Intercropping

Description of the measure

Intercropping refers to the cultivation of two or more species or varieties in mixture at the same time on one and the same field. Proven mixing partners are generally legumes with non-legumes:

- **Peas with barley/vineyard.**
- **Field beans with oats**
- **Vetches with rye**
- **Winter peas with triticale**
- **Phaseolus beans with corn**
- **Soybean with wheat**

More rarely, mixtures with cruciferous plants are also cultivated. Here, camelina should be highlighted as a positive example.

Implementation

Mixture of legumes and cereals:

- Proven mixing ratio: 80:40 (in % of the pure stand quantities of the two mixing partners).
- Advantage of fall seeding: legumes flower before summer drought, thus more pods.
- Regulation of fall weeds by spring seeding in rotations with a lot of winter cereals
- Sowing of mixtures with normal cereal seed drill (mix by hand in a separate container beforehand)
- Sowing of mixtures of cereal pure stands with normal row spacing
- Adjustment of sowing date to sowing date of grain legumes

Mixture of corn - pole bean:

- Mix ratio 80:40 to as high as 50:50, reduced seeding densities of 6-9 grains per sq. m. recommended.
- Stable varieties recommended for corn (e.g. KWS Figaro)
- Sowing of mixtures of pure stands with normal row spacing
- Sowing possible simultaneously (pneumatically or one row of corn and one row of beans 37.5 cm apart) or consecutively (bean at 4-leaf stage of corn)

Effects on biodiversity

Reduced nutrient and pesticide use has a positive impact on biodiversity in general, and flowering mixed components provide foraging habitat for insects.

Further positive effects

Intercropping results in better stability and harvesting of grain legumes. The (late) weeds are better suppressed. At the same time, yield stability is increased thanks, among other things, to better defense against/diversion of potential pests and the distribution of risk between two crops. In addition, nutrients, water and light can be used more efficiently. On average, 5-15 % higher total yields can be achieved over the years.

Further recommendations

The success of mixed crops requires, among other things, largely coinciding harvest times of the mixing partners, good stability of the mixture and good weed suppression. Because of the good weed suppression, the cultivation of mixed crops is particularly suitable for mulch sowing.

For mixed cropping with legumes, the soil should not be too shallow and/or too dry.

For further reading: *FiBL: Erfolgreicher Anbau von Körnerleguminosen in Mischkultur mit Getreide: https://www.fibl.org/de/shop/1670-koernerleguminosen-mischkulturen*

Sources: *Manuel pratique du BfN „Leguminosen nutzen - Naturverträgliche Anbaumethoden aus der Praxis“: https://www.fibl.org/fileadmin/documents/shop/1655-leguminosen.pdf*
https://www.oekolandbau.de/landwirtschaft/pflanze/gemengeanbau • https://franz-projekt.de/uploads/Downloads/Massnahmen/Ma%C3%9Fnahmenblatt_Mais-Stangenbohnengemenge_mit%20Bild%20(2).pdf