

Abstract

In manual picking of fruit and vegetables the product is usually put in a small container carried by the worker, who then places the container on a cart for delivery to an unloading point. In row growing, the product is usually picked directly into a container carried on a transportation vehicle. However, sometimes the ground conditions do not enable the use of transportation vehicles, for example, in cases where the soil between the rows is tilled as in cucumber greenhouses, or where the ground slopes too steeply as with Pitaia fruit. One way to overcome such problems is by using suspended transportation containers. In industry monorails are very commonly used for transportation in difficult conditions, and also in agriculture monorails and other related means are used, of which the best known is the banana cableway. In the present study a special suspended-transportation line was developed that is used for picking and harvesting in addition to transportation. A special small two-wheeled carrier, holding one to four containers, moves along the suspended transportation line, and the worker puts the picked product directly into the container. In a preliminary work-study conducted in a cucumber greenhouse, it was found that, theoretically, such a system could reduce the working time by 23%. Tests of an experimental system in a cucumber greenhouse showed that the working time was actually reduced by 12%-19%, approximately equivalent to a saving of 24 workdays per acre each year. The preliminary work-study had shown that a theoretical saving of 18% in Pitaia could be achieved through the use of the above system. When a cable system was built the actual saving in working time confirmed the above findings: the overall saving in the fruit picking task during the entire season could be up to 4 workdays per acre.