

Rolling of grains to prevent winter kill damage

Problem

Extreme frost in cold winters can lead to soil movements that cause tears in plant roots and the hypocotyls of the grain. This makes growth more difficult in spring and makes the grain very susceptible to a lack of moisture up until the 3-leaves growth stage. This results in crops with gaps.

Solution

Rolling the grains in spring reconnects soil crumbs with the soil and supports the soil water capillarity and water availability in the topsoil.

Outcome

The pressure of the roller stimulates not only the formation of roots and improves access to water, but stimulates also the tiller of the grain increasing its stability and thus reducing the risk of falling over.

Applicability box

Theme

Crop-specific measure

Geographical coverage

In regions of wheat and other winter cereal cultivation

Application time

After the last frost in spring when grains start to shoot.

Required time

One pass with a roller.

Period of impact

Current crop

Equipment

Corrugated roller (cambridge roller) or a smooth roller

Best in

Wheat and other winter grains

Practical recommendation

- Rolling requires dry soil in order to prevent the soil from sticking to the roller and ripping out the plants (especially when using smooth rollers).
- The corrugated roller must not damage the plants too much. Take special care when using sharp-edged rollers.
- Every mechanical interference puts the plants under stress. For this reason, it is advised to go at a maximum rolling speed of 5 km/h.

Notes

- Even in densely sown or strongly fertilized spelt crops, the rolling is recommended. It weakens the main shoot and increases growth on side shoots, which improves the stability of the plants at the expense of longitudinal growth. Spelt is often rolled later (up until the 1-node stage) and more aggressively than winter wheat.



Figure 1: Rolling winter wheat (with corrugated roller in the photo) is supporting seed-soil contact and stimulates tillering. (Photos: www.gut-derenburg.de)



Wheat crop about 4 weeks after rolling.

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. Make a part of the grain into a testing area and mark it with poles.
2. Apply the new method on the testing area and cultivate the rest of the field as usual.

Evaluation and sharing of the results

Visual evaluation: Evaluate the tillering, the crop density and the stability of the crop in various stages of development in both areas. Photographs help documenting the results for a later analysis.

Quantitative evaluation: Compare the yields in the testing area with the yields in the rest of the field.

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

- The video "[Wintergetreide walzen](#)" (in German with Dutch subtitles) demonstrates the technique. In the commentary section, there are additional explanations on how to use this method.

Links

- Check the [Farmknowledge tool database](#) for more practical recommendations on grain crops.

About this practice abstract and OK-Net Arable

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