

01. Experiment No. and Title : Experiment No: **19.5.3.36**
Design and development of continuous type mango de-sapping machine.
02. Budget Head : 12940
03. Collaborative department, if any : Centre of Excellence on Post Harvest Technology, NAU, Navsari
04. Background information:
De-sapping is a process of removing the sap from mango fruit. The sap from the fruit is removed by cutting the stalk of the just harvested fruits at a length of 5-10 mm from the base of the fruit with the help of a sharp edged knife or scieicator. Otherwise, when the stem (pedicel) of a mango fruit is broken during handling as well as transportation, the sap exudes out; spreading over the fruit peel causes serious skin damages: sap-burn injury in mango fruits. De-sapping is one of the recommended post harvest operation to reduce the sap-burn problems. Static batch type mango de-sapping arrangement using mesh type wire or bamboo was reported.
Continuous type mango de-sapping machine needs to be design and fabricated to fulfill the following objectives.
05. Objectives:
1. Identify the parameter for mango de-sapping
 2. Study of presently available mango de-sapping methods.
 3. Design of continuous type mango de-sapping machine.
 4. Development of cutting mechanism for continuous type mango de-sapping machine
 5. Performance evaluation of mango de-sapping methods and machines.
06. Principal investigator and associates : Er. P. S. Pandit and Dr. Vineet Sharma
07. Location and Agro-climatic sub-region : Centre of Excellence on Post Harvest Technology, NAU, Navsari
08. Year and Season : 2022-23; Summer Season
09. Crop and Variety : Mango; Kesar, Alphonso, Sonpari. Rajapuri
10. Experimental details : Design and Fabrication
- (a) Treatments : -
- (b) Experimental Design : Performance analysis
- (c) Replications : 15 (Performance)
11. Observations to be recorded:
Fruit parameter : Fruit dimensions, Pedicel length, Sap collection w.r.t. time,
Machine parameter: Capacity, speed, parts dimensions, power consumptions, drawing, fabrication operations, etc.
Performance: No of damaged mango by steam end sap burning, Other quality parameters, etc.
Economics: Cost per kg od treatment
12. Methodology (if necessary):
- Mango fruit parameters
 - Mango de-sapping parameters w. r. t. methods
 - Measurement of time of de-sapping for fruits
 - Designing the machine parameters
 - Fabrication of machine parts
 - Assembling of machine parts
 - Development of cutting mechanism
 - Performance evaluation and testing of machine