

Designing mixtures to control weed pressure

Applicability box

Geographical coverage	Europe
Application period	All year
Required time	-
Period of impact	-
Equipment	Not specific (for many mixtures)

Problem

Weeds competes with the main crop for light, water and nutrients. Chemicals and, to a lesser degree, mechanical treatments are widely used to suppress weeds.

Solution

Mixing species with complementary properties and that benefit from each other. We will focus here on living mulch or 'plant teams' (cereal cash crops associated with non-harvested "companion" species).

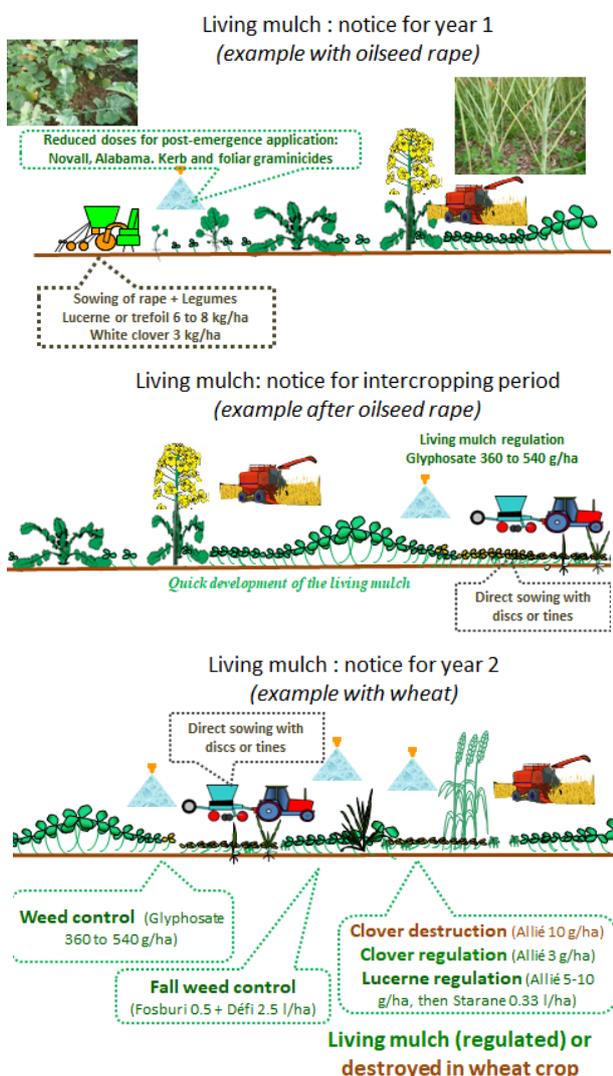


Figure 1: Living mulch. Source: Jérôme Labreuche, ARVALIS – Institut du végétal

Outcome

Although the regulation of weed pressure is difficult to quantify for living mulch, ongoing experiments show that living mulch can cover up to 95% of the soil surface during intercropping period.

Practical recommendations

- **Perennial forage legume species can be sown in a first cash crop**, for example red or white clovers established in winter wheat at the end of winter in organic farming or clovers or lucerne sown at the same time than oilseed rape in conventional farming.
- After harvesting, the **living mulch (e.g. clovers) keeps on growing during the intercropping period**, especially if the summer weather is not too dry.
- The cover crop can then be destroyed before establishing the following crop or can stay alive during part or the entire part of the cycle of the second crop. In organic farming, the cover crop has to be destroyed before sowing the second crop since it is not possible to suppress its development without herbicides. In conventional farming, more and more farmers are testing this practice. The **biomass of the living mulch shouldn't exceed 1 ton per hectare**, at the wheat flowering stage, for optimal growth of wheat.

Practical testing/ Farmers' experiences

We recommend that you test this method under your own farm conditions. Use the comment section on the [farmknowledge platform](https://farmknowledgeplatform.eu) to share your experiences with other farmers, advisors, and scientists!



Further information

- Hélias R., Lhermitte M., 2019. Des couverts vivants aussi en AB !. Perspectives Agricoles, 462, 64-66.
- Labreuche J., Edeline P., Sauzet G., 2017. Des couverts à durée indéterminée. Perspectives Agricoles, 443, 38-41.
- Labreuche J., Hauprich P., Bodilis A.M., Soenen J.B., 2018. Bien assurer la nutrition azotée du blé. Perspectives Agricoles, 453, 30-33.
- 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

