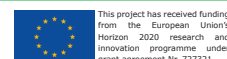


Cultivation depth

May | 2022



Factsheet about integrated weed management



Introduction

Cultivation depth is an important factor to consider for all operations that involve soil disturbance, e.g. primary and secondary tillage, stubble management, seedbed preparation, sowing and mechanical weeding. In some cases deeper cultivation is required to bury weed seeds or to control perennial weeds, where in other cases cultivation must be very shallow to prevent germination of new weeds.

What to consider?



Optimum effects of ploughing for weed control can be achieved by ploughing at depths $> 0.20 \text{ m}^{1|2}$



Each soil type may require a different optimal ploughing depth, taking into account other factors than weed control^{3|}. Increased crop growth through ploughing is an important factor for crop competitiveness.



When mechanical weeding tools are used, tillage should be more superficial than the first operation to avoid germination of new flushes of weed seeds^{4|} (Fig.1).



Figure 2| It is good to verify whether the settings of the equipment result in the desired cultivation depth.

Extra information

See <https://iwmpraise.eu/publications/> for all crop diversification strategies and their definitions, and for more information on integrated weed management.

Contact| Timo Sprangers

M| timo.sprangers@wur.nl

T| (+31)320 29 12 37

Contact| Saskia Houben

M| saskia.houben@wur.nl

T| (+31)320 29 12 09



Figure 1| Setting the right cultivation depth for mechanical weeding is key to avoid germination of new weeds

- 1| Kouwenhoven, J. K., Perdok, U. D., Boer, J., & Oomen, G. J. M. (2002). Soil management by shallow mouldboard ploughing in The Netherlands. *Soil and Tillage Research*, 65(2), 125-139. doi:[https://doi.org/10.1016/S0167-1987\(01\)00271-9](https://doi.org/10.1016/S0167-1987(01)00271-9)
- 2| Brandsæter, L. O., Bakken, A. K., Mangerud, K., Riley, H., Eltun, R., & Fykse, H. (2011). Effects of tractor weight, wheel placement and depth of ploughing on the infestation of perennial weeds in organically farmed cereals. *European Journal of Agronomy*, 34(4), 239-246. doi:<https://doi.org/10.1016/j.eja.2011.02.001>
- 3| Håkansson, I., Stenberg, M., & Rydberg, T. (1998). Long-term experiments with different depths of mouldboard ploughing in Sweden. *Soil and Tillage Research*, 46(3), 209-223. doi:[https://doi.org/10.1016/S0167-1987\(98\)00099-3](https://doi.org/10.1016/S0167-1987(98)00099-3)
- 4| Lamour, A., & Lotz, L. A. P. (2007). The importance of tillage depth in relation to seedling emergence in stale seedbeds. *Ecological Modelling*, 201(3), 536-546. doi:<https://doi.org/10.1016/j.ecolmodel.2006.10.015>