

Development of Sorting Machine for Indian Jujube Fruits¹

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Abstract

The purpose of this study was to use fruit weight as grading indicator and weight measurement as sorting mechanism in order to develop a suitable grading machine for indian jujube fruits.

The weight type of grading machine for indian jujube mainly included four parts such as input, convey, grading and output. This machine works efficiently and will replace manual sorting.

This sorting machine can separate indian jujube fruits into six grading levels. The main operation procedure including fruit supply, input control, single fruit conveying and supplying, grading and packaging. It can proceed continuously supplying single fruit for grading.

Durable test for the machine was conducted at three main indian jujube production areas. The experimental results showed that it is suitable for grading regardless of the different varieties. The rate of single fruit conveying was 85%, accurate single fruit supply was 100%, precise grading was 95%, and the machine injury was 2.3%. The speed of grading for indian jujube was 6110 fruits/hr, it equals to about 500kg/hr.

The first demonstration of this machine was held at Yan-Pu county of Ping-tung. It pleased all the participants. Fifty machines have been distributed to farmers and they have got good impression about it. In addition, this machine was able to sort lemon, native mango and peach fruits etc.

Key words: indian jujube fruit, sorting machine, weight type.

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