

IMPORTANCE OF FOLIAR ACTIVE HERBICIDES FOR WEED CONTROL IN SUGAR BEET

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BACKGROUND

Chemical weed control in sugar beet is mostly based on combinations of soil- and foliar-active herbicides. Increasingly, fewer active substances are available. This applies in particular for important foliar active substances: The registration of desmedipham was not renewed in the EU.

To determine the efficacy of remaining options in herbicide application in sugar beet, a series of field trials was started in Germany in 2019 (Laufer & Ladewig, 2020). Since phenmedipham and triflusaluron-methyl are currently being re-evaluated at EU level and the outcome is open, treatments without either of them were included.

MATERIALS AND METHODS

- **Field trials:** conducted in 2021 at eleven sites with typical weeds of sugar beet fields in Germany
- **Design:** randomized, four replications, 6-row plots, approximately 20 m² / plot
- **Treatments:** basic mixture of primarily soil-active substances (metamitron, quinmerac, ethofumesate), additional foliar- and soil-active substances in further treatments
- **Application:** cotyledon stage of weeds, three times

RESULTS & DISCUSSION

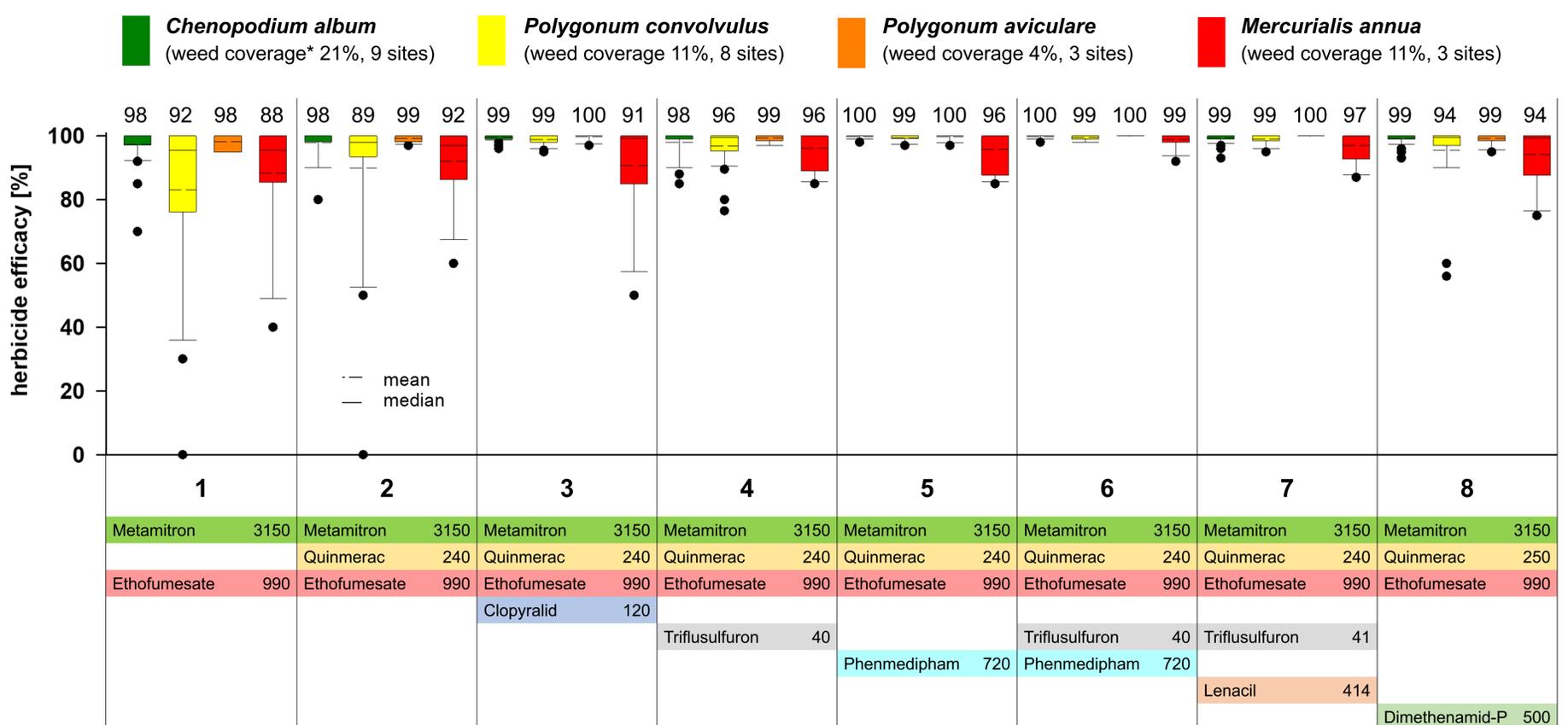


Figure: Efficacy of eight herbicide treatments towards weeds in field trials with sugar beet. The total amount of each active substance [g ha⁻¹] across all three application is indicated. Eleven sites in Germany 2021, n = 4. * average of sites where the species occurred

- **Chenopodium album** and **Polygonum aviculare** could be controlled in all treatments. Due to high soil moisture in spring 2021, a high efficacy of the soil-active substances can be assumed. The efficacy may be reduced under dry soil conditions.
- Where **Polygonum convolvulus** occurs, the efficacy of primarily soil-active herbicide treatments (no. 1, 2 and 8) is insufficient. High efficacy is given when supplementing with clopyralid or phenmedipham.
- Sufficient control of **Mercurialis annua** was only achieved when both foliar-active substances triflusaluron and phenmedipham were included.

CONCLUSION

A further loss of foliar-active substances in sugar beet cultivation would have serious consequences for the highly effective herbicide strategies practiced up to now. In Germany, the approval of Conviso One is currently not expected to provide a suitable replacement because of restrictions (e.g. drainage requirements, application rates, spread of strip spraying technology).