

Control of creeping thistle by stubble cultivation

Problem

Creeping thistle can rapidly spread, especially in crop rotations that contain a high number of cereal crops without perennial grass-clover leys. It reduces crop yields by competing for water and nutrients.

Solution

Creeping thistle populations can be successfully reduced by repeatedly undertaking stubble cultivation after an early maturing crop and cultivating a densely growing catch crop.

Outcome

Multiple cultivations lead to a repeated physical damage of the thistle. Each time it regrows, it uses further nutrients until it is weakened and a new crop will out-compete it. This method is also effective against other root-spreading weeds such as couch grass and bindweeds.

Applicability box

Theme

Weed management

Geographical coverage

Central Europe

Application time

Between end of June and beginning of August, in very dry weather

Required time

2-3 stubble cultivations

Period of impact

Succeeding crop

Equipment

Skim plough or wing share cultivator

Best after

Grains or other early maturing crops like rapeseed

Practical recommendation

- After harvesting grains, perform stubble cultivation with a skim plough or a completely flat-cutting wing share cultivator at a depth of 7-10 cm.
- After the thistle plants have re-emerged (maximum 10 cm), repeat the cultivation 1-2 times while increasing the working depth (figure 1).
- Sow a dense, fast-growing catch crop such as vetch or fodder radish after the stubble cultivation to further weaken the thistles (figure 2).

This method only works on dry soils and in dry weather; in wet conditions, it can lead to an increase in thistles!

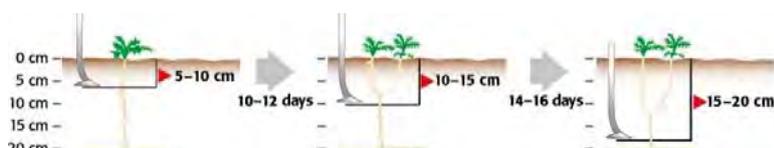


Figure 1: Increasing cultivation depth with every step.

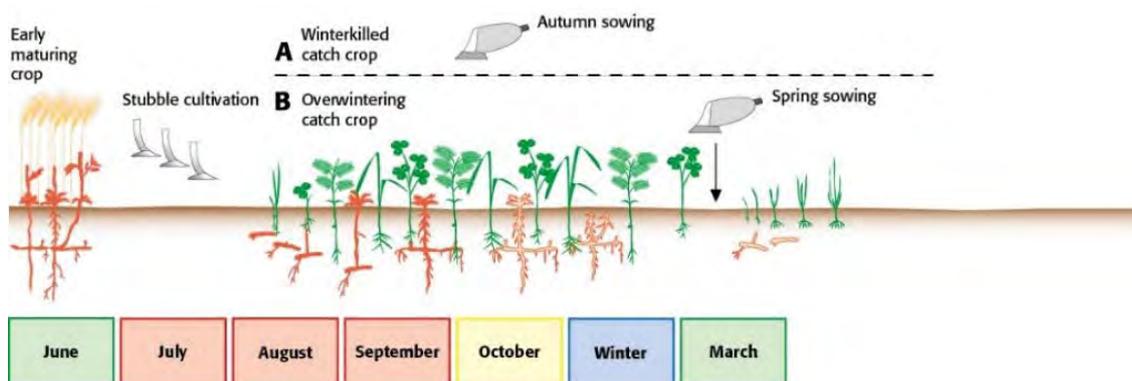


Figure 2: Suppressing the thistles with a winterkilled or an overwintering catch crop after stubble cultivation.

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 thistle infestation into two trial plots. These plots may be equal, but it is not a requirement. Homogenous growth conditions on the field enable a clear evaluation of the effects of this method.
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, you can count the number of thistles within a square with a side length of 1 metre (which can be formed by e.g. two yard sticks). The square is placed in both trial plots six times along a diagonal line. 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

Video

- [Regulierung von Wurzelunkräutern bei der Stoppelbearbeitung mit Schälplflug oder Grubber](#). The video presents two types of machinery for stubble cultivation and opens up a debate on their use for weed control and other aims of stubble cultivation. It is in German and has English subtitles.

Links

- Check the [Farmknowledge Tool Database](#) for more practical recommendations regarding stubble cultivation.
- The overall approach to thistle control in organic farming is described in FiBL's technical guide [Creeping Thistle. Successful control in organic farming](#).

About this practice abstract and OK-Net Arable

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