



#### ReMIX partners

ReMIX partnership encompasses public research and higher education organisations, private research institutions, advisory services, farmers' cooperatives, agricultural equipment industries and SMEs. The partnership features 23 partners in 11 EU countries, Switzerland and China and is coordinated by INRA – Toulouse (France).

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#### ReMIX in figures:

ReMIX is a Research and Innovation project, funded by the EU's Horizon 2020 Programme under Grant Agreement no. 727217. Further information on:

-  [www.remix-intercrops.eu](http://www.remix-intercrops.eu)
-  Twitter - @RemixIntercrops
-  Facebook – RemixIntercrops



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## REDESIGNING EUROPEAN CROPPING SYSTEMS BASED ON SPECIES MIXTURES





### ReMIX is a European research project on Species Mixtures

ReMIX will exploit the benefits of species mixtures to design more diversified and resilient agro-ecological arable cropping systems less dependent on external inputs. The project will tackle practical questions and co-design ready-to-use practical solutions adapted to producing grain cash crops in diverse EU pedo-climatic conditions.

ReMIX will contribute to the adoption of productive and resilient agricultural systems based on plants diversity, to increase legume production and competitiveness in EU and to healthier diets based on plant proteins from cereals and legumes.

### Why Species Mixtures?

Species mixtures -also known as intercrops, crop associations or 'plant teams'- are different plant species growing simultaneously on the same field for a significant part of their growth cycle.

Species mixtures can enhance water and nutrient use efficiency and improve the control of pests, diseases and weeds, while increasing crop productivity and resilience to biotic and abiotic stresses, including those triggered by climate change. Furthermore, species mixtures can lead to reduced use of fossil energy and chemical inputs and enhance production of ecosystem services.

ReMIX will study three types of species mixtures:

- Cereal-grain legume bi-specific cash crops, harvested at the same time and producing grains for human and animal consumption
- Cereal cash-crops associated with non-harvested companion crops, which can substitute chemical inputs
- Relay intercrops, involving the under-sowing of annual or perennial legumes into a cereal cash crop to avoid cereal competition for the legume

### The multi-actor approach in ReMIX

ReMIX adopts a multi-actor approach in order to produce new knowledge that is scientifically credible but also socially valuable for conventional and organic agricultural systems.

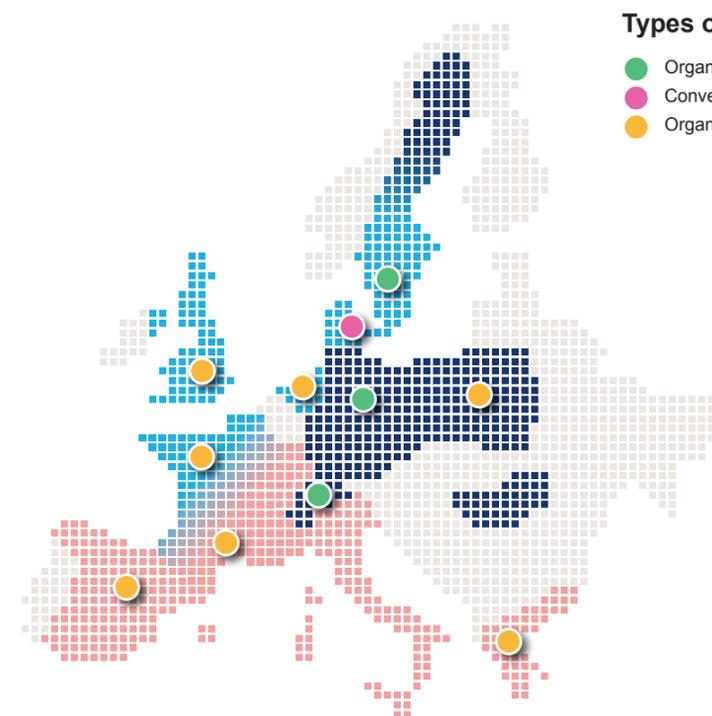
ReMIX will actively involve local stakeholders through 11 Multi-Actor Platforms (MAPs) in 10 EU countries, gathering actors across the agricultural innovation chain: practitioners, research organisations, advisory and extension services, equipment suppliers, EIP-Agri Operational Groups, policy makers, local and regional public authorities, etc.

Activities in MAPs 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. If you want more information on a MAP near you, please, contact directly the MAP partner.

### ReMIX results

ReMIX will achieve:

- Better understanding of the technological and socio-economic barriers to the use of species mixtures and development of innovative cost-effective management and breeding approaches to overcome them.
- Better understanding of the plant-plant relationships, functioning of species mixtures and of their adaptability to various EU pedo-climatic regions
- Novel scientific knowledge and field-tested evidence on the mechanisms underlying the benefits of species mixtures on yield and product quality
- Production of new genetic resources and identification of varieties suited for use in species mixtures and in new breeding programmes
- Validated species mixtures process-based models for simulating the effects of species choice, management practices and pedo-climatic conditions on the performances of species mixtures
- Optimised technical settings for existing machines adapted to harvesting species mixtures and separating grains and specifications for novel ideas for designing prototype machinery adapted to species mixtures
- Provision of readily accessible and practical information for immediate use by farmers in different EU agroclimatic zones
- Advice to overcome regulatory obstacles to the adoption of species mixtures



### Types of MAPs

- Organic (green dot)
- Conventional (pink dot)
- Organic & conventional (yellow dot)

### Pedo-climatic conditions

- Continental-central (dark blue dot)
- Atlantic (light blue dot)
- Mediterranean (red dot)

ReMIX will implement its multi-actor approach in the individual MAPs, through the following:

- 1) A central experiment, as a "mother trial", on-farm or on-station, in order to answer the practical questions in a solid way, measuring as a minimum: germination, general stand, yield, protein yield, occurrence of main pests and diseases, lodging, and similarity in time of flowering and ripening.
- 2) A number of related demonstration fields, as "satellites", best to be done on-farm, the type of measurements depending on the questions of the actors involved.
- 3) Workshops and meetings with all involved actors in order to discuss their perceptions. After harvest, discussion of results and set up for next season.



### PARTNERS IN ReMIX

