

Germination and viability of ragweed seeds

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Introduction

Several studies in the last 50 years showed that the seed biology of common ragweed (*Ambrosia artemisiifolia*) is rather complicated. Like other typical summer annual weeds its seeds show innate dormancy after seed set in autumn and need stratification of about 4 weeks of temperatures around 0°C (Baskin & Baskin, 1998). If the conditions after stratification are not nice for germination (darkness, drought, temperature regime slightly above 0°C, low O₂ or high CO₂ concentration in the soil) enforced (secondary) dormancy can be initiated (Baskin & Baskin, 1980). As long as the conditions do not change seeds persist in secondary dormancy until spontaneous death (latest after 40 years after Toole & Brown, 1946).

Most such data were published from North American populations of common ragweed. Only few data about seed biology are available from European populations. Adaptive evolution could have changed the preferred site conditions for the regulation of germination and growth in the newly invaded area. Therefore some experiments were started to elucidate this important aspect of the life cycle within the countries covered by the HALT-Ambrosia team. The following experiments were conducted.

References

- Baskin, J.M. and Baskin, C.C. (1980): Ecophysiology of secondary dormancy in seeds of *Ambrosia artemisiifolia*. *Ecology* 61(3): 475-480.
- Baskin, C.C. and Baskin, J.M. (1998): *Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination*. San Diego: Academic.
- Toole, H.E. and Brown, E. (1946): Final results of the Durvel buried seed experiment. *J. Agric. Res.* 72, 201-210.