



Case study: Intercropping of cereals and legumes in organic cropping systems in Denmark

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Danish farmers have a long tradition of using legume-cereal intercropping. However, most farmers replaced legume rotations with synthetic fertilisers during the 20th century. With the rise in organic farming in Denmark in the 1980's, legumes and legume-intercropping were reintroduced in arable farming. Last year (2019) grain legume-cereal intercropping consisted of 3.9 % of the total area with organic cereals and legume-cereal whole crops accounting for 12.8 % of the total area for whole crops (including maize).

The most common mixture in organic arable farming in Denmark is pea/barley but intercropping of peas and other cereals such as wheat, triticale and oat is also possible. Lupin/spring wheat is another well-known intercrop for locally produced concentrate and interest is increasing. Faba beans are also suitable for legume-cereal intercropping. Due to relatively late ripening, the best Faba bean mixer in Denmark is usually spring triticale.

Several advantages of intercropping legumes and cereals have been observed. These include stable yields for protein production with a lower risk of yield loss compared with legume sole cropping, and more efficient use of environmental resources for plant growth due to interspecific complementarity. Furthermore, the cereal crop provides scaffolding for the legume and prevents lodging, improves the soil cover, suppressing weeds as well as providing some degree of acceleration of ripening of the legume.

There are fewer potential channels for sales for legume-cereal mixtures compared to sole crops. However, in Denmark many agrobusiness companies are willing to buy the crop mixture if agreed in advance. The price is settled based on an analysis that determines the share of cereals and legumes – which is then settled at the market price for the respective species. Companies will then deal with further processing requirements.

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