

Examination Potato Damage Under Impact Loading

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Losses of agricultural products and the related financial losses are considerable in Iran. Potato is one of the most important crops in Iran and has the most nutritious energy per area. The losses of potato are considerable as statistical reports. The mechanical damage is one of the factors in potato losses that occur during harvesting and handling of potato tubers. When reduction in mechanical damage of tubers is of concern, attentions are automatically drawn towards the design and adjustment of the potato harvester. Of course the design and adjustment of the potato harvester is one of the coin, the other side is the potato tuber themselves. For some potato varieties that are highly susceptible to mechanical damages, even a well designed and adjusted harvester can still cause extensive damage. For this reason a prior knowledge about damaging impact energy threshold of potato tubers are as important as the knowledge about the harvester.

In this research a constructed pendulum was used to measure the damaging impact energy threshold for Agria, Aula, Marfona varieties. After measuring volume of damage, the effect of impact angle, varieties and tuber size were studied.

Results show that, varieties, impact angle and tuber size has significant effect on the volume of damage and aula variety is more susceptible to damage than other varieties. Although volume of damage in large tubers are higher than other sizes.

Key words: Potato, Impact, Volume of damage, Bruise, Size of tubers

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