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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# 21 FLAMING

## DESCRIPTION & BENEFITS

Flaming is a weed control practice that uses heat to cause a burn-out effect to weeds and eliminate or significantly damage them. This practice:

- **provides rapid weed control** by causing cell disruption and tissue damage, especially against weeds in their early growth stages
- **can accurately target weeds** if it is combined with sensors and cameras, limiting the use of the flame only to the targeted weeds

## STRENGTHS

- Rapid suppression of weeds, as the flame comes into direct contact with plant tissues causing a burning effect.
- Reduction of the reliance on synthetic inputs and mechanical weeding
- Management of herbicide-resistant weeds, causing the reduction in their population

## WEAKNESSES

- Potential crop damage if the application is not done in the proper growth stage of the weeds and crops, and if is not combined with precise targeting tools
- Energy intensive, especially when propane is used, causing a high carbon footprint and increasing the costs
- Varied effectiveness against perennial weeds

## OPPORTUNITIES

- Ongoing and arising innovations that improve effectiveness and reduce energy consumption
- Combination with other practices to offer a holistic weed management plan (e.g., intercropping and site-specific spraying against perennial weeds)
- Application in row crops and permanent crops in various farming systems

## THREATS

- Weather dependent practice, in particular from winds and high levels of moisture in the plant tissues
- Competition with other technological weed management practices and market fluctuations
- Potential regulatory issues, in particular with regard to emissions

## TIPS

- **optimize the treatment** and use flaming only against young weeds (e.g., seedlings) because they are more susceptible to damage in early growth stages
- **try to avoid repeated applications of flaming** to control successive waves of germinated weeds as the costs and the environmental impact will be significantly increased
- **combine flaming with other practices** to ensure that you have an effective weed management strategy (e.g., mechanical weeding, cover crops before the row crops)
- **collaborate with companies and researchers** for continuous maintenance and calibration of the equipment, while being trained on the proper use of the flamers to achieve the best results
- **avoid flaming** under adverse weather conditions (e.g., windy days, high levels of moisture in the plant tissues) and do not use flaming in dry conditions to reduce the risk of fire spread
- **follow carefully the safety protocols and comply with any regulations**



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