

Living mulches: What are the challenges?

Problem

Cover crops (CC) can be difficult to establish in summer due to dry soils or short intercrop.

Solution

Establishing CC in a crop enables to anticipate its emergence before summer. Perennial species can grow for several years under crops or between them (living mulches).

Outcome

CC can be destroyed or kept alive in autumn crops. Some crops such as rapeseed allow to keep CC alive when sown together and well regulated.

Applicability box

Geographical coverage

Europe

Application period

All year

Required time

N/A

Period of impact

Continuous

Equipment

specific

Practical recommendations

- Consider legumes species as living mulches as they are often complementary to the crops in the rotation (wheat, maize, etc.).
 - To overcome long setting up phase, establish them in a crop, so that they can develop in the intercropping period.
 - In organic farming: straw cereals are well adapted hosts.
 - Conventional: prefer rapeseed or sunflower as cereals are often overcovering.
- Implementation of a living mulch in a cash crop (**Fig. 1**)
 - Host crops should not be too smothering.
 - In organic farming: CC can be established after a mechanical weeding.
 - When weeding with herbicides, remain selective of the young CC in order not to destroy them.
- Living mulch during the intercropping period and then in a crop (**Fig. 2**)
 - After the harvest of the cash crop, CC benefit from light and can develop during the intercropping period.
 - The following year, CC can be kept alive or killed in autumn crops, depending on the risk strategy taken.
 - CC biomass must be low in spring: control it with herbicides or mechanical regulation.
 - Perennial CC kept alive are too competitive of spring crops: destroy them before their establishment.

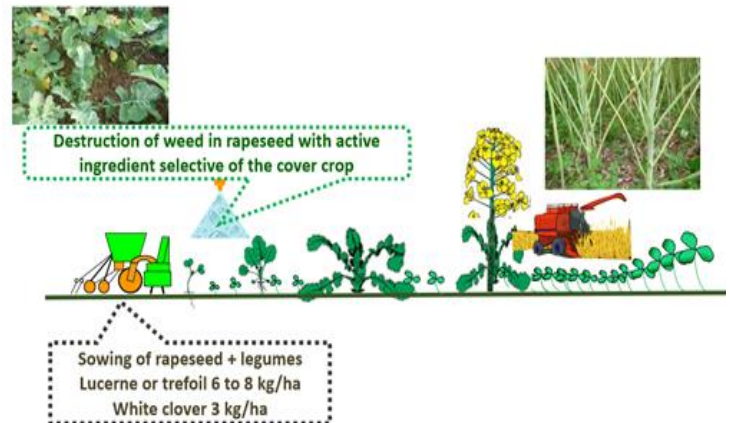


Figure 1: Installation of a perennial cover crop in a crop (winter rapeseed in this example)

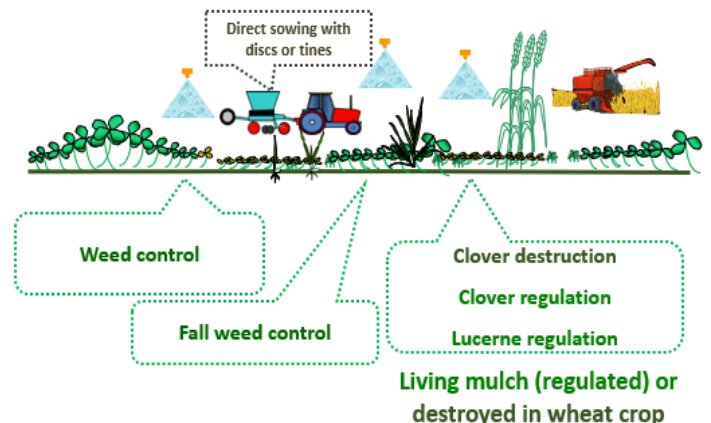


Figure 2: Perennial cover crop during the intercropping period and then in a crop (winter wheat)

Practical testing/ Farmers' experiences

A survey of 57 French farmers shows that mineral input (especially nitrogen), soil structure, lifehealth and weed management are the 3 main motivations for installing living mulch. 1/3 of famers have had CC harvested or grazed.

Further information

- Webpage: <https://www.remix-intercrops.eu/>
- Facebook Page: <https://www.facebook.com/RemixIntercrops/>
- Wiki: http://vm193-134.its.uni-kassel.de/En.DiversiWiki/index.php/Mixture_practice_for_farmers_and_advisors
- 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

