

# Olive harvesting mechanization systems in high density orchards

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## Abstract

In order to improve the competitiveness on the global market the major objective of the world olive growing industry seems to be the reduction of the production costs and the increase of the number of olive trees per hectare. The production cost analysis indicates that harvesting is of utmost importance. As a result it is important to mechanize and innovate the harvesting process. Using olive harvesting mechanization systems it is necessary both to reduce the production costs and to improve the quality of the olives and subsequently of the oil. In the order of increasing importance and cost of the machine, the following olive harvesting mechanization systems are used in high density orchards: hand held shaker or trunk shaker with different interceptor systems. Various tests have been done on the different harvesting systems to compare the fruit removal efficiency and work productivity. Our results have demonstrated that the work productivity increases when the harvesting mechanization systems are used and that productivity increases proportionally to the power of the mechanization systems. When the hand held shaker is used the work productivity is doubled, compared with harvesting by hand. However, it is important to note that the hand held shaker is only suitable for sloping or terracing ground and small family run farms. Other tests were carried out in high density orchard (200-300 trees/hectare) using the trunk shaker system. Our test results have demonstrated that if the trunk shaker machine is used the work productivity increases and the degree of improvement depends on the different interceptor systems ranging from the nets to the reverse umbrella. The conclusion drawn from the tests results is that all the harvesting mechanization systems reduce the production costs of the olives and increase the work productivity, improving the competitiveness on the global market.