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FIELD EXPERIENCES OF EXPORT OF POMEGRANATE IN INDIA



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ABSTRACT:

Pre and post harvest technology is essential in agricultural export business. However, majority of the farmers do not follow the market oriented pre harvest operations and technologies to improve the quality of produce. Indian farmers are more production oriented rather than marketing oriented. In the most cases, they follow what others are doing. As a result, glut and scarcity of commodities exist in the markets. Learning by doing still persist in agriculture sector.

This takes lot of time to reach the required level of production and marketing. Lack of communication between the scientist and the farmers still exists.

Pre harvest technology refers to actual application of science of cultivation and crop management techniques so as to improve the quality and quantity of the farm produce. This can be classified into biotechnology and mechanical technology. Normally it includes propagation, plant varieties, planting, spacing, intercropping, soil management, cutting, flower regulation, nutrition, irrigation, fruiting, crop protection measures, supervision, farmer's

training, visits, demonstrations consultancy etc. In almost every aspect of pre-harvest technology lot of science, beginning from land preparation to crop harvesting is involved although it originates from day to day observations and experiments. So pre-harvest operations refer to the actual handling of pre-harvest technology in day-to-day farm practices.

KEY WORDS:

agricultural export business, pre harvest operations, biotechnology, mechanical technology.

INTRODUCTION:

This article deals with the presentation and interpretation of the results of survey analysis. An aspect of pre and post-harvest technology has been examined in detail for the study purpose with keeping in view the objectives of study. As mentioned initially, agents, traders, institutions were also studied to understand the above aspects in concern to the export marketing of pomegranate.



General Characteristics of the Sample Farmers.

1. The export variety of pomegranate was 'Ganesh'.
2. Farmer's were cultivating pomegranate since 5 to 10 years for the export purpose.
3. The average size of cultivated area was 8.8 acres.
4. The fruits of 250 to 700 gm weight with red or shendari colour were in demand for export.
5. December and January are favourable months for pomegranate export.
6. Gulf countries, EU market, Hong Kong and Bangladesh were the major destinations for export.
7. Dozen and kilogram system were used in the export transactions.
8. Export farmers supply their fruits for export through the agents, wholesalers, traders, co-operatives and government agencies.
9. Farmers sold 10 to 55 per cent of their output for the export.
10. Farmers were earning 10 to 40 per cent of extra income by exporting the fruit as compared to the domestic markets.

PRE-HARVEST OPERATIONS FOR POMEGRANATE FRUITS

Pomegranate is most favourite fruit of the tropical and sub-tropical area. This crop can be grown on diverse types of soils, but light, well-drained soils, slightly saline soils are well suited for its growth. Pomegranate tree is hardly a plant and can thrive even under desert conditions. Although it is highly drought resistant, the pomegranate responds well to irrigation. The lands of Western Maharashtra districts like Solapur, Sangli, Ahmednagar and Nashik with light well barren are used for the plantation of pomegranate fruit. The pH of the soil between 6.5 to 8.5 is desirable. This fruit grows up to an altitude of 1800 to 2000 feet. Hot and dry climate is more suitable. Humidity lowers the quality of fruits and increases the diseases.

There are many varieties grown in Maharashtra i. e. Alandi, Maskat, Jyoti, G-137, Golaka, P-23, P-26, Mrudula, Arakta, Bhagava, Rubi and popular one is Ganesh variety. Ganesh variety is experienced by all sides of the farmers, it is economical and popular in the country and abroad. The colour, size and an arils keeping quality of Ganesh variety is quite good. Propagation of this fruit is mainly done by draftaged plants gutee. The planting distance is generally not adequate. Some farmers use 3 x 3, 4 x 4 and 5 x 5 meters distance between the trees. It also depends upon the soil. If soil is heavy, distance must be kept at 5 x 5 meters. Mahatma Phule Krishi Vidyapeeth has recommended 5 to 6 meters distance but producers deny it. They use a distance between 4 x 4 meters. Distance between the two plants again differs when farmers use drip irrigation. A very less distance is normally kept between the two plants. Planting is done during rainy season with layered plants. The planting pots of 0.6 x .6 x .6 meters are generally used and followed with organic manures and soils. Sometime 100 to 250 gms (10 per cent) BHC and 1 kg super phosphate is used for pit filling.

Pomegranate fruit requires less water than other commercial fruit, but it can not be grown without water. It requires 20" to 22" precipitation annually. Irrigation is required mainly at the time of flowering stage. Pomegranate season depends upon irrigation. Flowering can be developed any time during a year. Drip irrigation is economical to this fruit. The saving of 41 per cent water with 10 per cent more production is experienced through drip irrigation (MPKV, Rahuri). MPKV, Rahuri recommended 3700 liters of water for a tree during the year. It is also recommended that, 5 year aged tree water management for different season, which spacing 4 x 3 meters. Water is required monthwise and season per tree in liters per day.

Table No.1
Water Requirements for Pomegranate Tree for the Fruiting Seasons
(per day in liters)

Ambiya Season	January 8 liters	February 9 liters	March 13 liters	April 13 liters
Mrug Season	May 18 liters	June 14 liters	July 7 liters	August -
Hast Season	September 10 liters	October -	November -	December 15 liters

Source : Godava, 2001, p.55

Irregular irrigation causes fruit cracking, hence water management is important for this fruit. However, it also depends upon soil, season and age of tree.

Fertilizers are essential to a pomegranate tree. It requires organic and chemical fertilizers per year regularly for its healthy growth. Fertilizers must be given at the time of irrigation. Mixed (organic and chemical) fertilizers are required in proper percentages. The requirements of the fertilizer is shown in the following Table No. 2.

Table No. 2
Requirement of Fertilizers for Pomegranate
per plant

Age of tree	Organic fertilizer (in kg)	Chemical fertilizer (in gms)		
		N	K	P
1	10	250	125	125
2	20	250	125	125
3	30	500	125	125
4	40	500	125	250
5	50	625	250	250

Source : Dalimb Vrutta, July-September, 2002

Organic fertilizers are essential today use of only chemical fertilizers develop diseases, residues in fruits and they are harmful to the consumers also. Mixed fertilizers can be used for the proper development of a pomegranate tree. Use of fertilizer is dependent on soil and the method of irrigation. Farmers recently apply fertilizers through drip irrigation and this is economic and useful to a pomegranate tree. Some nutrients may be used for development of the fruits and colour.

Pre-harvest Operations in Study Area and the Technological Gaps

As against the existing pre-harvest operations, there are number of gaps in the use of modern technology. Following inferences are observed in the study area.

1. The highly stony light, drained land suits to the plantation of pomegranate. The quality and health of trees was found very sound in this soil. Plantation in heavy black cotton soil was reported uneconomical.
2. Dry and hot climate is more suitable for pomegranate. Deep humidity affects the fruit development.
3. Even in inferior quality of soils plantation of pomegranate was found economical.

4. Ganesh variety of pomegranate was popular for commercial purpose. Arakta, Mrudula, Bhagawa and Rubi are new varieties introduced in the region, but it is under trial for commercial purposes.
5. All orchards were old with more than of 10 years standing.

Maturity of Fruits

The post-harvest quality and storage life of fruits appear to be controlled by the maturity. If the fruits are harvested at a proper stage of maturity, the quality of the fruit remains excellent. Poor quality and uneven ripening are caused by early harvesting and late harvesting results in extremely poor self-life. Maturity and ripening concepts must be understood because these two terms are different. Ripening is the next stage of maturity.

Maturity standards for pomegranate fruit are as follows :

1. The pomegranate fruits are ready for harvest, after the flowering, about 135-170 days depending on a variety.
2. The petals at the top end of fruit appear dried of a matured fruit.
3. The fruits are harvested when the skin turns dark yellow during the summer and dark red during winter and rainy season.
4. Fruit loses the sharp roundness at its maturity stage.
5. The skin becomes soft.
6. The fruits give a metallic sound when it is tapped.
7. By experience, farmers can understand fruit maturity of pomegranate.

Fruit Harvesting

Pomegranate fruits are harvested in the morning or evening time of a day. Fruit should be harvested with 1 centimeter stalk by using proper instrument like sicketer. At the time of plucking farmers have to take the care of neighbouring fruits from any injury. Harvesting fruits are not to put on open soil surface, but have to use the plastic crates for harvesting fruits. Plucked fruits are collected by crates at one corner of the shade or farm house for carrying out the grading and cleaning activities. Fruits after harvest are collected immediately to the shade without any injuries. Direct sunlight is injurious to plucked fruits if fruits are kept for a long time in sunlight.

Grading

Grading of harvesting fruits is important function in the post-harvest operation. Sorting of fruits is first activity in this function. Quality fruits should be separated from the depressed, cracked, spotted and weak appearance fruits. Second activity is to clean the sorted quality fruits by proper instrument. Pomegranate fruits are graded by colour, size and their weight. Classifications depend on the following characteristics.

1. Super Size : Attractive, unspotted, with large size and Red colour, with a weight of more than 750 gms are the super size fruits.
2. King Size : Attractive colour, unspotted, with weight of 500 to 750 gms fruits are classified in king size grade.
3. Queen Size : Weight of 400 to 500 gms with attractive colour, unspotted fruits are the queen size grade.
4. prince Size : Unspotted, attractive colour with weight of 300 to 400 gms are prince size fruits.
5. Other type of grade size is depend upon market and with weight of 250 to 300 gms spotted (one or

two) fruits.

Grading activity requires a very keen observation for the use of marketing. If grading is done in a proper way, farmers will get a better return from the sale of fruits.

Fruit Transportation

In order to maintain fruit quality and avoid heating, the fruit should be removed from the field as rapidly as possible. Fast transport of fruits with minimum damage during shipment is very important for successful marketing of perishables. In India, the road transport is 3-4 times more expensive than the rail, moreover, rail shipment is 8-10 times more efficient in the use of energy than road haulage for the movement of the same tonnage, yet in India road transport is preferred for shipment of fresh fruits, simply, because of the faster movement. Efficient transport system can go a long way not only in reducing the post-harvest loss of horticulture produce but also in stabilizing the price fluctuation of the same commodity available in country. Transport facility for pomegranate fruits require refrigerating trucks, containers and railway wagons for the safety.

CONCLUSIONS

Pomegranate fruit is an emerging fruit in export marketing. Export marketing needs to maintain the quality. Quality of fruit should be developed at pre-harvest level. Pomegranate farmers practice the usual pre-harvest operations. They do not apply any export oriented pre-harvest technology. If the quality of fruits is good during pre-harvest operations then the farmers can think of export through traders and societies.

Pomegranate fruit is demanded from various destinations. The fruit needs proper post-harvest operations for quality assurance. It is observed that the farmers were unaware about export oriented post-harvest technology or operations. Pomegranate fruit has good keeping quality and it is a exotic fruit. The demand for pomegranate mostly comes from Gulf destinations. The Gulf consumers of pomegranate are not so cautious/ strict as compared to consumers of Europe. Most of our (95 per cent) pomegranate export is managed to be exported to the Gulf. With this experience pomegranate farmers practice in usual terms for pre and post-harvest operations.

Institutional role in pomegranate fruit is co-operative. They initiate to help the farmers by various way to enhance the export marketing. Traders, agents and exporter companies only think of their profit. Many times, they follow various vested interests in export and still the cheating continues.

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