Sowing depth

May | 2022

Factsheet about integrated weed management

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement Nr. 727321.

Introduction

By adjusting the sowing depth, the crop can have a competitive advantage over the weeds or the options for mechanical weeding can be optimized. Furthermore, the sowing depth interacts with water and nutrient availability. The optimal range for sowing depth varies between crops.

- A uniform sowing depth results in more uniform crop establishment and in potential a more competitive crop. For direct control measures, uniformity allows for better efficacy of weed control[1].
- When crop seeds are planted deep enough, weed harrowing can be adjusted to be more aggressive (angled forward) and driving speed can be increased to destroy more developed weeds such as small-seeded dicotyledonous weeds with 2–4 true leaves[2]. Fairly aggressive harrowing is possible with deep-sown crops such as beans, peas and maize.
- In dry springs, increased sowing depth can result in better competitiveness as crop establishment is faster[3]. Soil humidity is more suitable for rapid germination in deeper layers.

What to consider?

- When available, the use of a (pneumatic) precision sowing machines is recommended. These allow for controlling the sowing depth.
- Make sure to regularly check the actual sowing depth in the field. Variation in soil compactness can result in uneven sowing depths.

Extra information

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

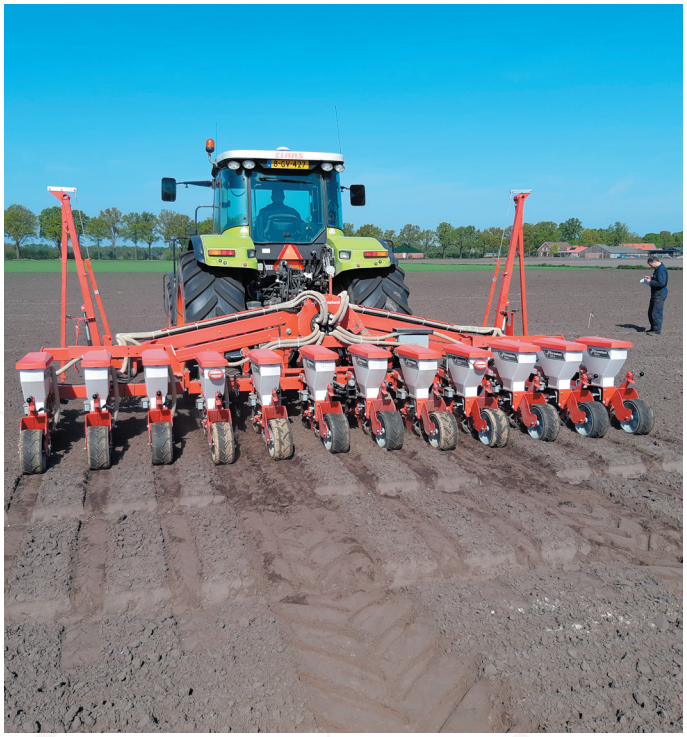

Figure 1| Sowing of lupine.

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1| Schans, D. A. v. d., Bleeker, P. O., Molendijk, L. P. G., Plentinger, M. C., Weide, R. Y. v. d., Lotz, L. A. P., . . . Baumann, D. T. (2006). Practical weed control in arable farming and outdoor vegetable cultivation without chemicals. Lelystad: Wageningen UR, Applied Plant Research.

2| Cloutier, D., Perruzi, A., van der Weide, R. Y., & LeBlanc, M. (2007). Mechanical Weed Management in book. In M. K. Upadhyaya, & R. E. Blackshaw (Eds.), Non Chemical Weed Management Principles, Concepts and Technology (pp. 111-134). CABI.

3| Jensen, P. K. (2019). Use of integrated weed management tools in crop rotations with grass seed production. Acta Agriculturae Scandinavica, Section B — Soil & Plant Science, 69(3), 209-218. doi:10.1080/09064710.2018.1530295