

Intercropping grain peas with barley

Problem

Grain peas are a valuable forage crop in regions that import soybeans. Cultivated as a pure crop, grain peas have an insufficient strength, and this often leads to greater late-weed infestation and difficulties when harvested.

Solution

The cultivation of half-leafless grain peas and barley as a mixed crop. The barley serves as a supporting crop, significantly increasing the pea yield. After several years of trials in Switzerland, the mixed crop of grain peas and barley has achieved the most yield-stable combination for protein production.

Outcome

Barley prevents pea lodging, thus reducing the losses during threshing, and increases the quality of the harvested crop. The cereal crop also improves the soil cover, suppressing weeds. Growing two crops at the same time reduces the risk of yield loss.

Practical recommendation

- The seed bed should be not too fine-grained after cultivation or reduced tillage (advantage: better channel flow from deeper soil layers during drought periods). A further possibility is mulch-till, whilst on heavy soils a plough with subsoiler might be needed. Possibly application of green manure or compost.
- For seeders with only a single tank, mix the seeds well at the ratio of 80 % peas and 40 % barley (relating to the standard sowing quantities of both crops) before filling the seeder. Until sowing, repeatedly check the homogeneity of the mixture, and for seeders with two or more tanks, apply the seeds of the mixture partners separately.
- Sow with a conventional seeder, not too early to keep the pea plants small enough during winter, and with a row spacing of 12 cm and a placement depth of 3 to 4 cm into the same or in separate rows (depending on the sowing technique).
- Weed control is usually not needed. If there is high weed pressure, harrow or hoe it once.
- No nitrogen fertilising for the crop. Irrigation would only be needed in an extremely dry year.
- Harvest: Adjust harvester sieves to peas. Open threshing concave and hulling bars wide enough. Low drum rotation. Keep the air flow lower compared to a pure pea harvest; check regularly for grain loss. Place the Vario-table in the back. Adjust to an aggressive cutting angle.
- In order to avoid legume fatigue in the soil, only cultivate the mixed crop every seventh year. Do not grow lupins, vetches, Lucerne or pure stands of red clover in between.

Applicability box

Theme

Crop-specific measure

Geographical coverage

In peripheral regions of soy cultivation

Application time

Sowing

Required time

No additional time during cultivation. The harvested crop needs to be separated at a collection point.

Period of impact

Duration of crop

Equipment

Conventional cereal seeder

Best on

Deeper, not too dry soils for the farm's own production of concentrated feeds on peripheral soy locations. Suited for stockless farms with little grass-clover in the crop rotation.

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. Before sowing, separate a narrow plot from the field that is large enough for two header widths.
2. Mark the limit to the testing area with two poles.
3. Apply the new method on the narrow plot. The rest of the field can be cultivated as usual (i.e. peas in pure cultivation).

Evaluation and sharing of the results

Visual evaluation: In order to visually evaluate the efficiency of the method, the stability of the pea plants in the two procedures can be evaluated and compared before harvest. Photographs of individual plant stocks help documenting the results for an analysis at a later time.

Quantitative evaluation: For a quantitative evaluation of the mixed crop, the yield of the pea-barley mixture must be weighed separately. It is easiest to weigh the mix-elements after separating them.

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

- [Anbau von Mischkulturen - Körnerleguminosen mit Getreide](#) (Sept. 2015, German): Information on different mixed crops with legumes and cereals.

Weblinks

- Check the [Farmknowledge Tool Database](#) for more practical recommendations on mixed crops.
- The method is described further on the Swiss platform [bioaktuell.ch](#) (German and French).

About this practice abstract and OK-Net Arable

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