

SEMINBIO®: Innovative seeder for weed control in cereals

Problem

Weed competition is a crucial aspect in organic farming systems, especially for predominantly annual crops such as cereals and legumes. Sowing density and the spatial arrangement of plants play a crucial role in weed control.

Solution

The seeder prototype SEMINBIO®, which was tested on durum wheat, optimises seed distribution in the three axes of space. This ensures a fast soil cover by the crop, a rapid and improved uptake of nutrients, and enhanced competitive ability against weeds.

Outcome

Trials with the SEMINBIO® seeder in southern and central Italy showed that the seeder's sowing layout increased wheat yield, irrespective of the weed presence, and decreased weed development, if weeds were present, compared to ordinary seeders.

Applicability box

Theme

Weed management

Geographical coverage

Potentially global

Application time

Sowing phase

Period of impact

During crop cycle and potentially after the crop harvest

Equipment

Seeder

Best in

Cereals, legumes



Figure 1: The Seminbio® seeder (Photo: Carlo Ponzio, CONMARCHEBIO).

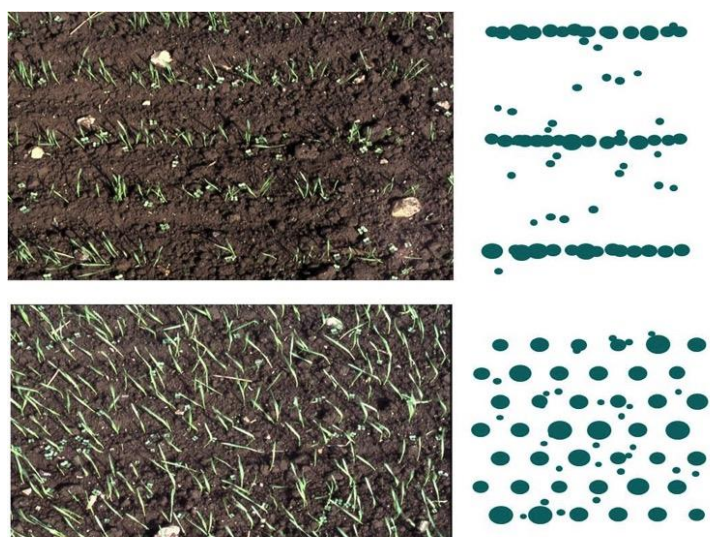


Figure 2: Traditional sowing layout (above), and by SEMINBIO® (below) (Figure: Sergio Saia and Pasquale De Vita, CREA).



Figure 3: Comparison between traditional sowing layout (above) and SEMINBIO® layout (below). (Photo: Carlo Ponzio, CONMARCHEBIO)

Practical recommendation

- The SEMINBIO® seeder is still at a prototype stage, but it will soon be commercially manufactured.
- The SEMINBIO® seeder can be combined with the harrow weeder or any other weeding strategy to obtain an augmented weed control effect.

Practical testing and sharing of results

If this method seems to be suitable for your farm, we recommend that you test it under your own farm conditions.

Use the comment section on the [Farmknowledge Platform](#) to share your experiences with other farmers, advisors and scientists! If you have any questions concerning the method, please contact the author of the practice abstract by e-mail.



Further information

Further readings

- De Vita P., Pecorella I., Colecchia S.A., Saia S., 2017. Reduced inter-row distance improves yield and competition against weeds in a semi-dwarf durum wheat variety. *European Journal of Agronomy*. 86:69-77 Doi: 10.1016/j.eja.2017.02.003.
- De Vita P., Saia S., Pecorella I., S.A. Colecchia, 2016. Seminatrice innovativa alla prova su grano duro. *L'Informatore Agrario*, 32, 47-50 (in Italian)
- Saia S., Colecchia S.A., Pecorella I., De Vita P. 2016. Row distance and cultivar but not sowing density determined wheat yield and competition against weeds. *The 14th Congress of the European Society for Agronomy*. ESA 14 - Growing landscapes - Cultivating innovative agricultural systems. Edinburgh, Scotland, UK 5-9 September 2016.

Weblinks

- www.crea.gov.it/addio-ai-diserbanti-con-la-seminatrice-ideata-dal-crea/
- <https://agronotizie.imagelinenetwork.com/agrimeccanica/2017/02/07/cereali-ecco-la-seminatrice-che-evita-il-diserbo/52719>
- www.spaziofoggia.it/grano-cia-puglia-distretto-e-innovazione-per-una-nuova-era/seminbio-crea/
- Further tips for organic weed control at <http://farmknowledge.org>.

About this practice abstract and OK-Net Arable

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among farmers, farm advisers and scientists with the aim to increase productivity and quality in organic arable cropping all over Europe.

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