Weed management at the cropping system level

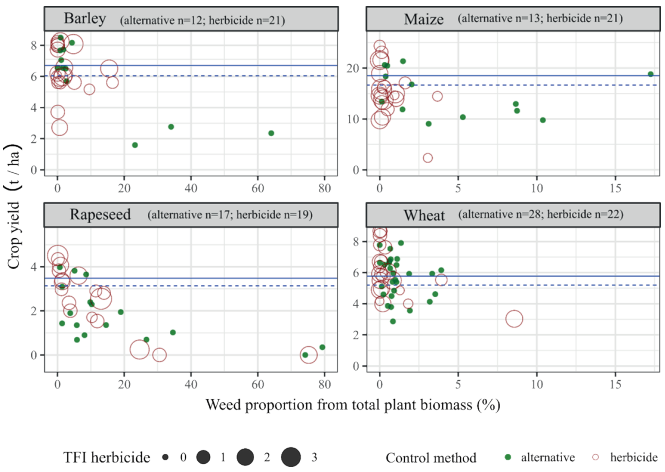
Stubble cultivation
Mechanical weeding
False seedbed
Control thresholds
Optimized sowing and N fertilization
Tillage
Non-chemical haulm destruction of potatoes
Intercropping
Undersowing

Mechanical weeding with high grass weed pressure (*Lolium sp.*)



2 x hoeing in autumn
Grass herbicide band application in spring
Weed biomass at harvest is less than 10 % of total biomass (crop + weeds)

Yield (t ha^{-1}) from barley, maize, rapeseed and wheat in relation to weed biomass before harvest (%) 2020 and 2021



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

Conclusions

- 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.
- In general, on fields without herbicide treatments, weed biomass and the number of weed species tend to be greater.

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