

## WIDE Synergies

### Towards a synergistic management of Weeds, Insect herbivores and Diseases with their natural Enemies in pesticide-free agroecosystems



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The WIDE Synergies research aims at exploring **new agroecosystem designs** through **spatial diversification** of cropping systems to favour natural regulation of weeds, pathogens and insect herbivores.

Two types of spatial diversification approaches have been identified as favouring the natural regulation of pests in agroecosystems:

- **Mixed cropping**, consisting of cultivating simultaneously at least two different crop species (intercropping); or cultivating a cash crop with companion plants (under-sown as a living mulch).
- **Implementing semi-natural habitats at field margins**, such as wildflower strips.

While mixed cropping is generally expected to disrupt the colonization, development and spread of weeds, insect herbivores and diseases, flower-rich semi-natural habitats at margins are expected to support natural enemies of these pests.



**Mixed cropping** (Photo: T. Döring)

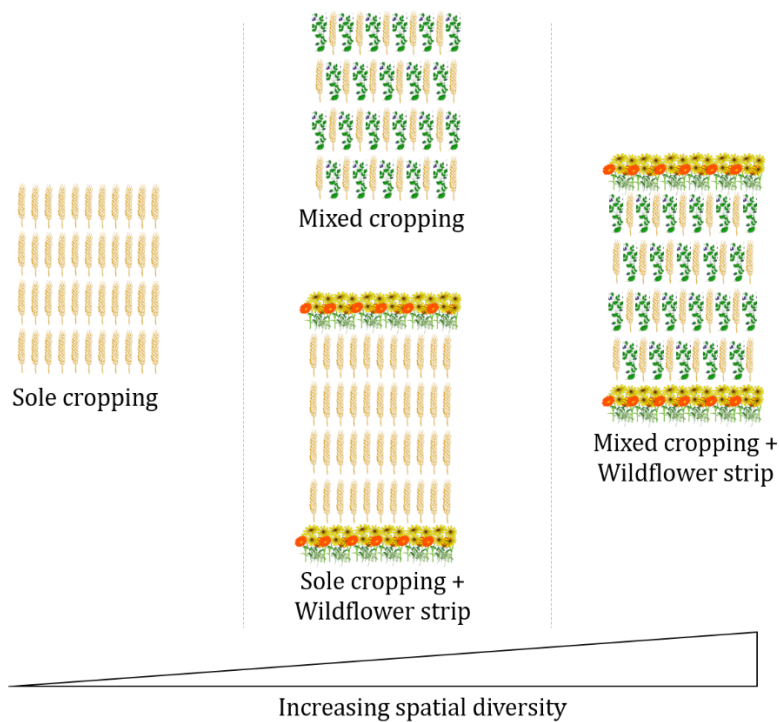


**Wildflower strips** (Photo: S. Hatt)

So far, research and innovations have often tackled weeds, pathogens and insect herbivores separately. Also, the above-mentioned diversification approaches have often been studied solely to assess their effects on each of these pests separately.



▷ While the **strategic integration** of these instruments—with a view on their **multifunctional effects**—is missing, the WIDE Synergies project will consider them together to identify and strengthen the synergies in the **simultaneous management** of Weeds, Insect herbivores, Diseases, and their natural Enemies in agroecosystems.



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**Increasing levels of spatial diversity tested within the WIDE Synergies project**

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