

**RESEARCH ARTICLE :**

# Studies on pre-harvest and post harvest handling of mango fruits

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**SUMMARY :** A survey was carried out at various places in Kolar district of Karnataka, to analyse the problems encountered with mango growers and to know the extent of harvest and post-harvest losses in mango. The general opinion of the farmer was vague with respect to the adoption of scientific methodologies. The survey report indicated that nearly 98% of the mango growers are using traditional harvesting techniques and unaware of the various emerging technologies with respect to proper stage of harvesting, pre-cooling, grading, chemical treatment, packaging, storage, transportation and marketing of fruits. About 20-35% of the mangoes are wasted due to improper handling of the fruits.

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**KEY WORDS :**

Pre-harvest,  
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## BACKGROUND AND OBJECTIVES

India produces around 9.40 million tons of mangoes annually, which is 65% of the total world production; but because of post-harvest losses, around 20-35% of the total harvested produce could not reach the consumer (Singh, 1960). Substantial losses during harvest transport, marketing and storage is reported heavier than is generally realized because of the manifold increase in the unit value of the commodity.

Post-harvest losses in mango are due to physical, physiological or pathological factors or various combinations of all the three. Many physical and chemical treatments have been recommended for control of post-harvest loss

in mango. But experience has shown that farmers are not adopting the improved harvester for harvesting of mango and not adopting the recommended measures to reduce the level of loss. Considering the importance of the crop in the country as a whole and Karnataka in particular, a survey was conducted with the following objectives:

– To assess the extent of fruits loss during harvest and post-harvest operations.

– To identify the factors responsible for post-harvest losses.

## RESOURCES AND METHODS

A survey was carried out at different taluks of Kolar viz., Chintamani, Mulbagal,

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Srinivaspur and Kolar, to analyses the problems encountered by the mango growers during harvest and postharvest operations. In each taluk, the problems were discussed with 100 mango growers by using the questionnaire. Based on this the per cent adoption of different harvesting and storage methods was calculated; whereas the per cent loss was determined based on the individual opinion of a mango grower.

## OBSERVATIONS AND ANALYSIS

The survey conducted at four taluks of Kolar districts, revealed that the extent of adoption of local harvester for harvesting mango fruits was high at Mulbagal (75%) followed by Chintamani (70%), Kolar (69%) and Srinivaspur (58%), whereas the harvest through hand picking was high at Srinivaspur (19%) and Mulbagal (10%) area as compared to Chintamani (8%) and Kolar (9%). However, the per cent adoption of tree shaking method was quite high in kolar (29%) as compared to rest of the surveyed areas (20 to 25%). The extent of adoption of improved harvester was found to be nil at

Mulbagal and found to have marginal adoption in remaining areas (1 to 3%). Among the different harvesting methods (Table 1), the extent of adoption of local harvester for harvesting mango fruits was high followed by tree shaking, hand picking and improved harvester.

Harvesting of mango fruits with local harvester and tree shaking methods have caused greater loss during the harvesting of fruits as compared to hand picking and no loss in case of improved harvester. The extent of harvest loss was high at Chintamani (10 to 28%) and Mulbagal (8-29%) areas as compared to Srinivaspur (5 to 25%) and Kolar (8-25%). This strategy revealed that, the losses occur during the harvest of mango was greater with the existing local harvesting methods and the same can be minimized through the adoption of improved harvesters but the adoption per cent of such harvester was less in all the surveyed areas. The lesser adoption was due to the lack of knowledge and non-availability of this harvester.

The survey also emphasizes on the adoption per cent and per cent losses under different storage practices at

**Table 1: Opinion poll of mango growers from different taluks of Kolar with regard to loss of fruits during harvesting**

Methods of harvesting	Chintamani		Mulbagal		Srinivaspur		Kolar	
	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)
Local harvester	70	28	75	29	58	20	69	23
Hand picking	8	10	10	8	19	5	9	8
Tree shaking	20	22	15	22	25	22	25	19
Improved harvester (IIHR/IARI/Dapoli/CIHNP)	2	0	0	0	1	0	3	0

**Table 2 : Extent of adoption of storage methods and fruit losses at different taluks of Kolar**

Methods of harvesting	Chintamani		Mulbagal		Srinivaspur		Kolar	
	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)	Adoption (%)	Loss (%)
Local storage	98	23	96	28	97	30	88	22
Chemical treatment	0	0	1	0	2	0	2	0
Cold storage	2	0	0	0	2	0	10	0
Modified atmosphere storage	0	0	0	0	0	0	0	0

**Table 3 : Opinion poll of mango growers from different taluks of kolar with regard to post-harvest losses of fruits**

Per cent loss through	Fruit drop	Storage	Transportation	Marketing
Chintamani	22	18	15	5
Mulbagal	15	16	18	6
Srinivaspur	18	21	20	8
Kolar	15	16	16	3

different taluks of Kolar. The data presented in Table 2 clearly indicated that nearly 88-98% of the mango growers following the local storage mango fruits, whereas the per cent adoption of chemical and cold storage methods was negligible (1% in Mulbagal, 2% in Srinivaspur and Kolar and nil in Chintamani). However, no mango growers have adopted the modified atmosphere storage. Corresponding to this, the per cent loss of fruits was high under local storage method, but the same has to be evaluated and specified under rest of the storage methods.

The survey also includes the analysis of fruits losses during the harvest and post-harvest losses at different taluks of Kolar (Table 3). The greater loss was noticed through fruits drop at Chintamani (22%) and through storage (21%), transportation (20%) and marketing (8%) at Srinivaspur area. However, this loss is comparable with other surveyed areas. Market losses were less as compared to fruit drop, storage and transportation as per the opinion of mango growers in all surveyed areas.

The study clearly indicated that, the losses occur during harvest and post-harvest operations are abundant and the losses trailed upto 30% with local existing

harvesters. Therefore, the essentially arises to convey the knowledge regarding improved harvesters and better storage facilities to the farmers field through the intensive extension activities to minimize the harvest and postharvest fruit losses.

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