PestiRed: System approach of best practices to reduce pesticide use in arable crops

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A system approach

Conservation agriculture and agro-ecological principles have shown promising results regarding practices that promote the prevention and natural control of weeds, pests and diseases, and reduce the use of pesticides. However, as of yet, there is a lack of detailed investigations on performance and trade-offs of **combined practices** along entire crop rotations.

A co-innovation process

The PestiRed project will start in a co-innovation process involving scientists, farmers and extension services. A first inventory of agricultural practices that potentially support the prevention and natural control of weeds, pests and diseases will be implemented regarding feasibility and potential delivery of ecosystem services.

Implementation of detailed practices

In four regions of the Swiss plateau, entire crop rotations will be investigated. An inventory of detailed management options will be discussed with participating farmers and implemented (130 to 140 farms in four regions).

- Literature
- Farmer & scientist knowledge
- Completed & ongoing projects

- Crop variety
- Cover-, under- and inter-crops
- Crop mixtures
- Conservation tillage
- Flower strips
- Biocontrol agents
- …

- Crop rotation design (≥ 6 years)
- Detailed management practices for each crop of the rotation

Inventory of best practices

Implementation of practices on farms

Co-innovation process

Monitoring and outcomes

Effectiveness of the innovative practices will be monitored during the crop rotation: weed, pest and disease populations, crop yield, quality and safety, cost-effectiveness.

Abstract

Practices supporting the prevention and natural control of weeds, pests and diseases such as diversified crop rotations, cover crops, intercropping, flower strips, reduced tillage and biological control will be implemented and investigated in a crop rotation of a farm network. All management measures will be established in a co-innovation process with farmers. Effectiveness of the practices will be monitored along the whole crop rotation.

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