

Catch crop in maize

Problem

As a late-sown crop with a large row spacing and slow early development, maize is vulnerable to erosion. Crop cover takes place as late as mid- to end of June. Soil compaction due to the use of heavy harvest machinery can further contribute to soil erosion.

Solution

Due to its late establishment and tall growth, maize is well suited to catch cropping with pure or mixed clover (for stockless farms), or with overwintering, single-year grass-clover (for livestock-holding farms).

Outcome

- Reduction of soil erosion, given a good development.
- Suppression of seed-propagated weeds.
- Better load-carrying capacity of the soil during harvest.
- Fixation of nitrogen thanks to the legumes, and utilisation of nutrients in the soil after maize harvest.
- Grazing possible immediately after maize harvest.

Inconveniences

- Competition for water in the case of severe drought.
- Cost of seeds.

Practical recommendation

- Sow the maize at the beginning of May.
- If possible, harrow a first time before appearance of the maize plants (blind harrowing). Second harrowing should take place at a plant height of 10 cm, when the maize plants are well rooted. Between a plant size of 10 to 20 cm a first hoeing should take place.
- Apply liquid manure at 25-30 m³ per ha.
- When the maize plants reach a height of about 20 to 30 cm (from 4- to 6-leaf stage), undertake a second hoeing. Combine the second hoeing with simultaneous sowing of the catch crop into the weed-free crop.
- Recommended pure crops/crop mixtures:
 - Pure-clover crop: small-leaved white clover, hop clover, red clover (200 g/a) or sub clover (300 g/a). White clover and hop clover are less competitive than red clover or sub clover. Attention: Egyptian, Italian and Persian clover are normally too competitive.
 - Clover-mixtures are less risky: E.g. sub clover/red clover (at a mixing ratio of 5:2, a total of 300 g/a) or white clover/hop clover 1:1, a total of 200 g/a.
 - For farms with livestock, mixtures of grass and clover are an option. They can be used for grazing in autumn: E.g. white clover/smooth meadow-grass or meadow fescue or ryegrass (at a mixing ratio of 1:1, a total of about 250 g/a). Attention: ryegrass can be too competitive depending on the weather conditions.

Applicability box

Theme

Weed management, soil quality and fertility

Geographical coverage

In Central European maize-cultivation areas with a moderate climate without pronounced drought periods

Application time

Sowing of the catch crop 4-6 weeks after planting maize

Required time

Additional sowing procedure. If the sowing is combined with second hoeing, no additional procedure is required; forage-growing purpose of the catch crop after maize harvest spares us a tillage procedure

Period of impact

Current crop and succeeding crop (nitrogen supply, soil structure)

Equipment

E.g. small seed dispenser mounted on hoeing machine

Best in

Maize, barley, wheat and rape seed

Tips

- If possible, sow before a longer precipitation period.
- Sowing of catch crops is only successful until the maize reaches a height of around 30 cm. Late sowings are strongly suppressed by shading of the crop and cannot properly develop.
- During long drought periods, competition for water and nutrients can impair the development of the catch crop or, if the catch crop grows too lush, the development of the maize.
- In the case of the presence of root spreading weeds like docks and couch grass, a catch crop is not recommended, as this would require tillage after the maize harvest.
- The catch crop is only profitable if it remains for the duration of winter. Depending on its development and use, it could also be utilised in the following summer. If it is incorporated into the soil in spring, it has a high value as a green manure crop.

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. Mark part of the field as a trial plot after sowing the maize.
2. Apply the described method on the designated plot. Cultivate the remaining field as usual.

Evaluation and sharing of results

Visual evaluation: In favourable conditions, the catch crop has virtually no impact on the growth of the maize. Nevertheless, it might be interesting to compare height of the maize plants and weed density in the two trial plots at different points in time. After maize harvest, a visual evaluation of the soil structure (e.g. with a spade test) may lead to interesting findings. Photographs help documenting possible differences and serve as a basis for later analyses.

Quantitative evaluation: Using the catch crop as overwintering green manure can have positive impact on the succeeding crop's yield.

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

- The [Farmknowledge Tool Database](#) offers further practical information on soil-covering techniques in general, as well as on catch crops in particular.
- Information on catch-crop technique as well as on additional soil-cover solutions can be found at [bioaktuell.ch](#).
- Information on catch crops in general and in particular for maize at [oekolandbau.de](#).

About this practice abstract and OK-Net Arable

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