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THE STUDY OF FIELD EXPERIENCES OF EXPORT OF MANGO



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ABSTRACT

Quality of fruit is important in export marketing. Quality of fruit depends upon pre and post-harvest technologies used by the farmers. Poor agronomic practices deteriorate fruit quality. Quality can never be improved after harvest. Quality of fruit starts from farmer's planning of pre-harvest practices to that of post-harvest treatments which ends at the consumer level. In pre-harvest practices, selection of seed of exporting variety (propagation) and soil selection is important, and then planting, spacing, irrigation, fertilizer, nutrition, crop protection, pruning, flowering and supervision activities are essentially deal with it. In almost every aspects of pre-harvest technology, lot of science, beginning from land preparation to crop harvesting is involved. All of this must be balanced by a good return from the marketing processes and this can only be achieved by careful production, planning and crop management.



KEYWORDS : export marketing, Quality of fruit, post-harvest technologies, farmer's planning.

INTRODUCTION :

Post-harvest losses in a perishable fruits occur due to numerous reasons. The principal factors governing post-harvest losses include physical, physiological, mechanical and hygienic conditions. The bulk of the fruits are characterized by high metabolic activities, which give a short self-life to the produce. It is mainly due to this

limitation that significant losses are witnessed between harvesting and consumption. Post-harvest operations start from matured fruit plucking and ends with a receipt of good quality fruits in the hands of consumers. Plucking, assembling, grading, cleaning, packaging, cooling and transport by proper way are the various activities in post-harvest operations. If these activities are avoided or not done properly or non-availability in production area properly then post-harvest losses may increase speedily. Recent development in post-harvest handling, management and preservation technologies have largely helped to improve the self-life and quality of fruits and so fetch higher value and better economic returns.

Particularly in the case of Mango, foreign consumers require quality fruits, i. e. in colour, size,

weight, flavour, TSS, non-defectiveness with regard to fungus damage, stone weevil, spongy tissue, bacterial rots, fruit fly etc. The fruit weight of exported Alphonso must be 250 gm (size tolerance shall not exceed + 10 per cent and – 0 per cent) with TSS for sea transport 7-90 Brix and for air transport 9-130 Brix, with attractive colour and flavour.

In various destinations, EU countries require Alphonso in the weight of 250-300 gms in one dozen boxes with weight of 2.5 kg., whereas Gulf countries demand big size mango and the Middle East country's demand 200-250 gms Alphonso in one dozen packs of 2.5 kg. weight. EU countries norms of fresh fruit for imported fruit are very strict. Europeans are very cautious about quality, mainly for pesticide residues. In brief, in the export business quality of fruit is important issue.

Farmers of fruit production are not aware about the proper pre and post-harvest technologies of market oriented in nature. Here an attempt is being made so far, to identify how much response for or awareness about pre and post-harvest technology for the Alphonso mango is being received/receiving by the farmers and the gaps therein for further improvements.

Mainly pre and post-harvest operations are important in export marketing business of the fruits. Therefore, a detail survey has been conducted for selected, Alphonso mango suppliers engaged in export marketing. This chapter mainly deals with the presentation and interpretation of the results of survey analysis. Selected aspects of pre and post-harvest technology has been examined in detail with a view to fulfill the objectives of the study.

General Characteristics of the Sample Farmers

1. The export variety of mango so far selected by the sample farmers was Alphonso.
2. Sample farmers supplied mango for export since last 5 to 50 years.
3. The average size of cultivated area was 28.5 acres.
4. 250 to 300 gms fruits with red and yellow colour were required for export.
5. April and May were favourable months for export.
6. Gulf and EU markets were the main destinations for Alphonso mango export.
7. All farmers sold their fruits through agents, traders, wholesalers, exporter agents, pre and post-harvest contractors, commission agents in the wholesale markets and the Mahamango, a corporate body to export mango.
8. Middlemen in the export business have purchased 30 to 40 per cent production of the mango for export purpose from the farmers.

PRE-HARVEST OPERATIONS FOR MANGO EXPORT

Pre-harvest technology refers to actual applications 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 production planning from propagations, soil selection, crop selection, variety selection, production practices like planting, spacing, intercropping, irrigation, soil management, cutting, flower regulations, nutrition, fruiting crop protection measure, spraying of nutrients and pest control pesticides, protecting the fruits from insects, supervision, farmer's training, demonstrations, visits, consultancy etc. In almost every aspects 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.

Pre-harvest operations also refer to the actual handling of the pre-harvest technology in day-to-day farm practices. The existing technology and actual farm operations may differ at farm level, because actual practice of agriculture is a task now-a-days since, new problems and constraints grow up

suddenly and harm the overall performance of the standing crop. The farmers are expected to read the climate, nature and calamities and adjust their operating skills and finance to that of technology to overcome such problems and constraints through farm management and crop management skills and operations.

Mango is drained laterite fruit crop. A well drained fairly, deep loamy soil is considered best for mango. In Konkan Hilly, barren lands are used for the plantation of mango tree. The pH of the soil between 5.5 and 7.5 is desirable. Mango is a tropical as well as semi tropical plant, which grows almost all over India. It grows on seashore and up to an attitude of 4000 feet but fruiting is poor above 2000 feet. Humid and dry climate is good for mango tree. Mango flowering is best in dry climate but not in humid climate. For the good development, 250 to 300 temperature is essential to a mango plant. The two important considerations for mango cultivation are a frost free, dry period at the time of flowering and sufficient heat during the ripening of fruits. The bearing is not good if humidity is high through out the year. The time of flowering is affected by the climate. onsequently, the ripening time in different regions also varies considerably.

Mango needs 50" to 70" precipitation annually. But on account of its deep tap root system, it requires little irrigation after the first few years. No irrigation is practiced on the West Coast of India, when planting is done in spring. The young plants require irrigation every fourth or fifth day during the first summer till the rains break. In winter, irrigation should be in every two or three weeks is sufficient. During the second summer, the young plants should be irrigated every week or ten days intervals. The bearing plants are often given no irrigation but irrigation from flowering to harvest time reduces fruit drops and gives larger fruits. Water requirement depends upon soil quality. Red laterite soil of the Konkan Coast is moisture retentive and requires no irrigation even if the rains fall for several weeks. Irrigation from then on to the time of flowering or before flowering should be withheld. This increases flowering. However, irrigation should be given after flowering months.

Fertilizers for mango tree is essential. Nitrogen is the most important nutrients required. It greatly improves growth especially if potash and phosphates are present in sufficient quantities flowering and fruiting are proportional to the vegetative growth. With NKP, compost fertilizer is also essential for mango tree growth and its fruits. The requirement of fertilizers is as following in Table No.1.

Required Fertilizer for Mango Per Plant in Konkan Region

Age	Compost kg	N kg	P kg	K kg
1	5	300	300	100
2	10	600	600	200
3	15	900	900	300
4	20	1200	1200	400
5	25	1500	1500	500
6	30	1800	1800	600
7	35	2100	2100	700
8	40	2400	2400	800
9	45	2700	2700	900
10	50	3000	3000	1000

Source: Mango Variety Book Rawul, p. 94.

The manures and fertilizers should be thoroughly mixed in the soil under the crown of the tree before irrigation. In areas of heavy rainfall, they should be applied before the commencement of the rains or after their cessation.

Mango continues to bear fruit for many years. Grafted trees bear good crops for 50 or more years. Grafted trees start bearing from the age of five years. Most varieties of grafted give a high yield, but fail to bear regularly every year after the age of about 10 years. It has been reported that in Maharashtra there is one good crop in three years. For the purpose of controlling flowering, fruit set there may be a use of nutrients like livosin, etherail, cultar, etc.

From the economic point of view, crop protection is important. Diseases and pests disturbing the mango crop, i. e. mango stem borer, fruit fly, mango hoffer, mites, red ants, white ants, milly bugs, gall midges, anthracnose, black tip, powdery mildew, stone weevil, leaf galls, etc. These can be controlled by spraying insecticide and pesticides at proper time.

Pre-harvest Operations in Study Area and Technological Gaps

As against the existing pre-harvest technology there are number of gaps in actual follow up of the technology. Following inferences as against above pre-harvest technology have been detected.

1. Mango is drained laterite fruit crop. A well drain, fairly deep loamy soil is considered best for mango. Hill and hill slopes found better for mango cultivation in study area.
2. Climate of coastal found better for good growth of trees and fruits i. e. hot and humid.
3. Typical stony (red colour) soil found best for fruit taste, flavour and aroma in study area like Devgad taluka.
4. Salty winds useful to crop protection from pest and the frost.
5. All orchards found old ranging from more than of 50 years of Alphanso variety.
6. About 90 per cent old cultivations found a variety; Alphanso in the study area.
7. Old trees are found taller and larger in size.
8. Old gardens depend on only rain water irrigation.
9. Irregular rainfall (monsoon) disturbs the water stressing of mango season.
10. Crop protection cost has increased because of natural calamities like uncertain and irregular rainfall, frost, extra humidity etc.

Mango Export and Post-harvest Technology

The integration of post-harvest management operations leads to the ideal approach in assuming quality success in the market place, the technical information on these aspects is necessary because mango being a climacteric fruit, its shelf life is less (ranging from 8 to 18 days depending upon the variety). Hence, its harvest at proper maturity and proper post-harvest handling is of prime importance. Main operations from export point of view include harvesting different from packing house operations, transportation, cooling chain, grading and branding activities to distinct markets. An integrated post harvest management technology will help in increasing the shelf-life and reducing the post harvest losses of this precious fruit resulting in export oriented production. A significant proportion of value addition and cost are formed at this stage, therefore a major thrust is to be given on post harvest handling.

CONCLUSIONS

Mango export of India particularly Alphanso export is increasing now-a-days both in quantity and value terms. The destinations of mango have also diversified since last 10 years. Indian mango is popularized in global market by its typical taste and attractiveness with aroma. So there is a great potentiality for mango exports in near future.

Alphanso mango has been demanded globally, but the farmers are unaware of pre and post

harvest technologies. Irrespective of export intentions mango is cultivated, only after the quality yield is assured, then only they think of export. Besides they are not the direct exporters, they only supply the fruit to the export traders.

In the post-harvest processes, the farmers are unaware of a new technology. PHT is most important technique required for export, but no one was cared of it.

The traders, exporters and agents in mango markets were making business profitably but farmers did not earn windfall profit. Co-operative marketing is needed to increase producer's share in consumer rupee.

Central and State governments are supporting to the mango export through various schemes both for farmers and the exporters.

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