

Living mulches: regulation in the wheat grown in conventional farming

Problem

Intercropping a living mulch with wheat poses risks to the productivity of the wheat if the growth of the living mulch is not controlled.

Solution

Various actions can be used to regulate the growth of the living mulch: nitrogen inputs favouring cereal over legumes, choice of species and varieties, or herbicides at reduced doses.

Outcome

It is important to be aware of the growth dynamics of the living mulch. Depending on the species, it can be highly variable from fall to spring. This makes it possible to identify critical periods.

Applicability box

Geographical coverage

Europe

Application period

All year

Required time

N/A

Period of impact

Continuous

Equipment

Not specific

Practical recommendations

- Before sowing wheat, destroy weeds while taking care of keeping the cover crop alive.
- Very shallow tillage before sowing can limit the fall growth of the cover crop without destroying it, to avoid glyphosate.
- Fall: selectivity of herbicides can be a problem on a cover crop that grows strongly at this period (e.g., white clover). In this case, supplement the weed control programme with less selective active substances. In some cases, it is not possible to control difficult flora without destroying the living mulch.
- End of winter: crucial to control the growth of the cover crop when regrowing, to limit competition with wheat, when the latter has great needs. ReMIX trials showed that white clover can be more competitive on wheat than lucerne. Herbicide applications at the 1cm ear stage can help. While making it possible to control some dicotyledon weeds still present.
- According to the crop Nitrogen (N) response curves, it is not justified to modify fertilisation to the optimum. N piloting during the stem elongation stage seems necessary.



Picture 1: Living mulch: winter soft wheat and alfalfa - sowing under alfalfa cover crops - Source Jérôme Labreuche (Arvalis)

Practical testing/ Farmers' experiences

Farmers and our herbicide screenings show that legumes do not all have the same sensitivity depending on the detox capacity, the weather and the competitiveness of the cereal.



Further information

- LABREUCHE et GAUTELIER., 2018 Comment réguler la croissance des légumineuses présentes dans le blé, Arvalis-info.fr : <https://www.arvalis-infos.fr/comment-reguler-la-croissance-des-legumineuses-presentes-dans-le-ble--@/view-27145-arvarticle.html>
- 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

