ICAR-Central Institute of Agricultural Engineering
Nabi Bagh, Berasia Road, Bhopal – 462038 (M.P.)

AUTOMATIC FRUIT GRADER

Utility

This is an automatic machine that performs postharvest operations, like—washing, vision-based sorting and weight-based grading of citrus fruits. The machine is equipped with an effective custom lightweight CNN model ‘‘SortNet’’ that is designed and tuned to carry out vision-based classification of citrus fruits into ‘‘accept’’ and ‘‘reject’’ based on surface characteristics. Weight grading and colour sorting efficiency is more than 90%. This machine offers an overall reduction of drudgery by about 83%. Fruits and vegetables remain physiologically and metabolically active even after harvest and can be exposed to numerous abiotic stresses during handling, storage and transportation. On-farm washing, grading and sorting of fruits is carried out by unskilled agricultural workers. Poor handling as well as the subjectivity of manual grading paralyzes the quality of material, decreasing its appeal and market potential. Automatic Fruit Grader is an ergonomically designed single operator machine of 6.4 m length, 1 m in width and 1.6 m in height made in SS-304; and produces noise far less than 80 db. The machine runs on a three phase electric power. The capacity of the machine depends on the product being handled, the machine gives an output of about 1700 fruits/h.

Design: ICAR-CIAE, Bhopal

Commercialization Status: Ready for Commercialization

Proposed stakeholders: Citrus fruit growers, post-harvest machine manufacturers etc.

Head, Technology Transfer Division
ICAR-Central Institute of Agricultural Engineering, Bhopal-462038
Telephone: +91-755-2521133, 2521134
E-mail: directorciae@gmail.com, headttd@gmail.com Website: https://ciae.res.in