PRACTICE ABSTRACT NO. 09

Overview of intercropping practices in Europe

Problem

In intensive farming, monocrops are standard procedure for efficiency reasons, but they show adverse effects on biodiversity, soil health and fertility.

Solution

Crop mixtures, like wheat-faba bean overcome these drawbacks, with better resource efficiency, product quality and high overall yields for low-input farming systems.

Outcome

In 11 different pedoclimatic regions, lots of mixed cropping modalities for targets like quality feed or food, weed suppression or yield stability.

Applicability box

Geographical coverage

Europe

Application period

N.A.

Required time

N.A.

Period of impact

Affects crop and post-harvest operations and has impact on crop rotation level (medium and long term)

Equipment

General farm machinery; product sorting for food may require specialised equipment

Practical recommendations

- The companion crop can be sown in advance or with the main crop.
- The seed can be broadcast, drilled as a mixture or in alternate rows, with the same or different depth. Consider the drilling rate of the cereal to be lowered; it's a strong competitor.
- Choose varieties with a synchronous ripeness.
- Crop rows should match mechanical weed control. Chemical control is a challenge.
- The combine harvester must be adjusted to minimize threshing loss and damage to the pulse grains.
- Faba bean or peas, mixed with a cereal is an example of a mixed grain feed. It can also be harvested as a protein rich green roughage.
- The density of both crops will adapt to the growing conditions, hence consider a variable product composition and protein content.
- Protein rich wheat is interesting for (artisan) bakers. Also, a composed wheat-faba bean flour is suitable for bread baking!

Practical testing/ Farmers' experiences

Wheat mixed with faba bean or peas give good weed control and nitrogen use. Cereal lentils mix for better harvest ability and weed suppression were not always successful. Sorting costs for mixed grains by a rotary cleaner, vibratory separator, gravity separator and optical sorter are estimated 11, 11, 45 and 67 € per tonne per pass, respectively.

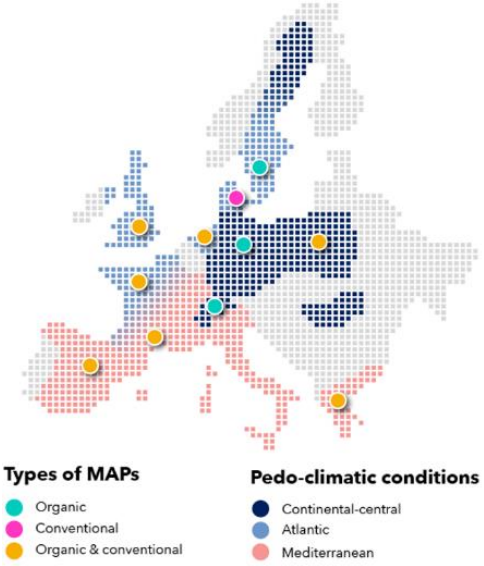

Figure 1: Overview of the type of MAPs in the different pedo-climatic regions

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Further information

- Book: Viguier L., L. Bedoussac, E-P. Journet and E. Justes, 2018. Yield gap analysis extended to marketable grain reveals the profitability of organic lentil-spring wheat intercrops. Agronomy for Sustainable Development
- Wiki: Agro Diversity Toolbox WIKI (http://vm193-134.its.uni-kassel.de/En.DiversiWiki/index.php/ReMIX_multi-actors_platforms
- Check the Organic Farm Knowledge Platform for more practical recommendations.

About this abstract

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ReMIX is a H2020 multi-actor project that will allow designing cropping systems based on agro-ecology for the benefit of farmers and the whole EU agricultural community. ReMIX will exploit the benefits of species mixtures to design more diversified and resilient agro-ecological arable cropping systems. Based on a multi-actor approach, ReMIX will produce new knowledge that is both scientifically credible and socially valuable in conventional and organic agriculture. The project will tackle practical questions and co-design ready-to-use practical solutions. The project will span from the specification of end-user needs and the co-design of in-field and on-farm experiments to demonstrations with evaluation of new varieties and practices. ReMIX will contribute to the adoption of productive and resilient agricultural systems. The project is running from May 2017 to April 2021

Website: www.remix-intercrops.eu

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