

Mowing regime experiment on field roadside populations of common ragweed

Gerhard Karrer, Ivana Milakovic

Institute of Botany, Department of Integrative Biology and Biodiversity Research,
University of Natural Resources and Life Sciences, Gregor Mendel Str. 33, 1180 Wien, Austria;
e-mail: gerhard.karrer@boku.ac.at



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The vegetation of roadside shoulders is mown regularly for road security reasons. In the areas where *Ambrosia artemisiifolia* (common ragweed) is present in the roadside vegetation, several problems occur if the mowing management is not carefully timed. Common ragweed plants resprout from and come to flowering again, which can be even more massive than without cutting.

In both data analysis of data 2009-2011 and of those from 2012, mowing regimes 3 (first cut at the beginning of female flowering in the third week of August and second cut at the beginning of seed set in the second week of September) and 5 (first cut just before male flowering in the third week of July, second cut in the third week of August (at the beginning of female mass flowering) and third cut in the second week of September (at the beginning of seed set)), showed very efficient for management aiming to reduce seed production, as well as regarding their influence on the phenological development of common ragweed. These results confirm results of glasshouse experiments (Milakovic *et al.* 2013a) that showed that an August cut (just before or in the beginning of the female flowering period) is essential for management success.

In Milakovic *et al.* (2013b), we conclude that the best management solution along roadsides in order to primarily reduce seed production and simultaneously limit as much as possible the pollen release, would be a compromise between the cutting regimes 3, 4 and 5.

Considering the results of the Trial B.2-1, which show that the mowing regime 3 was by far the most efficient in reducing the soil seed bank, we conclude that a first late cut just at the beginning of appearance of the female flowers, followed by a second cut in September, before the new female flowers can be built, is the best option for long term management.

However, optimal cutting dates cannot always be brought to practice. For roadsides where the first cut must happen earlier than August for security reasons, we suggest an initial mowing at earliest in the third to fourth week of June, followed by subsequent cuts every three to four weeks as long as plants grow. It should be noted that the effect of the different mowing regimes is subject to variations in the execution of the management (in reality, deviations from plan up to one month can be expected) as well as climatic variations from year to year).

This time interval should of course be adapted depending on the speed of development of common ragweed in the respective climatic region. We strongly discourage application of an even earlier first cut, as the results of Beres (2004) show that this might induce the compensatory production of additional male inflorescences.

As a general rule, we advise that common ragweed plants should be cut as low as possible, in order to exterminate most buds that might be able to resprout. Common ragweed cannot be prevented from regenerating flowers below the cutting height. In any case, to optimize efficiency any mowing plan must be finely tuned to the local phenological development by monitoring some representative populations once a week during the vegetation period. A management should not be tuned to fixed calendar dates as the climatic conditions can vary from year to year and influence the phenological development of the plants.

References

- Béres, I. (2004). Integrated weed management of common ragweed (*Ambrosia artemisiifolia* L.). (Az ürömlevelű parlagfű (*Ambrosia artemisiifolia* L.) elleni integrált gyomszabályozási stratégiák). Hung. Weed Res. and Technol. 5:3-14.
- Milakovic, I., Fiedler, K. & Karrer, G. 2014a Fine tuning of mowing regime, a method for the management of the invasive *Ambrosia artemisiifolia* L. at different population densities. *Weed Biology and Management* 14:232-241.
- Milakovic, I., Fiedler, K. & Karrer, G. 2014b Management of roadside populations of invasive *Ambrosia artemisiifolia* by mowing. *Weed Research* 54(3):256-264