PRACTICE ABSTRACT NO. 08

Wheat-lentil in South-West France

Problem

Lentil, an important crop known for its nutritional values and taste, is sensitive to lodging, bruchid beetles and weeds. This leads to low and uncertain yields.

Solution

The addition of wheat to a lentil crop is a real benefit for farmers as it can increase and stabilize its yield when facing abiotic and biotic stresses.

Outcome

- Reduction of lentil lodging
- Improved mechanical harvest efficiency
- Higher wheat protein content
- Wheat competes against weeds for a better control

Applicability box

Geographical coverage

Lentil-cultivation areas

Application period

Wheat and lentils are sown at the same time

Required time

Lentil and wheat grains need to be sorted out after harvest

Period of impact

Current crop as lentils supply nitrogen to wheat

Equipment

Rotary cleaner, vibratory separator, gravity separator, optical sorter

Practical recommendations

- Sowing lentil at the recommended density (300 gr/m2)
- Sowing wheat at a low density (50 plants/m2)
- Do not fertilise or grow this mixture in a high nitrogen available condition
- Choose a wheat cultivar with similar maturity date to lentils

Figure 1: Lentil-wheat crop mixture (INRA Toulouse)

Practical testing/ Farmers' experiences

Lentil-wheat is developed in South-Western France but quite new in Western France. Supported by TERRENA, this crop mixture was first tested on 3 satellite farms. Results were positive with a significant reduction of weeds and lodging.

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Further information

- Book (Scientific paper): Carton N, Viguier L, Bedoussac L, Journet EP, Naudin C, Piva G, Corre-Hellou G, Justes E (2019) Produire des légumineuses à graines au moyen de l'association avec une céréale: cas de la lentille et du lupin blanc d'hiver. Innovations Agronomiques 74: 129-141.
- Viguier L, Bedoussac L, Journet EP, Justes E (2018) Yield gap analysis extended to marketable grain reveals the profitability of organic lentil-spring wheat intercrops. Agron. Sustain. Dev. 38:39. DOI: https://doi.org/10.1007/s13593-018-0515-5
- Video on you Tube: https://www.youtube.com/watch?v=Vdz7bixA_Pc
- 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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