

Central Horticultural Experiment Station (ICAR-Indian Institute of Horticultural Research) Aiginia, Bhubaneswar - 751019

**Title - Establishment of a Post-harvest cum Quality Analysis Laboratory for
Enhancing Market Value of Fruits**
Duration – 2018-2021 Budget – Rs. 155.80 lakh

SUCCESS STORY ON RKVY-Post Harvest PROJECT

POST HARVEST MANAGEMENT OF FRUITS ENSURES BETTER INCOME

HORTICULTURE – Success Story

1. Background of the project (Issues, Challenges, Gaps)

Post-harvest loss (PHL) in horticultural crop is to the tune of 20-25% which is a matter of great concern. PHL is not only quantitative but also qualitative. Reduction in fruit quality in terms of physical and chemical properties of horticultural produce significantly affects marketability. Substantially high degree of post-harvest loss in India is due to low rate of value addition and processing. Post-harvest loss of fruit and vegetables is also substantially high in Odisha. State loses more than 6.0 lakh tonnes of fruits and vegetables every year which severely affects income of the farming community and availability of produce. It has been observed that fruits like mango, papaya, sapota and custard apple should be harvested at optimum maturity, as delayed harvesting results poor quality, faster deterioration rate and high post-harvest loss. Hence quality assessment at harvesting is crucial for ensuring better fruit quality. Quantitative and qualitative loss after harvest of fruits substantially affects income of growers. It is evident that poor infrastructure and knowledge gap are major determinants for PHL. Under such situation, post-harvest management is the sole intervention to minimise the loss of revenue and to increase per capita availability of fruits and vegetables.

Issue
Post-harvest Loss



Challenge
Post-harvest Management



Gap
Infrastructure & Knowledge



2. Pre-Implementation Issues

a. Supporting images/ Videos / Baseline information

Fruits are consumed mainly for their nutritive value as they are rich source of vitamins, minerals, phytochemical and dietary fibres. In order to ensure high nutritive value in fruits, their quality standards have to be maintained that can only be done through effective post-harvest management. Keeping in view the intensity of post-harvest loss in fruit crops, it is essential to address the problem pragmatically so that farm income could be increased. It is also needed to maintain the quality of produce at market level. Post-harvest losses occur mainly at on-farm stage, post-harvest stage and at marketing stage. Harvesting of fruits at sub-optimal maturity and faulty method of harvesting are major causes of on-farm loss. Poor post-harvest management practices (pre-cooling, washing, sorting, packing, hot water treatment, etc.) and infrastructure facilitates are major causes of quantitative and qualitative losses of fruits. Scientific intervention during harvesting and post harvesting stage may significantly reduce the loss. The problem of post-harvest loss can be minimized with effective post-harvest management with an aim to add value and to ensure better fruit quality at different stages of postharvest activities without impairing fruit quality.



Prevailing method of harvesting and selling



3. RKVY Initiative

Under the RKVY project post-harvest unit and fruit quality analysis laboratory have been established. The project was started in 2018 and within three years the post-harvest unit has been established with most of the requisite facilities.

- ✚ The project facilitated to create facility for fruit quality assessment.
- ✚ At post-harvest unit for fruits and vegetable has been established with following facilities.
 - ❖ Hot water treatment unit for post-harvest disease and pest management
 - ❖ Ethylene gas-mediated fruit ripening chamber
 - ❖ Cold room for pre cooling of fruits
 - ❖ Washing, grading and packing unit
 - ❖ Training facilities for horticulture officers, extension functionaries, growers and traders.

The officers from Horticulture Deptt. and fruit growers realized that through hot water treatment, grading, washing and packaging the market price of fruits may increase by 20-30%. Moreover, participants expressed happiness over the creation of facility and its accessibility at affordable cost.



Facilities developed under RKVY-Project



Fruit ripening chamber



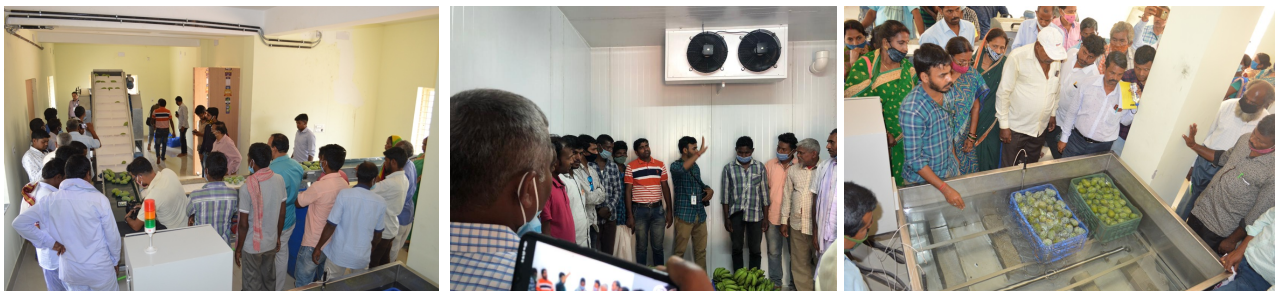
Fruit quality analysis laboratory

4. Technology/Tools development

Technology/Tool	Significance
Hot water treatment of fruits	Reduces diseases and pest incidence
Ethylene gas-based fruit ripening chamber	Ensuring safe fruit for consumer since ripening of fruit by ethylene gas is the only recommended method by FSSAI.
Fruit washing and grading unit	Value addition in fruits and vegetables which ensures better market price.
Vegetable grading unit	Grading of vegetables like onion and potato will increase market value.
Cold storage for fruits and vegetables	Better shelf life and quality.
Packing machine for fruits	Better market value.
Fruit quality analysis laboratory	Ensuring better quality fruit at harvesting.

4. Outcomes/Impacts of the project.

Due to the creation of facilities for post-harvest management of fruits and vegetables, stakeholders including fruit growers are being trained on different aspects of value addition. More than 75 participants comprising of growers and officials were provided with technological knowhow on post-harvest management of fruits. Growers expressed their willingness to utilize the facilities for mango but due to lockdown they could not use these facilities. A video on post-harvest facilities and its utilization has been prepared by the Govt. of Odisha and made available among the stakeholders.



Post-harvest management activities RKVY-Project at CHES (ICAR-IIHR), Bhubaneswar



6. Citation of 3-4 sentences from 4 to 5 beneficiaries that bring a change

Sh. K. C. Mohapatra, Kashipur, Rayagada

Sh. Mohapatra is one of the progressive farmers of Kashipur. He cultivates mango in more than 30 acres of area and sales the produce in Bhubaneswar without any post-harvest interventions. He usually sales mango at Rs. 20.00/kg. He realized that through hot water treatment, and packaging me may sale mango @ 30/kg. This year he is planning to use ethylene chamber for mango ripening at the post-harvest unit of CHES, Bhubaneswar.

Sh. Sangram Pradhan, Balanda, Harabhanaga, Boudh

Sh. Pradhan is one of the progressive farmers of Boudh. He cultivates mango and pineapple in his land and sales the produce in local market without any post-harvest interventions. After attending the training program on post-harvest management of fruits, he started grading of fruits and sold pineapple to the Reliance Fresh @ Rs. 50-60/kg. He realized that through washing and grading, he may sale mango and pineapple at a higher price.

6. Additional Information



A video on post-harvest management by Govt. of Odisha



Training program on post-harvest management

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