PRACTICE ABSTRACT NO. 26

Living mulches: management in conventional wheat farming

Problem

Cover crops (CC) provide various benefits for the next cash crop such as nitrogen supply. However, maintaining a permanent CC in a crop can induce a risk of competition.

Outcome

The more developed is the perennial CC before wheat sowing, the better it is for the crop. However, competition risks must be managed, especially in spring.

Applicability box

Geographical coverage

Europe

Application period

All year

Required time

N/A

Period of impact

Continuous

Equipment

Not specific

Solution

To limit the competition between a CC and wheat, one should consider either regulating or destroying the CC during appropriate periods.

Photo 1: Living mulch: soft wheat and lucerne (sorce: Arvalis,)

Practical recommendations

- Living mulches establish themselves slowly, it is recommended to sow them in fall in the previous crop.
  - Rapeseed, sunflower and peas are adapted crops.
  - Cereals are also an option if they allow light to go through the canopy.
- The CC biomass must reach at least 2tDM/ha before wheat sowing.
- Direct sowing of wheat in a CC can reduce wheat emergence but it is compensated by the number of ears per plant, their fertility and a better protein rate.
- Killing the CC from fall to the end of winter is a secure option to avoid competition on the crop in spring.
- Soil tillage and herbicides are two means to destroy the CC.
- If the CC is kept alive, it is important to regulate the CC in wheat, especially in spring.
  - The CC biomass must be kept low from the beginning of stem elongation of wheat to its harvest (< 1 tDM/ha).
  - In conventional agriculture, herbicide applications at the 1cm ear stage can help while making it possible to control some dicotyledon weeds still present.
  - Well developed in autumn and well-regulated in spring improves the available nitrogen levels.

Practical testing/Farmers' experiences

In Provence (South France), these results have been confirmed on several farms. It is not the competition for water that impacts wheat yield but the competition for N, especially at the beginning of the wheat stem elongation stage.

THIS PROJECT HAS RECEIVED FUNDING FROM THE **EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME** UNDER GRANT AGREEMENT N. 727217

Further information

- LABREUCHE, 2018 **Des bénéfices potentiels sur le blé tendre avec une conduite maîtrisée**. Arvalis-infos.fr : https://www.arvalis-infos.fr/des-benefices-potentiels-sur-le-ble-tendre-avec-une-conduite-ma-trisee-@/view-20975-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

Authors: Jérôme Labreuche, ARVALIS, Crop Institute, France
Publisher: IFOAM Organics Europe, Rue du Commerce 124, BE-1000 Brussels www.organicseurope.bio
Date: April 2021

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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