



PestiRed: Weed management based on IPM principles

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Organization

- 68 farmers - 5 groups – 3 cantons
 - Continuous co-innovation process through 2 meetings per year
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- 2 fields in comparison – one control (conventional), one innovative (with IPM strategies)

Objectives

- 75% reduction of the use of synthetic plant protection products (PPP) across an entire 6-year crop rotation (2020 to 2025)
- Maximum 10% economic yield loss

Methodology

- Around 20 preventive and curative IPM measures implemented on the innovative plots
- Monitoring of pests, diseases, weeds and beneficial insects
- Technical and economical evaluation

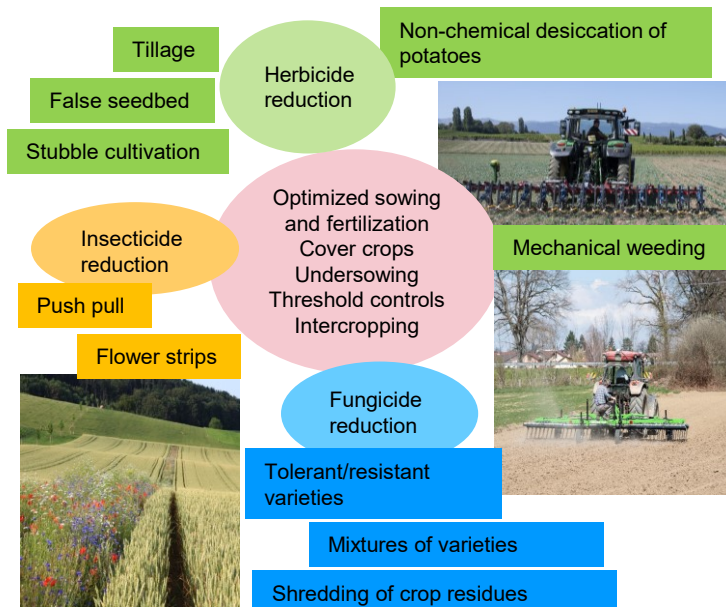


Figure 1. Proposed plant protection measures with intended impacts. In the middle circle: measures with combined effects on several categories of pests.

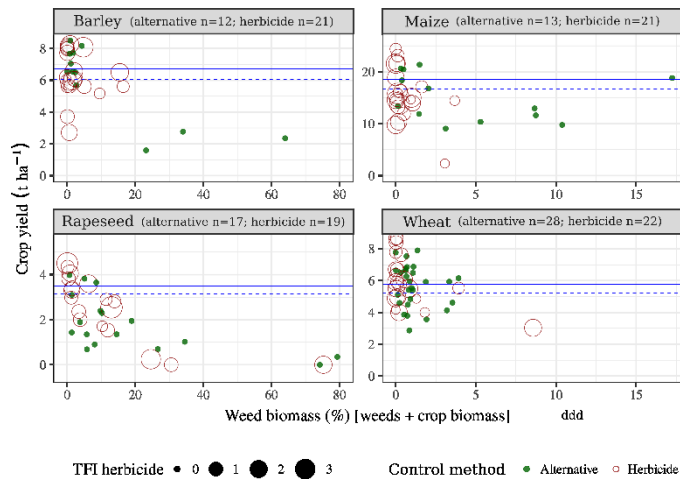


Figure 2. Crop yield ($t\ ha^{-1}$) response to weed biomass (% of total plant biomass), period 2020-2021 for barley, maize, rapeseed and wheat. Green dots: fields using alternative control methods; red circles: fields using herbicide; circle size indicates herbicide treatment frequency index. Continuous blue line: Swiss yield reference (average 2014 to 2021). Dotted line: 10% yield loss allowed in PestiRed.

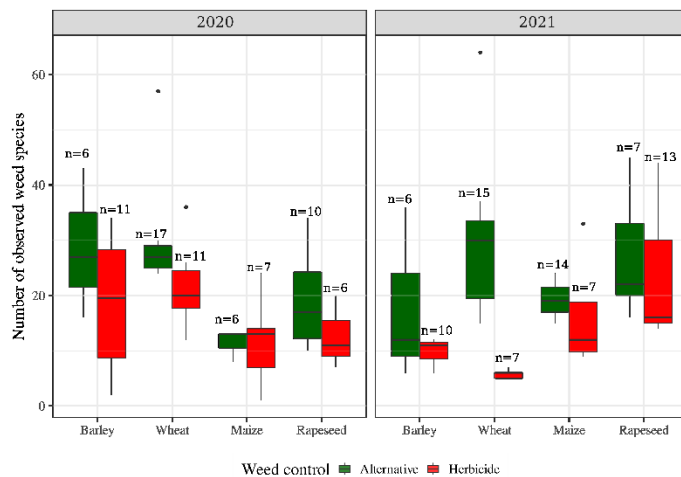


Figure 3. Number of observed weed species in 2020 and 2021 before harvest in fields with Herbicide or Alternative weed control methods, selected crops: barley, wheat, maize and rapeseed. n indicates number of monitored fields.

Conclusions and perspectives

- High yield variability is independent of herbicide treatments.
- In certain cases, reference yield levels can be achieved managing fields without herbicides.
- Combinations of IPM measures and external factors leading to high yields have to be identified.
- Weed species richness is higher on fields with no herbicide treatments.
- Is there a correlation between number of weed species present and yield loss?

