



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 !

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BIOHERBICIDES + MECHANICAL CONTROL

DESCRIPTION & BENEFITS

Bioherbicides + mechanical control combines natural or biological weed-control products with physical weed removal or suppression. Bioherbicides may be based on microorganisms, plant extracts, natural metabolites or other biologically derived compounds, while mechanical control may include hoeing, harrowing, mowing, brushing, inter-row cultivation or undercutting. This combination can:

- **reduce reliance** on synthetic herbicides
- **improve weed control** by combining biological and physical modes of action
- **target weeds that survive one method with the other**
- **support** organic, low-input and integrated weed management systems

STRENGTHS

- Combines two different weed-control mechanisms, increasing the chance of suppressing weeds compared with using either method alone
- Reduces reliance on synthetic herbicides while maintaining direct weed intervention through mechanical tools
- Useful for integrated weed management because surviving weeds can be targeted through follow-up mechanical control

OPPORTUNITIES

- Could support organic, low-input and herbicide-reduction strategies by integrating biological and mechanical weed control
- Could be integrated with precision application, inter-row cultivation, robotics, cover crops and decision-support tools for more targeted weed management
- Could help diversify modes of action of conventional herbicides

WEAKNESSES

- Effectiveness of bioherbicides can be variable and depends on weed species, formulation, timing, humidity, temperature and application conditions
- Requires careful coordination of product application, mechanical operation, crop stage, weed stage and weather conditions
- May require more labour, machinery, fuel and monitoring than single-pass chemical control

THREATS

- Poor timing between bioherbicide application and mechanical control may reduce efficacy, for example if the product is removed, buried or applied after weeds are too large
- Limited availability, cost, registration restrictions or inconsistent field performance of bioherbicides may limit adoption
- Mechanical disturbance can stimulate new weed flushes, while repeated use of the same bioherbicide may select for tolerant weed species over time

TIPS

- **select bioherbicides** that are authorised for the crop, target weed and production system
- **apply them when weeds are small** and environmental conditions favour product efficacy
- **use mechanical control before or after application** depending on the product mode of action and label instructions
- **avoid mechanical operations** that remove or disturb the bioherbicide before it can act
- **calibrate equipment carefully** for both spraying and mechanical weeding
- **monitor weed survival and regrowth** after treatment

LIABILITY DISCLAIMER

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