

Herbicide strategy used in glyphosate-tolerant crops provides efficient weed control and favors beneficial epigeic arthropods

Zdeňka Svobodová^a, Oxana Skoková Habušťová^a, Josef Soukup^b, František Sehnal^{a,c}

^a Institute of Entomology, Biology Centre CAS, Branišovská 31, 370 05 České Budějovice, Czech Republic

^b Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences Prague, Kamýcká 129, 165 21 Prague 6, Suchdol, Czech Republic

^c Faculty of Science, University of South Bohemia in České Budějovice, Branišovská 31, 370 05 České Budějovice, Czech Republic

Corresponding author: Zdeňka Svobodová: svobodova@entu.cas.cz

SUMMARY

Wide deployment of genetically modified herbicide-tolerant maize may affect the efficiency of weed control methods and impair ecosystem functioning. We examined these potential threats using glyphosate-tolerant maize NK603 grown in three herbicide and six tillage regimes. The conventionally used selective systemic herbicide MaisTer (single post-emergence application) was compared with two herbicide strategies used in GMHT crops, namely with split application of non-selective and non-persistent Roundup Rapid (a.i. glyphosate) and with application of Roundup Rapid mixed with selective soil residual herbicide Guardian Extra. Tillage included conventional, reduced, and conservation – mulching with *Hordeum vulgare*, *Phacelia tanacetifolia*, *Sinapis alba*, and *Trifolium incarnatum*. Beneficial epigeic arthropods (carabids, staphylinids, and spiders) were monitored to assess the influence of herbicides and tillage on the environment. Due to the copyright restrictions, results are not included in this summary. Publication is in under review in Agriculture, Ecosystems & Environment.