Technology Offer

Working principle and design of the weed removal tool

Fields of use

Food production. Farming.

Current state of technology Prototype

Intellectual property /

Developed by University of Ljubljana,

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Background. The technical problem solved by the invention is the mechanical hoeing of weeds without the use of pesticides, which enables sustainable crop production. The speciality lies in the adaptability to different plant sizes, row spacings and distances between individual plants in a row. This requires an advanced mechanism for clamping, positioning and driving the hoeing elements. Changes in size due to growth stages as well as differences between plant species and varieties are taken into account.

Description of the solution. The basic design of the device is based on the operating principle and design of the hoeing device, which enables effective weed removal. The device is designed in such a way that it can be adapted to different plant sizes, the speed of rotation of the hoeing elements around the plant, the working speed of the elements and the use of different shapes and sizes of hoeing elements. It is designed for smaller farms up to 5 hectares or for hobby gardeners, as it is manually and electrically operated and is adapted to the energy transition to renewable energy sources. The 'hoe' can be operated by one person walking behind the machine and pressing buttons on a control panel to carry out weed control.

Main advantage. The device enables the use of multiple hoeing elements in a circular motion, with separate settings for spacing, frequency, depth and direction of treatment, allowing flexible and precise mechanical weed removal without chemicals and easy adaptation to different plants, soil types and cultivation needs. The lightness and manoeuvrability of the device minimises compaction and damage to the soil, helping to maintain long-term fertility and prevent erosion and degradation. The device enables the use of an electric battery drive that can be powered by renewable energy sources.

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