

WEED CONTROL IN SUGAR BEET

– FIRST EXPERIENCES WITHOUT DESMEDIPHAM AND PHENMEDIPHAM –

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BACKGROUND

Desmedipham and phenmedipham have been proven and important herbicides in sugar beet cultivation since many years. The approval of the active ingredient desmedipham was not renewed by the European Commission. For phenmedipham, the result of the renewal of approval is currently open.

To determine the efficacy of herbicide applications without desmedipham and phenmedipham, field trials were conducted in 2019 at nine sites in Germany.

MATERIALS AND METHODS

- **Design:** randomized, four replications, 6-row plots, naturally occurring weed species (mostly *Chenopodium album* and *Polygonum convolvulus*)
- **Treatments:** combinations of herbicides with soil- and leaf-active ingredients approved for sugar beet in Germany; herbicides were mostly tested with the highest approved application rate
- **Application time:** cotyledon stage of weeds, three dates

RESULTS

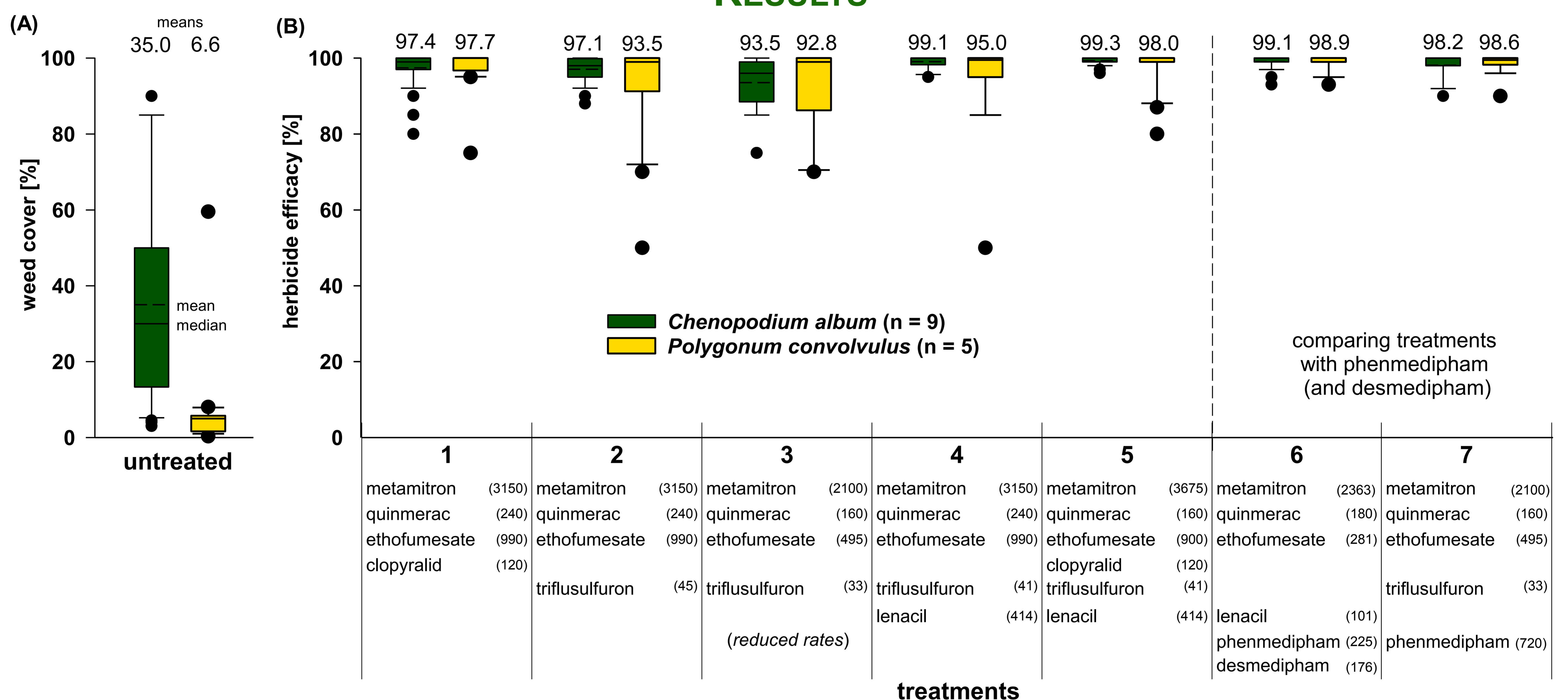


Figure: Weed cover (A) of *Chenopodium album* and *Polygonum convolvulus*, and herbicide efficacy (B) of seven herbicide treatments. For each treatment, the active ingredients contained in the herbicides are shown with their total amount [g ha⁻¹] over all three application dates. Nine field trials with sugar beet in Germany 2019, n = 4.



- ***Chenopodium album*:** increasing the application rates of metamitron, quinmerac and ethofumesate in combinations could not compensate for the herbicidal effect of phenmedipham and desmedipham, neither in addition with triflurosulfuron nor with clopyralid; the addition of lenacil promotes the herbicidal effect
- ***Polygonum convolvulus*:** sufficient control without phenmedipham and desmedipham was only given in combinations with clopyralid

CONCLUSIONS AND OUTLOOK

The efficacy in the chemical control of *Chenopodium album* and *Polygonum convolvulus* without desmedipham and phenmedipham could be reduced. Other authorized foliar active ingredients in the tank mix were unable to fully compensate for this gap. Moreover, without these two active ingredients there is an increased risk for the development of metamitron-resistant biotypes of *Chenopodium album*. Further trials are required to evaluate the herbicidal efficacy against others weeds in sugar beet.