Mechanical weeding

Goal	Reduction of agrochemicals used and thus reduction of their negative effects on biodiversity
Short description of the measure	Mechanical weeding is a non-chemical alternative used by farmers to avoid plants' resistance to chemical molecules, or to avoid a farming input that is progressively becoming more expensive. Actually, organic farmers do manage the weeds mechanically in a successful way. However, mechanical weeding is not exclusively restricted to organic farmers. Some conventional farmers apply pesticides for insect and/or fungicide treatment but prefer to skip chemicals for weeding. By definition, herbicides affect species diversity at least in the area where they are applied and beyond if application is imprecise or the products mobile.
Quality elements of soundly implemented biodiversity measures	The usual chemical-free methods of controlling weeds include, for example, crop rotation, tillage and mechanical weeding. Modern harrows experience a renaissance and are equipped with modern technology. Larger working widths and a wider range of applications make them much more effective. Sensor-guided harrow fight the accompanying flora between the rows of the cultivated plant as well as in the sown row, between the individual plants. In addition, new developments point to the use of self-propelled robots for weed control. Although these ideas have already taken shape, there is still no way of ensuring that the robots can really be used by farmers and are cost-efficient.
Effects on biodiversity (ecosystems, species, soil biodiversity)	Avoid negative impact of pesticides on non-Target terrestrial plants. Preservation of the soli microbiota. Promotion of herbivorous insects and pollinators. Source of food and shelter for birds while the weeds are present.

Pic. 1: Mechanical weeding (left) is an example of a good measure.
Pic. 2: (right) pesticide drift, a bad example of weeding.

Other positive effects/benefit for the farmer	Non-chemical solutions are an interesting way of avoiding chemical resistance of some weeds to molecules and to remain independent of farming input fluctuating prices.
Indicator/key data	▪ Surface of farm without herbicides treatments. ▪ Number of herbicides treatments substituted by mechanical weeding.
Reference	▪ Weeding - strategies, tools and technologies for sustainable weed management ▪ https://cordis.europa.eu/project/rcn/210490_en.html ▪ Alternatives to herbicide use in weed management – The case of glyphosate ▪ www.greens-efa.eu/files/doc/docs/0fd517cb3f95312725a003242b2ba9d0.pdf ▪ The impact of agricultural practices on biodiversity Alison McLaughlin a, Pierre Mineau b,* 'Sagittaria Ecological Services, /-/43 Rue Laurier, Hull, Que. JBX 3W4, Canada"National Wildlife Research Centre, Canadian Wildlife Service, JOO Blvd. Gamelin, Hull, Que. KIA 0H3, Canad ELSEVIER Agriculture. Ecosystems and Environment 55 (1995) 201-212 ▪ Effects of Herbicides on Non-Target Terrestrial Plants. Beate Strandberg * 1 , Céline Boutin 2 , Solvejg K. Mathiassen 3 , Christian Damgaard 1 , Yoko L. Dupont 1 , David J. Carpenter 2 , Per Kudsk 31 Department of Bioscience, Aarhus University, Vejlsøvej 25, Denmark

Further information: Knowledge Pool

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