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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CROP ROTATION

DESCRIPTION & BENEFITS

Crop rotation is a traditional agricultural practice involving the sequential planting of different crops in the same field over successive seasons or years to:

- **promote and improve soil health indicators, biodiversity and pest-weed management**
- **disrupt weed life cycles** by creating favorable conditions for their germination and dominance
- **reduce the dependence on monocultures,** thus, increasing the resilience of the farming system
- **reduce reliance on synthetic herbicides** as crop rotation can be combined with several agroecological weed management practices
- **restore ecosystem services** at the farm and landscape level
- **provide economic diversification** due to the production of multiple crops in the same growing season

STRENGTHS

- Reduction of pressure from specific noxious weeds that could not be managed in monoculture systems
- Disruption of weed life cycle, reducing weed populations over time
- Improvement of soil health and fertility due to diversification and nutrient cycling

WEAKNESSES

- Requires knowledge of crop interactions to avoid potential allelopathic effects or pest outbreaks
- Potential reduction of short-term yields for certain cash crops if rotational options are limited
- Challenging to implement in areas with limited land availability or where specific crops are traditionally selected by farmers

OPPORTUNITIES

- Incorporation of leguminous crops, which fix nitrogen and reduce the need for synthetic fertilizers
- Economic benefits through improved crop yields and reduced input costs over the long term
- Enhances pest, weed and disease management by breaking their life cycles, reducing the need for synthetic pesticides

THREATS

- Risk of decreased soil fertility or erosion if crop rotations are not properly planned or if soil health is not adequately monitored
- Vulnerability to market fluctuations or crop failures due to climate change
- Potential dominance of new weed species or herbicide-resistant weed biotypes if rotations are not diverse enough

TIPS

- **select crop sequences the effectively break weed life cycles** and reduce weed pressure. Consider factors such as crop species, growth patterns, nutrient needs, competition with weeds, and susceptibility to pests and diseases
- **diversify crop rotations** with cover crops, legumes, and cash crops to enhance weed suppression through competition and allelopathy
- **manage properly the crop residues** by incorporating or removing them timely
- **plan the crop rotations** in a way that will help you to reduce weed emergence and soil seed bank replenishment
- **combine crop rotations** with effective agroecological weed management practices between crop cycles, such as mechanical control, mulching, bioherbicides and if needed only, site-specific herbicide applications
- **regularly monitor the weed populations and crops performance and growth** to assess the effectiveness of crop rotation and make adjustments to optimize weed

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