

DESIGN AND MANUFACTURING THE SMART DRYING RACK FOR DRYING AGRICULTURAL PRODUCTS

Do Minh Cuong, Nguyen Dat

Summary

In the central of Vietnam, farmers often use direct sun drying method to dry agricultural products. This method is simple, the drying cost is low, but it does not actively dry because of bad weather conditions such as rain, dark and need a large drying platform. To limit these disadvantages, this paper presents the results of design, manufacturing and testing a smart drying tray system. This system can open and close (in manual or automatic setting) trays in arrange by drying rack, and covered a transparent plastic sheet to protect the argicultral prodducts during drying process when it is raining or becoming dark using rain sensor, light sensor and control system of LOGO! device of Siemens. Test results show that the smart drying tray system is stably working, trays flexibly moving by the speed of 0.22 m/s, need a time of 11s for a close cycle to prevent the damaging to products when it is raining; the control system works well, the drying area is reduced from 12.21 m² (when the trays are open out to dry in the sun) to 3.10 m² (when the trays are collected on the rack); the system easy to move by the wheels. The drying rack can be used to dry in the sun of some agricultural products with taking an active dryer to prevent the raining or dark of the erratic weather, promoting mechanized and automatic applications to agricultural and seafood productions, reduce labor cost and raising the value of products.

Keywords: *Smart drying rack, LOGO!, automatic, dry in the sun, agricultural product.*