PRACTICE ABSTRACT NO.042

Direct drilling of winter cereals

Problem

In crop rotations where winter cereals follow a crop harvested in autumn, it may be difficult to prepare the seedbed.

Solution

The cereal can be directly sown, skipping the seedbed preparation, if the preceding crop left the soil well structured and free from weeds.

Outcome

Direct drilling has achieved results similar to conventional sowing techniques (including seedbed preparation) if the soil is well structured.

Applicability box

Theme
Crop cultivation

Geographic coverage
Global

Application time
It replaces usual sowing

Required time
It reduces times, since seedbed preparation is not required

Period of impact
Crop sowing

Equipment
Direct drilling machine

Best in
Areas with low rainfall in autumn

Practical recommendations

Observations and practical tips

- Pay attention to the soil structure when applying any mechanical operation. During the harvest, offloading should take place at the headlands.
- In the case of a high presence of deep-rooting weeds, choose a double-layer soil preparation (instead of compacting the soil) in order to increase porosity.
- Avoid sowing if heavy rains are expected in the next 5-6 days.
- Include cover crops in the rotation to improve soil structure. Cover crops are a key element to fine-tune direct drilling techniques.
- Directly drilled soil warms up more slowly in springtime. An early harrowing in springtime to facilitate nitrogen mobilization is recommended.
- Avoid crop residue coming into contact with the seeds (see link on hairpinning on page 2).
- To reduce the risk of mycotoxins, implement appropriate crop rotations and avoid sowing more than one winter cereal in a row or a winter cereal on corn residues with direct drilling.

Picture 1: Wheat drilling on minimum tillage with soybean residues on the surface. Date: November 09, 2015.

Picture 2: Direct drilling of wheat after soybean harvest. Date: November 04, 2016.

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Picture 3: Wheat directly drilled after soybean harvest. Date: February 16, 2016.

Picture 4: Wheat drilled on minimum tillage after soybean. Date: June 20, 2016.

Assessment and sharing results

Assess yield: Assess soil porosity in the field (see Visual soil assessment: field guide for cropping). Lower yields, compared to crops sown after seedbed preparation, are generally due to reduced soil porosity.

Assess weed presence and type: quantify weed pressure and type in a sample areas on the field.

Assess the effect of cover crops on weed presence: visually assess the effect of cover crops on the succeeding crop in terms of weed presence.

Earthworm assessment: Assess the number of earthworms by the number of worm droppings per m^2 (see Earthworms: architects of fertile soils).

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

Links

- At www.aiab-aprobio.fvg.it, information on organic arable crop management is available in a biweekly bulletin and a topic-specific info sheet.
- The knowledge platform of OK-Net Arable offers information and practical updates on weed management and soil quality in organic arable cropping systems.
- Information on hairpinning

About this practice abstract and OK-Net Arable

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