



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.

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BIOHERBICIDES

DESCRIPTION & BENEFITS

Bioherbicides (or natural herbicides) are naturally occurring substances (e.g., plant extracts) or microorganisms (e.g., fungi, bacteria) that are used to:

- **offer an environmentally friendly alternative to synthetic herbicides** for weed management, as these are often biodegradable, do not pollute and pose minimal risk to non-target organisms and ecosystems
- **suppress weed growth and reproduction** (often causing a quick knockdown effect to the plant tissues), thereby reducing weed competition with crops
- **terminate naturally the cover crops** and leave them decompose

STRENGTHS

- Environmentally friendly alternative to synthetic herbicides, reducing the ecological impact on soil, water, and non-target organisms
- Novel solution to deal with herbicide resistant weed populations
- Suitability for organic farming systems, meeting consumers demand for chemical-free crop production

OPPORTUNITIES

- Potential selective weed control, targeting specific weed species
- Biotechnological advancements and research in identifying new bioherbicides
- Synergies between research centers, agrochemical companies, and farmers to bring bioherbicides to market

WEAKNESSES

- Limited efficacy compared to synthetic herbicides, requiring repeated applications or combinations with other weed management practices
- Potential for non-target effects on beneficial organisms or crop phytotoxicity if not applied correctly or under certain environmental conditions
- Varying shelf life and stability, requiring careful storage and handling to maintain efficacy

THREATS

- Regulations and approval processes for bioherbicides, leading to delays in availability and market access
- Perception of farmers regarding the efficacy and reliability of bioherbicides compared to conventional herbicides, impacting adoption rates
- High costs for the development of bioherbicides and their purchase by farmers



TIPS

- **select the appropriate method of application** to avoid unintentional damage to crops
- **decide which is the main aim of bioherbicides application** (e.g., inhibition of weed seed germination, prevention of seed set, suppression of weed growth to allow the implementation of other agricultural practices)
- **be aware that maximum efficacy is not guaranteed** as bioherbicides may require time to show results, are not always efficient against perennial weeds due to regrowth, and depend on environmental conditions and weed growth stage
- **do your own experiments** with various bioherbicide formulations and application rates to achieve optimal weed management targets (always following the regulations and the product labels)
- **integrate bioherbicides into a holistic plan** for agroecological weed management to reduce reliance on synthetic herbicides
- **be aware that the price of bioherbicides is still high** on markets, thus, apply them only when it is needed

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