



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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## INOCULATION OF COVER CROPS WITH AMF

### DESCRIPTION & BENEFITS

Seed inoculation of cover crops with beneficial microorganisms and in particular, Arbuscular Mycorrhizal Fungi (AMF), is a sustainable practice that enhances plant growth and increases crop competitiveness against weeds. Seed inoculation or coating with AMF is used to:

- **form symbiotic relationships** with plant roots, improving nutrient uptake and overall plant health, providing a survival and growth advantage to cover crops over weeds
- **negatively influence the growth of certain weed species** which are growing close to the cover crops
- **use and enhance native microbiomes** to boost sustainability of agroecosystems

## STRENGTHS



- Improved nutrient uptake (e.g., phosphorus) by plant roots due to the formation of symbiotic relationships with mycorrhizae
- Improvement of cover crop resilience to adverse conditions (e.g., drought) as mycorrhizae enhance the access of root system to water
- Available native mycorrhizae on soils reducing the need to use manufactured products

## OPPORTUNITIES



- Enhancement of biodiversity, ecosystem services and soil health indicators
- Increase competitiveness of cover crops against weeds in the first growth stages
- Reduced need for fertilization as mycorrhizal inoculation enhances soil fertility

## WEAKNESSES



- Potential high initial costs for investment in high-quality mycorrhizal products
- Varying effectiveness depending on the cover crop species, soil properties and conditions, and existing microbial communities
- Expertise is needed which could be only offered by researchers or companies

## THREATS



- Regulatory frameworks, limitations and licenses may pose challenges to the widespread use of mycorrhizae
- Dependence on markets and suppliers of mycorrhizal products
- Emerging technologies and products that could replace mycorrhizal inoculants



## TIPS

- **select appropriate cover crop species** that are mycorrhizae hosts to ensure maximum benefits from the inoculation or coating
- **ensure the timely application** either at sowing/planting or during the first growth stages to establish a strong mycorrhizal colonization
- **train regularly and keep informed on new products** to make sure you understand all benefits, potential weaknesses and technical issues about the use of mycorrhizae
- **combine with other weed management practices** to improve (cover) crop competitiveness against weeds and reduce weed pressure

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