

## Efficacy of bio-herbicides against ragweed

Robert Leskovšek<sup>1</sup>, Ulrike Sölter<sup>2</sup>, Solvejg K. Mathiassen<sup>3</sup>

<sup>1</sup>Kmetijski inštitut Slovenije/Agricultural Institute of Slovenia, Oddelek za kmetijsko ekologijo in naravne vire/Department for Agroecology and Natural Resources, Hacquetova ulica 17, 1000 Ljubljana, Slovenia; Robert.leskovsek@kis.si;

<sup>2</sup>Institute for Plant Protection in Field Crops and Grassland, Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Messeweg 11/12, 38104 Braunschweig, Germany;

<sup>3</sup>Department of Agroecology, Aarhus University, Forsøgsvej 1, DK-4200 Slagelse

DOI 10.5073/jka.2016.455.34



The results of these experiments are being prepared for journal submission, so just a short summary is given below.

### Summary

Pelargonic acid and acetic acid are bio-herbicides which are registered for non-cropping uses in some countries (Germany, Switzerland, USA). Both acids are found in nature and are degraded rapidly. Pelargonic acid and acetic acid are contact herbicides which cause necrosis on direct contact with plant tissue while uncovered plant parts like the root, will stay intact.

Pot experiments were conducted in Germany, Denmark and Slovenia in 2012 using a common protocol. Pelargonic acid and acetic acid were applied simultaneously at two growth stages of *Ambrosia artemisiifolia* (BBCH 14-16 and BBCH 22-25) in a spray cabinet (Germany and Denmark) or using a hand-held sprayer (Slovenia). Each bio-herbicide was applied at 5 dosages as a single application and as a split application with 50% at the first application and 50% 10 days later. Two bio-herbicides registered for use in Germany were included: Acetic acid and pelargonic acid.

The plants were harvested four weeks after the first application. Fresh weight biomass of the above ground ragweed plants was recorded.

Results of the experiments in Germany and Denmark showed no benefit of split- compared to single application of acetic acid and pelargonic acid. Based on ED<sub>90</sub> doses in L/ha, pelargonic acid was more active than acetic acid. Some results in Slovenia differed from those obtained in Germany and Denmark. The discrepancies might be related to different climatic conditions and to different application methods resulting in different coverage of plant surface.

Overall the results show, that there is a potential for bio-herbicides to control ragweed on small scale areas where synthetic herbicides and mechanical treatments are not allowed or possible.