ecobreed
IMPROVING CROPS

Funded by European Union
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**Increasing the efficiency and competitiveness of organic crop breeding**

**PRACTICE ABSTRACT No. 15**

# Production of organic seeds: problems, challenges and requirements

**PROBLEMS:**

Synthetic fungicide and insecticide seed dressing treatments against pests and pathogens are not permitted in organic agriculture.

Organic seeds often show a lower germination in the field than from official seed testing especially under cool weather conditions. The problem appears both on certified untreated seeds and home-saved seeds.

**Fig. 1. Good seed quality gives you good germination**

**SOLUTIONS:**

Official seed testing is carried out at a temperature of 20°C in many countries. But soil temperatures can be 10 °C or lower when sowing crops such as winter wheat. As a result, a much more realistic germination result is achieved when you test seed germination at 10 °C. At 10 °C, many seed lots have a much lower germination which can be due to diseases like fusarium and Septoria, on and inside the seeds. The germination in "cold test" should achieve 80%.

The highest coincidence results of field results and lab results is achieved when soil is used as a substrate even though soil is naturally heterogeneous. Some labs offer the test in sand or

other substrates which have a tendency for better germination results when compared with the field.

**PRACTICAL RECOMMENDATIONS:**

To maximise germination of the seed, care should be taken in processing the seed. Harvesting should be done at the optimum time to minimise grain sprouting in the head. The grain should not be dried at > 70 °C if lower than 20 % moisture (and >65 °C if higher moisture). The grain should be cooled on storage, ideally to around 12 °C for short-term storage, thus limiting insect and potential mould damage.

It is key to test home-saved seed for crop-specific diseases and germination. By knowing the germination and the thousand grain weight of the seed, an appropriate sowing rate can be calculated.

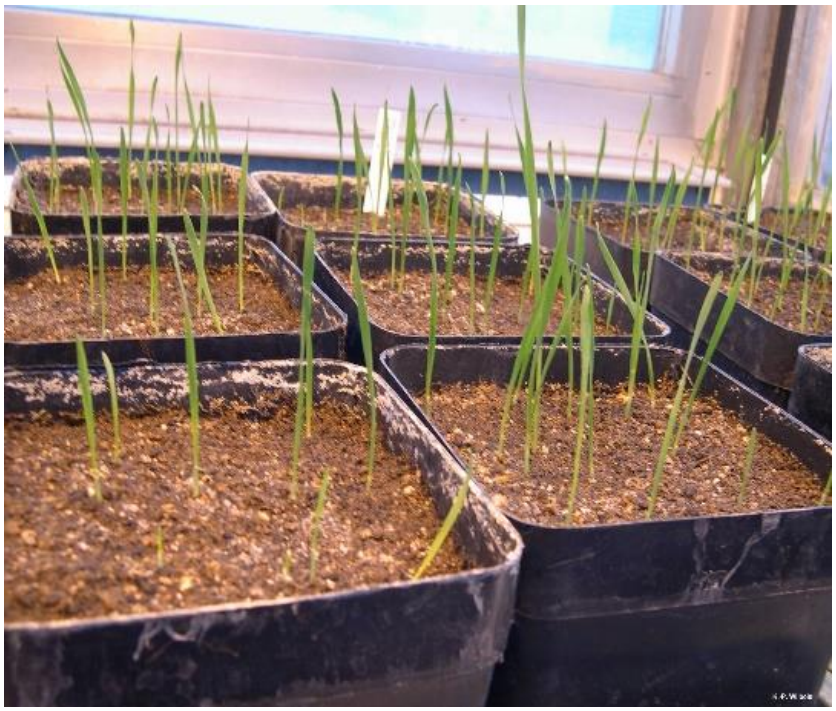

**Fig. 2: Germination test in a trial.**

As seedling blights are more of an issue at colder soil temperatures, it can often be more prevalent in winter crops. With spring sown crops, the soil is heating up. Seedling blight diseases are often more common when there has been significant rainfall at flowering time.

A good seed cleaner should be used both for certified and for home-saved seed. The quality of seed can significantly improve with the use of a seed dresser. 2.0 mm and 2.25 mm slotted sieves are often used to remove a lot of the small weed seeds and small grains from seed samples.

For wheat, spelt, emmer and einkorn seeds always check the amount of bunt spores. Bunt is a soil-borne disease; therefore, it is important to minimise the transfer and multiplication of spores in your soil.

## FURTHER INFORMATION:

S. Groot. S. Klaedtke, M. Messmer and F. Rey (2020): Organic seed health. An inventory of issues and a report on case studies. In: https://www.liveseed.eu/wp-content/uploads/2021/02/LIVESEED_D2.5-Inventory-of-scientific-legal-and-technical-measures-to-improve-seed-quality-in-organic.pdf

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## ECOBREED CONSORTIUM

**ABOUT ECOBREED:**

ECOBREED is a 5-year (2018-2023) project funded by European Union's Horizon 2020 research and innovation programme that will improve the availability of varieties and seed suitable for organic and low-input production. Activities will focus on four crop species i.e. wheat, potato, soybean and common buckwheat, selected for their potential contribution to increasing the competitiveness of the organic sector.

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