

Speech Topic:

Design and Experiment of Winter Jujube Harvesting and Sorting Device

Speech Abstract:

According to the existing problems of winter jujube harvesting, such as the intensive labor of manual picking, damage to the surface of winter jujubes, a winter jujube harvesting and sorting device was developed. The structure and working principles of the device were described, and the main relevant parameters were analyzed and determined. This device consisted of vibration mechanism, collection mechanism, sorting mechanism, electric control system and other parts. The eccentric vibration mechanism made the winter jujubes fall, and the umbrella-shaped collection mechanism reduced the impact force between winter jujubes and ground, and the sorting mechanism removed jujube leaves and divided the jujube into two types, and the automatic leveling mechanism made the device run smoothly in the field and reduced turbulence. Through finite element analysis and related calculations, the results show that: when the vibration frequency is 7Hz, the maximum amplitude of jujube tree reaches 10mm, and the picking effects are good; the impact force of winter jujubes falling is related to the elastic modulus of umbrella material; the collecting area can be increased 4 times for each additional step of the collection mechanism; jujube leaves can be effectively removed when blower wind speed reaches 40m/s, according to the evaluation standard grades of the jujubes harvesting and sorting, the device has good effects and the excellent rate up to 90%, which has good practicability and economy.