

Reducing weed seed pressure with the false seedbed technique

Problem

Annual crops are especially sensitive to weed pressure during early growth. Intensive weed pressure limits crop growth through competition for light, nutrients and water.

Solution

Grow the weeds, and then grow the crop! The false seedbed technique consists of preparing a regular seedbed (early) and then – instead of sowing the crop directly – you allow the weeds to germinate and then control them repeatedly before planting or sowing the actual crop.

Outcome

The false seedbed technique reduces the weed seed bank in the topsoil and, as a result, significantly reduces competition of annual weeds in the succeeding crop.

Practical recommendation

- Prepare a regular seedbed 2 to 4 weeks before the planned seeding date of the next crop.
- Let the weeds germinate and grow to the 2- to 4-leaf stage, the most effective stage for weed control.
- Uproot the weeds to a depth of 3 to 5 cm using a harrow comb or a flexible or chain harrow.
- If (a) weed density is high, (b) if you have 7 to 10 days available for sowing the crop, or if (c) weed competition in the following crop is very critical, repeat the procedure a second time before sowing the crop as usual (figure 1).

Applicability box

Theme

Weed management

Geographical coverage

Global, limited to specific soils, climates

Application time

2-4 weeks before sowing or planting

Required time

Harrowing 1 to 2 times

Period of impact

Succeeding crop

Equipment

Harrow-comb or flexible harrow, chain harrow

Best in

Crops with slow emergence and/or slow establishment; crops with low competitiveness such as soya, beans, peas, sugar beet, carrots or onions.

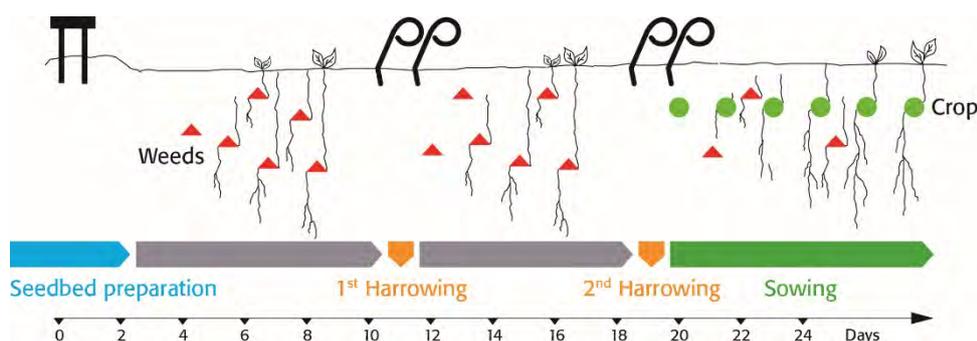


Figure 1: Schematic presentation of the false seedbed technique

Notes

- Weed seed germination is highest in humid soil with a fine tilth. If the seedbed is too dry or cloddy, germination is reduced and the impact of the method is limited.
- Effectiveness of the method can be limited at soil temperatures below 10 °C.
- Preferably use a power take-off or friction-driven machines to avoid soil structure damages.

Practical testing

If this method seems to be suitable for your farm, we recommend that you test the false seedbed technique and compare it with regular seedbed preparation (control plot) under your own farm conditions:

- The selected field or part of the field used for the field test should have homogeneous soil conditions and weed pressure. The uniformity of the result will greatly depend on this factor.
- Choose the same sowing date for the following crop in both treatments for proper comparison of weed growth in both treatments (figure 2).
- To compare the false seedbed technique and regular seedbed preparation, you may divide the field into two equal parts or apply the false seedbed technique on a strip only.
- Mark the limit between the treatments with sticks at both ends of the field.

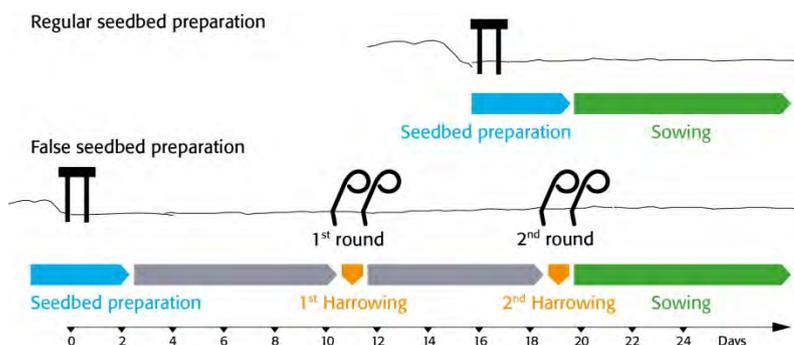


Figure 2: Possible timing of soil cultivation in the plots.

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 succeeding main crop on both trial plots. The best time for comparison is about 10 days after sowing when the weed becomes visible. Document the two plots with photographs for later evaluation.

Quantitative evaluation: For a quantitative evaluation of weed density, count the number of germinated weeds within a square with a side length of 1 metre (e.g. formed by two yard sticks). The square is placed in both trial plots six times along a diagonal line. The average of the measurements, multiplied by 10,000, will give the theoretical number of seed weeds per hectare. This number may serve as a reference.

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

- Check the [Farmknowledge Tool-Database](#) for more practical recommendations.
- [False and Stale Seedbeds](#): The most effective non-chemical weed management tools for cropping and pasture establishment (BHU Future Farming Centre).

About this practice abstract and OK-Net Arable

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