

Seed rate

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Factsheet about integrated weed management



Introduction

Altering the seed rate and thus crop density can increase the competitive strength of crops, resulting in reduced weed growth and in the long-term reduced buildUp of weed populations.

Applicability

Altering the seed rate can be combined with changes in sowing date, sowing pattern, sowing depth and potential use of transplanted crops. All of these have influence on crop establishment and the crop-weed competition.

Efficacy and core results



For cereal crops, the use of increased seeding rates has proven beneficial for the suppression of weeds while still maintaining or even improving yields. For wheat, increasing the crop density from 100 to 200 plants per m² can result in a biomass reduction of grassy weeds by 50%¹.



Increasing the seed rate can also aid in the efficacy of mechanical weed control strategies. Benefits of increased seeding rate have been observed in combination with wider row spacing and interrow weeding^{2|3}.



Increased seed rate in cover crops increases the competitive ability of the cover crop⁴.

Costs and benefits

The costs of increasing the seed rate are limited to the purchase of extra seeds, but these are often compensated for by the reduced growth of weeds and increased yields as a result of higher crop densities. In addition, the reduced buildup of weed communities is an important aspect in integrated weed management and will have beneficial effects in following cropping seasons.

Extra information

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

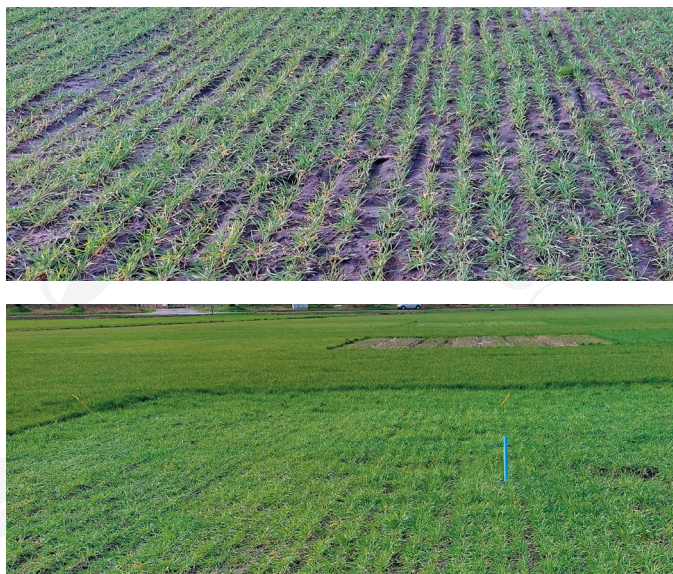


Figure 1 | Barley sown at two different densities: 60 (top) and 150 (bottom) kg/ha.

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1| Lemerle, D., Cousens, R. D., Gill, G. S., Peltzer, S. J., Moerkerk, M., Murphy, C. E., . . . Cullis, B. R. (2004). Reliability of higher seeding rates of wheat for increased competitiveness with weeds in low rainfall environments. *The Journal of Agricultural Science*, 142(4), 395-409.

2| Melander, B., Cirujeda, A., & Jørgensen, M. H. (2003). Effects of inter-row hoeing and fertilizer placement on weed growth and yield of winter wheat. *Weed Research*, 43(6), 428-438. doi:10.1046/j.0043-1737.2003.00359.x

3| Rasmussen, I. A. (2004). The effect of sowing date, stale seedbed, row width and mechanical weed control on weeds and yields of organic winter wheat. *Weed Research*, 44(1), 12-20. doi:10.1046/j.1365-3180.2003.00367.x

4| Ospitan, O. A., Dille, J. A., Assefa, Y., & Knezevic, S. Z. (2018). Cover crop for early season weed suppression in crops: Systematic review and meta-analysis. *Agronomy Journal*, 110(6), 2211-2221. doi:10.2134/agronj2017.12.0752