

Mechanical weed control in organic orchards: Gyroscopic crumblers

Problem

In organic orchards, weed control is very important, as herbicides are not allowed. Additionally, purely superficial mowing of the undergrowth is not sufficient, especially in spring with young & low-stem trees.

Solution

The gyroscopic crumbler regulates the weeds mechanically by means of two horizontally rotating tools, one of which also swings out into the inter-trunk area by means of probe technology.

Benefits

Tillage of the entire tree strip. Plant parts, mulch and leaf residues are dug into the soil, promoting humus build-up and reducing the ascospores potential from scab fungus in the spring.

Applicability box

Theme

Crop production, Horticulture, Temperate fruits

Keywords

Plant protection; pest control; biological pest control

Context

Central Europe

Equipment

Tractor, gyroscopic crumbler

Best in

Organic orchards

Practical recommendations

- Working with these machines is comparatively demanding, a training period of the person carrying out the work is necessary in order to avoid damage to trees, up to total loss.
- The working speed is 2-3 km/h and a working width of 40-60cm. The tree strip is thus completely treated.
- Treatment can be problematic in heavy, wet soils.
- In addition, a hand hoe should be performed 2-3x a year to keep the areas close to the trunk clear (especially in young plantations).
- Depending on the location and weather conditions, 2-5 working passes per season are needed.
- For optimal weed management, a combination strategy with other machines is recommended, for higher impact and weather independence. If the gyroscopic crumbler is combined in the strategy with other equipment (e.g., a thread mower), the application usually takes place between harvest and the end of flowering. (See also Practice Abstract: Weed control in Organic pome fruit growing: Combined strategy of different approaches).
- Due to its complexity and many moving parts, the crumbler requires comparatively high-maintenance.



Picture 1. Gyroscopic crumbler by LADURNER in action, Photo: N. Oeser 2019.



Picture 2. Freshly treated tree strip after LADURNER treatment, Photo: N. Oeser 2019.

Further information

Video

- [Gyroscopic crumbler](#) (Guide to weed control in apple growing, Agroscope)

Weblinks

- 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 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.
- Oeser, N. 2023. Practice Abstract [Mechanical weed control in organic orchards: Roll hoes](#). FÖKO. BIOFRUITNET.
- Oeser, N. 2018. [Presentation of mechanical soil cultivation equipment for weed control in trees](#) (Öko-Obstbau Magazine, German)
- Check the [Organic Farm Knowledge platform](#) for more practical recommendations.

About this practice abstract

Publisher: Fördergemeinschaft Ökologischer Obstbau e.V. (FÖKO)

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Permalink: [Organic-farmknowledge.org/tool/45986](https://organic-farmknowledge.org/tool/45986)

Project name: BIOFRUITNET- Boosting Innovation in ORGANIC FRUIT production through stronger networks

Project website: <https://biofruitnet.eu>

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