

Evaluating California pistachio trunk shaking harvesters

L. Ferguson, K. Glozer, H. Reyes, U.A. Rosa, S. Castro-Garcia, J.A. Miles, J. Roach,
C. Wheaton, Huiling Hu, D. Moin

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Abstract

A comparison of a commercial and experimental trunk shaking harvester for Pistachio trees revealed there were significant differences in final harvester efficiency. The experimental harvester removed 16.1 of 17.1 kg (35.5 of 37.8 lb) for a final harvester efficiency of 93.9%, while the commercial control harvester removed 15.0 of 17.3 kg (33.0 of 38.2 lb), equal to a significantly lower final harvest efficiency of 86.2%. If only edible in-shell yield is considered, there was no significant difference in the pounds of dry in-shell split nuts (splits) removed by the harvesters, but there was a statistically significant difference in the pounds of total edible yield left in the tree. The control trunk shaker left 2.4 kg (5.2 lb) dry weight in the tree of which 61.5% or 1.5 kg (3.2 lb) was in-shell splits. The experimental shaker left 1.1 kg (2.3 lb) in the tree of which 60.8%, or 0.7 kg (1.4 lb) was in-shell splits. Therefore, on a gross dry weight basis, the experimental harvester is significantly more efficient because it harvested a significantly higher percentage of the tree's marketable crop. These results strongly suggest the pistachio industry should begin evaluating improved trunk shaking technology, pruning that enhances trunk shaker efficiency and alternative harvesting technologies versus the economics of replanting orchards.