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# Growing organic faba bean and wheat for food

## Problem

Simultaneously and efficiently producing organic high-quality wheat for bread-making and a grain legume to address the demand for indigenous plant-based proteins for food.

## Solution

Intercropping winter wheat and faba bean can stabilize the performance of both crops. Sowing density and cultivars need to be adjusted based on the intended harvest goal. The proposed solution fits best in organic farming systems with limited supply of manure.

## Benefits

Intercropping allows for a decrease in nitrogen fertilizers, better weed management, increase in pollinators and secure crop productivity. The quality of the wheat proved to be equal or higher than in sole crop.

## Applicability box

### Theme

Crop production.

### Keywords

Crop production, intercropping, cereal crops, legumes.

### Context

Switzerland, semi-continental climate.

### Application time

Autumn (October-November).

### Required time

Additional time may be required to prepare the seed mixture and for an appropriate harvest. Separation, drying and sorting of the harvested crops is needed at the collection centre.

### Period of impact

Duration of crop, up to delivering to the collection point. N residual effect of legume on following crop.

### Equipment

Standard machinery for cultivation, harvest and sorting.

### Best in

Organic agriculture, suited for farms with limited livestock.

## Practical recommendations

### Choice of varieties

- Faba bean: early winter varieties to match wheat maturity.
- Wheat: tall, late winter varieties

### Sowing depth

- Simple hopper: 5-6 cm
- Double hopper: 2-3 cm for wheat and 5-6 cm for faba bean

### Sowing density

Production goal	Wheat density (seeds/m <sup>2</sup> )	Faba bean density (seeds/m <sup>2</sup> )
Bread wheat	400 (90% sole crop density)	10 (30% sole crop density)
Mix	360 (80% sole crop density)	14 (40% sole crop density)
Faba bean	270 (60% sole crop density)	20 (60% sole crop density)





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### Fertilization

- Adjust input according to wheat sowing density (e.g 80% wheat fertilization if sowing density is 80% of sole crop density)

### Weed management

- 2-3 passes with a harrow, as needed.

### Harvest

- Best when wheat is dry and faba bean is still slightly moist to limit the amount of broken legume grains. Reduce harvester's speed to limit breakage of grains.

### Post-harvest treatment

- Separation of the crops at the collection centre and drying of faba beans. Separate sorting and storage.

### Valorization

- Agree upfront with a collection point to value wheat for bread-making. For now, faba bean is primarily used for animal feed but demand for food is growing (quality tasting of different faba bean varieties in Figure 2).



**Figure 1: Mixture of winter faba bean (40%) and bread wheat (80%) – Spring 2023.** Photo: Marina Wendling, FiBL



**Figure 2: Quality tasting of spring and winter faba beans varieties**  
Photo: Ludivine Nicod, FiBL





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## Further information

### Video

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

### Further readings

- Clerc M., Klais M., Messmer M., Arncken C., Dierauer H., Hegglin D., Böhler D. Improving the domestic protein supply with mixed cropping (2015)
- FiBL Factsheet “Erfolgreicher Anbau von Körnerleguminosen in Mischkultur mit Getreide” (German, 2017)

### Weblinks

- More information about organic intercropping in Switzerland on [Bioactualités.ch](#) (French), [bioaktuell.ch](#) (German)
- Practice abstract on intercropping grain peas with barley is available on [fibl.org](#)
- <https://www.remix-intercrops.eu/>
- Check the [Organic Farm Knowledge Platform](#) for more practical recommendations.

## About this practice abstract

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**Publisher:** IFOAM Organics Europe, Rue Marie Thérèse 11, 1000 Brussels -BE, [organicseurope.bio](#)

**Date :** 13/03/2024

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**IntercropVALUES** aims to exploit the benefits of intercropping to design and manage productive, diversified, resilient, profitable, environmentally friendly cropping systems acceptable to farmers and actors in the agri-food chain. As a multi-disciplinary and multi-actor project, it brings together scientists and local actors representing the food value chain. It includes 27 participants from 15 countries (3 continents) from a wide diversity of organizations and stakeholders. The project will run for four years and started in November 2022.

**Project website:** <https://intercropvalues.eu/>

**Permalink:** [Organic-farmknowledge.org/tool/53502](https://organic-farmknowledge.org/tool/53502)

