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

<table>
<thead>
<tr>
<th>Theme</th>
<th>Weed management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical coverage</td>
<td>Potentially global</td>
</tr>
<tr>
<td>Application time</td>
<td>Sowing phase</td>
</tr>
<tr>
<td>Period of impact</td>
<td>During crop cycle and potentially after the crop harvest</td>
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<tr>
<td>Equipment</td>
<td>Seeder</td>
</tr>
<tr>
<td>Best in</td>
<td>Cereals, legumes</td>
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</tbody>
</table>

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)
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.

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 readings


About this practice abstract and OK-Net Arable

This practice abstract was elaborated in the Organic Knowledge Network Arable project. The project is running from March 2015 to February 2018. OK-Net Arable promotes exchange of knowledge among farmers, farm advisers and scientists with the aim to increase productivity and quality in organic arable cropping all over Europe.

Project website: www.ok-net-arable.eu

Project partners: IFOAM EU Group (project coordinator), BE; Organic Research Centre, UK; Bioland Beratung GmbH, DE; Aarhus University (ICROFS), DK; Associazione Italiana, per l’Agricoltura Biologica (AIAB), IT; European Forum for Agricultural and Rural Advisory Services (EFRRAS); Centro Internazionale di Alti Studi Agronomici Mediterranei - Istituto Agronomico Mediterraneo Di Bari (IAMB), IT; FiBL Projekte GmbH, DE; FiBL Österreich, AT; FiBL Schweiz, CH; Ökológiai Mezőgazdasági Kutatóintézet (OMKI), HU; Con Marche Bio, IT; Estonian Organic Farming Foundation, EE; BioForum Vlaanderen, BE; Institut Technique de l’Agriculture Biologique, FR; SEGES, DK : Bioselena, Bulgaria

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