nuclear family in the research study area.

Each family has its own ways of deciding who has the power and authority within the family unit, and which rights, privileges, obligations and roles are assigned to each family member although generational hierarchies are the most obvious ones within families, other types of hierarchies exist as well.

Table 3: Distribution of farmers according to mean score of Post harvest management practices in banana cultivation

S. No.	Post harvest management practices in banana cultivation	Fully adopted	Partially adopted	Not adopted	Mean Score	Rank
1.	Pre-harvest sprays	43.3	55.8	0.8	2.43	I
2.	Stage of fruit at harvesting time	44.2	55.0	0.8	2.43	I
3.	Grading and Sorting of fruits based on Size, weight and colour	28.3	19.2	52.5	1.76	III
4.	Chemical use for artificial ripening	31.7	39.2	29.2	2.03	II
5.	Use of chemical method for Control of storage pest and diseases	29.2	45.0	25.8	2.03	II

Table 3. Table shows that post-harvest management practices in banana cultivation; pre harvesting spraying practices was fully adopted of cultivators. 55.8 percent of farmers Partially adopted Pre-harvest sprays and 43.3 percent of farmers fully adopted Pre-harvest sprays and 0.8 percent of farmers does not adopted Pre-harvest sprays with the mean score 2.43 and rank I. 55.0 percent of cultivators Partially adopted stage of fruits at harvesting time 44.2 percent of cultivators fully adopted stage of fruits at harvesting time and 0.8 percent of farmers does not adopted Pre-harvest sprays with the mean score 2.43 and rank I. followed by 31.7 percent of cultivators fully adopted of chemical use for artificially ripening and 39.2 percent of cultivators partially adopted of chemical use for artificially ripening While 29.2 percent of cultivators does not adopted of chemical use for artificially ripening. With the

Table 2: Distribution of farmers according to annual income

Annual Income	Frequency	Percent	Mean \pm SD (Rs.)
Up to Rs 1.5 Lac	43	35.8	92302 \pm 25807
Rs. 1.5 Lac to 3 Lac	67	55.8	200000 \pm 43100
Rs. 3 Lac and above	10	8.4	320000 \pm 34960
Total	120	100.0	171408 \pm 77037

Table 2. Depicts the distribution of the farmers according to the annual income. 55.8 percent of respondents were belong to Rs.1.5 lac to 3 lac with the mean annual income 200000 and standard deviation Rs 43100 followed by 35.8 percent of respondent were belongs up to Rs.1.5 lac with the mean annual income Rs.92302 and standard deviation Rs.25807 in the study area Barabanki. Only 8.4 percent of banana growers were belong to the annual income Rs.3 lac and above with the mean annual income Rs.320000 and standard deviation Rs. 34960 and over all mean annual income of banana growers were found to be Rs.171408 and standard deviation Rs. 25807 in the research study area.

mean score 2.03 and rank II. 29.2 percent of cultivators using post-harvest management practices in fully adopted Use of chemical method for controlled of storage pest and diseases and 45.0 percent of farmers partially adopted Use of chemical method for controlled of storage pest and diseases only 25.8 percent of farmers does not adopted Use of chemical method for controlled of storage pest and diseases With the mean score 2.03 and rank II. 28.3 percent of respondent fully adopted of practices grading sorting of fruits based on size, weight and colour and 19.2 percent partially adopted of practices grading sorting of fruits based on size, weight and colour only 52.5 percent of respondent does not adopted of practices grading sorting of fruits based on size, weight and colour with the mean score 1.76 and rank III.

Table 4: Distribution of the farmers according to the methods of grading of fruits

Methods of grading of fruits	Frequency	Percent
Manual grading	50	41.7
Machinery use	7	5.8
No graded	63	52.5
Total	120	100.0

Table 4. Reveals the distribution of the farmers according to the grading of fruits. 52.5 percent of farmers does not graded their fruits. 41.7 percent of farmers use manual grading of fruits only 5.8 percent of farmers grading the fruit by machinery use in the study area Barabanki.

Harvested fruit is accumulated and spread on the ground. Fruit should be selected and only good quality fruit should be packed. The purpose of this is to sort fruit into uniform categories (according to size, shape, colour and ripening stage and absence of defects). Fruit can be classified as different grades according to the requirements of the market. Detected

fruit should be eliminated. This is done manually by a trained person.

Table 5: Distribution of the farmers according to transportation of fruits for distant places

Transportation of fruits for distant places	Frequency	Percent
Trucks	54	45.0
Train	-	-
Others	66	55.0
Total	120	100.0

The perusal of the Table 5. Shows the distribution of the farmers according to transportation of fruits. 55.0 percent of farmers transport their fruits by other ways of transportation, while, 45.0 percent of farmers transport their fruits by trucks. in the research study area in Barabanki.

Transportation and distribution of fruits are the most important. Fast transportation with minimum damage during shipment is very important in successful marketing of perishable. For the local market tractor, trolleys and bullock-carts are used and for a distant market transportation is mainly done by the road although it is very costly. 20 percent of the total produce is transported by mechanical means. The transportation by Railway is much less than the other.

Conclusion

The result showed practices that had high rate adoption were related to harvest and post-harvest, indigenous knowledge use, cattle management in fields, crop rotation and weed control; whereas, the practices adopted in low rate or not adopted were related to input use (soil, water, chemicals and seedling), quality management of products, linkage consumption, production cooperation and product label establishment. The result revealed that among others, sex, farm experience, criteria to harvest and cooperative membership explained the post-harvest loss at farm level. Similarly, education level, marketing experience, quantity of fruit handled and destocking dates explained the loss and wholesale level sex while sex of retailers, education level, quantity handled and destocking dates significantly influenced banana loss at retail level. Small and immature fruits problems may be overcome by the correction of nutrient disorder in the cultivation practices. While the post-harvest loss can be minimized by careful harvesting and dressing of the bunch through skilled labour. It could be concluded that creating institutional support through creation of market infrastructure (cold chain transport, grading and packaging house, cold storage etc.) can help in reducing the post-harvest losses thereby increase the returns to the producers and also improve the marketing efficiency in perishable horticulture produce. This would immensely help the small as well as the large scale fresh banana retailers and related food processing industries, for further processing applications.

Recommendation and suggestion

1. There is a lack of adoption of proper harvesting techniques among the banana farmers. Therefore, they have to be trained to adopt the proper methods of harvesting.
2. To promote banana farmers are still following traditional banana cultivation. They are, therefore, to be trained in Hi-tech banana cultivation, which includes adoption of high-density planting, use of fertigation etc.
3. Promoting activities like banana chips making, banana baby powder making and other banana products like jam jelly, shake during of session.

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