AGROECOLOGY FOR WEEDS

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AGROECOLOGICAL WEED MANAGEMENT REPOSITORY

The Agroecological Weed Management (AWM) Repository https://www.goodhorizon.eu/platform/awm-practices/ is a virtual space where you can freely and openly find information and educational material on current and agroecological weed management practices in the European Union. You can browse and learn about several weed management practices and crops.

The Agroecological Weed Management (AWM) Toolbox, our Decision Support System that supports the user to reduce the use of synthetic herbicides and/or improve weed management by combining different Agroecological Weed Management (AWM) strategies with cover crops is LIVE ! https://dss.goodhorizon.eu/

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Version 2.0 – June 2026

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HERBICIDES (REDUCED RATE)

DESCRIPTION & BENEFITS

Reduced-rate herbicide use consists of applying a herbicide at a dose lower than the full recommended label rate, only when this is permitted and agronomically justified. Reduced rates are most appropriate when weeds are small, susceptible, and present at low to moderate densities, and when the crop is competitive enough to tolerate limited weed pressure. This practice can:

- **reduce the total amount of herbicide** applied per hectare
- **lower input costs** when adequate weed control is achieved
- **reduce chemical pressure** on the environment and non-target organisms

STRENGTHS

- Reduction of herbicide input per hectare, helping to decrease chemical use, treatment costs and potential environmental pressure when adequate weed control is maintained
- Lower production costs where reduced rates provide acceptable control without yield loss, especially in fields with low weed pressure
- Encourages more targeted and informed weed management based on weed pressure, crop competitiveness, field conditions and cost-benefit analysis

WEAKNESSES

- Risk of insufficient weed control if weeds are too large, too dense, naturally tolerant, resistant, or if application conditions are not optimal
- Requires strong technical knowledge, accurate weed identification, good timing, sprayer calibration and careful post-treatment monitoring
- Effectiveness is variable and depends strongly on herbicide product, weed species, weed growth stage, weather, crop competition and local field conditions

OPPORTUNITIES

- Use of decision support systems, field scouting and weed thresholds can make herbicide applications more precise and aligned with agroecological weed management
- Could support EU and farm-level objectives to reduce herbicide dependency when combined with preventive and non-chemical agroecological weed management practices
- Could be integrated and combined with precision spraying, patch spraying, mechanical weeding, crop rotation, cover crops and competitive varieties/hybrids to reduce overall herbicide reliance

THREATS

- Repeated exposure to sublethal herbicide doses can select less susceptible weeds and increase the risk of herbicide resistance, especially when the same mode of action is used repeatedly
- Poorly managed reduced rate strategies may lead to weed escapes, replenishment of soil seedbank and higher weed pressure in following seasons
- Regulatory restrictions, label limitations or misuse of reduced rates may create legal, agronomic or environmental risks for farmers

TIPS

- **use reduced herbicide rates** only when allowed by the product label and national regulations; never reduce the dose below legally authorised limits
- **identify the weed species correctly**, because some species are naturally more difficult to control and may require full rates or alternative control methods
- **apply reduced rates only when weeds are at an early growth stage** and at low to moderate density; avoid reduced rates on perennial or resistant weeds
- **consider crop competitiveness, crop growth stage and expected yield loss** before deciding whether lower weed control is acceptable
- **use decision support systems, local advisory tools or agronomic advice** to select the appropriate active ingredient(s), product(s), dose, timing and mixture
- **ensure optimal spraying conditions**, avoiding strong wind, drought stress, very low or very high temperatures, rainfall shortly after application, or poor spray coverage & **calibrate the sprayer carefully**, including nozzle type, water volume, pressure, speed, and boom height
- **rotate herbicide modes of action** and combine reduced-rate use with non-chemical agroecological weed management practices
- **avoid using reduced rates where herbicide resistance is suspected or confirmed**

Funded by the European Union

Funded by the European Union under Grant Agreement No. 101083589. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.