

Mechanical weed control in organic orchards: Roll hoes

Problem

In organic orchards, weed control is very important, as herbicides are not allowed and the sole use of superficial mowing of the undergrowth is not sufficient, especially in spring with young & weakly growing trees.

Solution

The roll hoe works efficiently on weeds in the tree strip with 4-6 vertically parallel star-shaped hoes. In addition, it crumbles the soil while being a comparably cheap and robust device.

Benefits

The weeds are regulated with a high area performance when using a simple, maintenance-extensive technique. Mounding of the soil in the center of the tree strip is possible.

Applicability box

Theme

Crop production, Horticulture, Temperate fruits

Keywords

Plant protection; pest control; biological pest control

Context

Central Europe

Period of impact

Spring-Autumn

Equipment

Roll hoe, tractor

Best in

Organic orchards

Practical recommendations

- Roll hoes are passively driven device, without an additional oil drive; the device is moved by the ground resistance and via the tractors' driving movement.
- The number of discs/hoes can be varied, and thus adapted to the width of the tree strip (usually 4-6).
- The set inclination angle of the discs regulates how much soil is thrown into the center of the tree strip.
- The device can be used all year round, preferably in dry weather; several passes per year are necessary. The device reaches their limit in heavy, wet soils.
- Weeds should not exceed a certain density or growth height (~30 cm).
- Due to the comparatively high driving speed (5-8 km/h), a high area performance can be achieved; a straight, even tree stand is advantageous.
- Disadvantage of the device: The inter-trunk area is not treated; by the additional use of a finger hoe, the inter-trunk area can be processed, as well.



Picture 1. Adelhelmer roll hoe combined with K.U.L.T. finger hoe, Photo: N. Oeser, FÖKO, 2019.

Further information

Video

- [Roll- and finger hoes](#) (Guide to weed control in apple growing, Agroscope)

Weblinks

- Oeser, N. 2018. [Presentation of mechanical soil cultivation equipment for weed control in trees](#) (Öko-Obstbau Magazine, German)
- Mora Vargas, A., Kelderer, M. 2023. Practice Abstract [How to control weeds in organic pome fruit](#). Laimburg. BIOFRUITNET.
- Oeser, N. 2023. Practice Abstract [Mechanical weed control in organic orchards: Gyroscopic crumblers](#). FÖKO. BIOFRUITNET.
- Oeser, N. 2023. Practice Abstract [Mechanical weed control in organic fruit growing: Thread mowers](#). FÖKO. BIOFRUITNET.
- Lindhard Pedersen, H. 2023. Practice abstract [Advantages and disadvantages of weed control in tree rows using soil coverage](#). Hortiadvise. BIOFRUITNET.
- Oeser, N. 2023. Practice Abstract [Weed control in Organic pome fruit growing: Combined strategy of different approaches](#). FÖKO. BIOFRUITNET.
- Check the [Organic Farm Knowledge platform](#) for more practical recommendations.

About this practice abstract

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