

Weed control in soy with a finger weeder

Problem

Weeds within a row are poorly accessible and in the case of a late weed infestation, it can seriously disrupt the development of the crop and cause costly manual labour. Weed control in between rows with duck-foot tines is typically ineffective for controlling the weeds inside the seed rows.

Solution

In order to minimise weed competition in soy cultivation, weeds growing near the soy plants need to be controlled. The combination of a hoeing device with duck-foot tines and ridging discs with a finger weeder is able to control the weeds across the entire surface (Picture 1).

Outcome

The finger weeder is the only mechanical hoe that also controls weeds within the row thanks to a slanted position and adjustable overlap of the finger plates, and it greatly reduces manual labour. It offers good performance for most row crops.

Practical recommendation

- Pass once with the harrow 2 to 3 days after sowing the soy (blind harrowing), when many seed weeds have already sprouted. At this moment, the harrow is able to efficiently cover or expose the weeds (up to 90 % efficiency), but avoid damaging the soy seedlings.
- A second round with the harrow, applying little tine pressure (a precision tined-weeder recommended), is possible when the soy plants have developed their first pair of leaves.
- From the soy's two-internode stage (plant height of about 15 cm) onwards, the use of the finger weeder is possible, provided the crop is well-rooted and the weeds are - if possible - still at their sprouting stage (Picture 2). Ideally the finger weeder is combined with a hoeing device with duck-foot tines.
- Depending on the level of weed infestation, you can wait for up to 2 weeks between hoeing rounds. Re-sprouting weeds can be controlled 1-3 days after a hoeing round with the harrow. Usually, 2 to 4 hoeing rounds per crop should suffice.

Applicability box

Theme

Weed management

Geographical coverage

Global

Application time

Beginning with the 2- to 4-leaf stage of a crop, after good root growth. Most efficient against weeds at sprouting stage.

Required time

1 to 5 times

Period of impact

Current crop

Equipment

Finger weeder, possibly in combination with bladed hoe

Best in

Soy, sunflowers, sugar beets, leek, and cabbage varieties



Picture 1: Combination of finger weeder and duck-foot tines in soy. Picture 2: Finger weeder at work within the row. (Pictures: Goran Malidza, Institute of Field and Vegetable Crops, Novi Sad).

Tips

- Do not hoe soil that is too wet, as soy plants may be pulled out from soil clods.
- Cloddy soil and deep-rooting weeds will not be efficiently controlled by the finger weeder.
- The finger weeder comes with finger discs in different sizes. Big finger discs are useful in the case of wider row spacing; they turn more slowly and are more robust.
- For optimum effect, distance and height of the finger disc pairs must be adjusted to fit the application.
- Finger weeders with a high frame can be employed until the soy crop flowers.

Practical testing

If this method seems to be suitable for your farm, we recommend that you test it under your own farm conditions as follows:

1. Divide a field or part of a field with a consistent infestation into two trial plots. These plots may be equal, but it is not a requirement.
2. Mark the limit between the two areas with a stick at both ends of the field, so that the limits of the trial plots are easily identifiable.
3. Apply the new method on one of the two plots. The other plot can be cultivated as usual.

Evaluation and sharing of the results

Visual evaluation: In order to evaluate the efficiency of the method, you can visually estimate and compare the weed density in the main crop following the stubble cultivation before the weed control on both trial plots. Document the two plots with photographs for later evaluation.

Quantitative evaluation: For a quantitative evaluation of the weed density, count the number of thistles within a square with a side length of 1 metre (e.g. formed by two yard sticks) on six places along a diagonal line in both plots. The average number of the six measurements per plot multiplied by 10.000 results in the hypothetical number of thistles per hectare. This number serves as a reference in later stubble cultivation.

Use the comment section on the [Farmknowledge Platform](#) to share your experiences with other farmers, advisors and scientists! If you have any questions concerning the method, please contact the author of the practice abstract by e-mail.



Further information

Manufacturers

- A selection of finger weeder manufacturers: www.kress-landtechnik.de, www.landtechnik-wolf.at, www.hatzenbichler.com, haknl.com, schmotzer.de, www.einboeck.at, portal.steketee.com, www.suttonag.com

Video

- [Mechanical weed control in vegetable farming \(2012\)](#) by FiBL. The finger weeder is shown from minute 8'10".
- [K.U.L.T. finger weeder, in row cultivator](#). The mute video subtitled in German shows the use of the finger weeder.

Links

- Further tips for organic weed control can be found on the [Farmknowledge Platform](#).

About this practice abstract and OK-Net Arable

Publishers: Research Institute of Organic Agriculture FiBL, Ackerstrasse 113, CH-5070 Frick, Tel. +41 62 865 72 72, info.suisse@fibl.org, www.fibl.org
IFOAM EU, Rue du Commerce 124, BE-1000 Brussels
Tel. +32 2 280 12 23, info@ifoam-eu.org, www.ifoam-eu.org

Authors: Hansueli Dierauer, Franziska Siegrist and Gilles Weidmann (FiBL)

Contact: hansueli.dierauer@fibl.org

Translation: Andreas Basler, Florin Regli, **Language editing:** Simon Moakes

Permalink: [Orgprints.org/31017](https://orgprints.org/31017)

OK-Net Arable: This practice abstract was elaborated in the Organic Knowledge Network Arable project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 652654. The project is running from March 2015 to February 2018.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 652654. This communication only reflects the author's view. The Research Executive Agency is not responsible for any use that may be made of the information provided.

Project webpage: www.ok-net-arable.eu

Project partners: IFOAM EU Group (project coordinator), BE; Organic Research Centre, UK; Bioland Beratung GmbH, DE; Aarhus University (ICROFS), DK; Associazione Italiana, per l'Agricoltura Biologica (AIAB), IT; European Forum for Agricultural and Rural Advisory Services (EUFAS); Centro Internazionale di Alti Studi Agronomici Mediterranei - Istituto Agronomico Mediterraneo Di Bari (IAMB), IT; FiBL Projekte GmbH, DE; FiBL Österreich, AT; FiBL Schweiz, CH; Ökológiai Mezőgazdasági Kutatóintézet (ÖMKI), HU; Con Marche Bio, IT; Estonian Organic Farming Foundation, EE; BioForum Vlaanderen, BE; Institut Technique de l'Agriculture Biologique, FR; SEGES, DK; Bioselena, Bulgaria

© 2017

