AGROECOLOGY FOR WEEDS

www.goodhorizon.eu

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.

#@Agroecology is GOOD

Version 1.0 – April 2024

07

MULCHING

DESCRIPTION & BENEFITS

Mulching involves the application of organic or synthetic materials such as straw, wood chips, plastic film, or compost to the soil surface to:

- **act as a physical barrier (layer)** preventing weed seeds from germinating and emerging from the soil
- **block sunlight and reduce soil temperature fluctuations** inhibiting seed germination
- **enrich the soil with nutrients and organic matter** over time due to decomposition of organic mulches
- **enhance soil fertility and microbial activity**
- **conserve soil moisture by reducing evaporation**

STRENGTHS

- Conservation of soil moisture by reducing evaporation, thus, improving the resilience of crops to drought
- Suppression of weed seed germination and growth by blocking sunlight
- Improvement of soil structure and fertility over time as organic mulches naturally decompose

WEAKNESSES

- Initial investment in materials and labor, which can be costly on large-scale operations and environmental degradation if the mulches are plastic
- Potential affection of nutrient availability for crops due to immobilization or physical barrier
- Potential habitat for rodents, pests and diseases if not properly managed, leading to potential crop damage or yield losses

OPPORTUNITIES

- Use and recycling of organic materials, such as crop residues or compost
- Integration of cover crops or living mulches into agricultural systems as mulches
- Less reliance on synthetic herbicides in conventional farming systems

THREATS

- Risk of weed seed incorporation into the soil through mulch decomposition, enriching weed soil seedbank
- Potential for introduction of weed seeds or pathogens in mulches if not properly processed or sterilized
- Susceptibility to wind if mulch layers are not left on the ground properly, resulting in reduced effectiveness

TIPS

- **select appropriate mulch materials** considering their availability on markets or farms, cost, initial investment, effectiveness against weeds, and potential impact to crops
- **apply uniformly the mulches** (especially if these are organic such as straw, wood chips, or compost) and covering the soil surface to a sufficient depth to inhibit weed germination, emergence and growth
- **replenish mulches periodically** if needed to maintain their effectiveness against weeds, especially in areas with high weed pressure, sequential germination waves or irregular rainfall
- **combine with other agroecological weed management strategies** to reduce crop-weed competition
- **seek advice from other local farmers** already applying this method to learn from their experience

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.