

Title Innovations in harvesting machines
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Abstract

In the last 20 years, the development of hazelnut cultivation in Italy has been related to the introduction of harvesting machines, which have completely replaced manual harvesting. During this time the performance of the harvesters has led to a considerable increase in harvesting rate, from about 100 kg/h to more than 1000 kg/h. In this period harvester innovations have been concerned not only with technical and economic performance (such as a reduction in operating time and costs) but also with the operator's safety and health and, in general, the quality of the working environment as well as the control of some ergonomic aspects (dust, noise, posture). After a description of the main technical aspects of harvesters (with particular reference to the self-propelled harvesters), the authors discuss the results of experimental tests carried out in the last three years. The tests show remarkable harvesting performances for the different types of harvesters (pulled vacuum harvesters, with and without side-picker and trailer, self-propelled aspirating or picking harvesters with trailer), which vary from about 0.2-0.4 ha/h for pulled machines to 0.35-0.5 ha/h for self-propelled ones. The variability depends on factors like work conditions, row length, orchard production and also on the organization of the harvesting yard.