

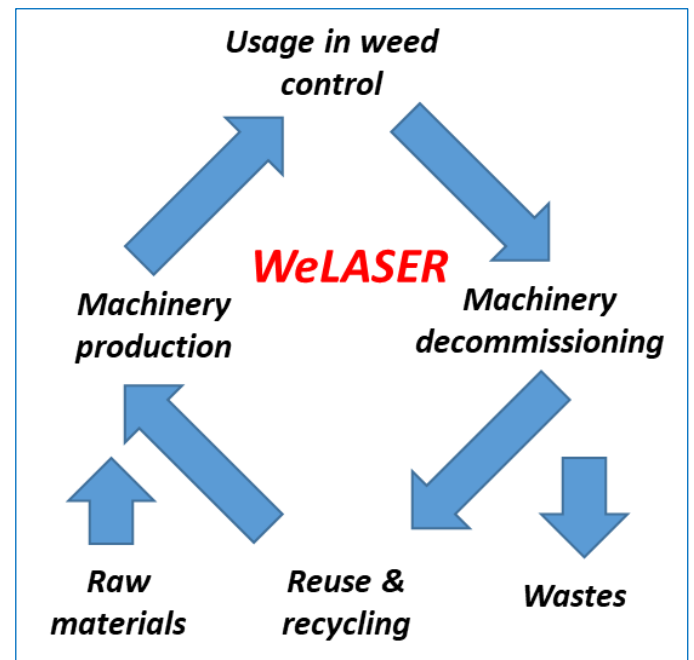
WeLASER weeder is a promising eco-innovative technology in Life Cycle Perspective

Life Cycle Assessment

A prospective WeLASER four lasers weeder model was developed according to the project prototype characteristics and its environmental performance in Life Cycle Perspective was assessed.

Key results

- The WeLASER technique is a viable environmental solution in agriculture from a Life Cycle Perspective. Despite its complexity, it does not entail much burden to the environment.
- The main environmental impacts of WeLASER in the whole life cycle are human toxicity, climate change in the aspect of human health and ecosystems, and fossil depletion.
- Impacts are mostly attributed to the phase of WeLASER usage and are related to energy generation in a diesel engine.



Practical recommendations

- Optimization and reduction of energy demand for the robot activity (high power lasers) and use of alternative, renewable energy sources for powering the weeder.
- Enhancement of opportunities for intelligent weeding strategies based on WeLASER technology, options of machinery integration, combinations of weeding techniques and planning of the operations based on prior field investigation.
- Provision of opportunities through appropriate design for reusing particular components by securing their durability, safety, and resistance to harsh conditions (e.g. electronics) and for their final disposal through oriented waste processing scenarios.

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