

Treating wheat seed with vinegar against common bunt

Problems

Common bunt is a devastating seed borne disease in wheat and related cereals. Starting from just a few spores in a seed batch, the disease can develop in the crop reducing grain yield and especially quality.

Solutions

Vinegar treatment

Acetic acid is very effective to control common bunt in wheat. Seed treatments with white vinegar can easily be applied on-farm, but germination can be harmed if it is not applied properly.

Caution: A vinegar treatment will protect seeds from bunt spores on the seed, but not in the soil. It is efficient after proper seed cleaning (→ Practice Abstract no. 2). Can be used to protect related (hulled) cereals (such as spelt and emmer) from bunt, but might be less effective, or greater quantities are needed.



Vinegar treatment in a cement drum. (Photo: Matteo Petitti)

Practical recommendations

- For 100 kg seed → approx. 1,7 l of vinegar (4%) (If the concentration is more than 4%, dilute with cold water to reach 4%. According to practical experience, 1,7 l of liquid for 100 kg of seed is usually enough to treat all seeds without wetting them too much, but you may need to adjust according to seed humidity.)
- On-farm, you can use a cement drum to treat seed batches. For small seed quantities (e.g. in collections), you can simply use a hand-sprayer for treating, while shaking the seeds in a small container.
- Avoid using high concentrations: beyond 5% acetic acid, germination rates are reduced in some experiments.
- Dry quickly and thoroughly the seeds after treating to preserve seed quality.
- If the treated seed is actively dried after treatment (e.g. by a hot airstream), let the vinegar work on the seed for approximately a minute before drying.
- Make sure that the entire seed surface is covered! It is crucial that the application is as uniform as possible, as fast as possible, to avoid the acetic acid from evaporating and the seed from imbibing too much liquid.

Further information

1. Video on bunt treatment methods: <https://www.liveseed.eu/tools-for-practitioners/videos/>
2. Webpage on bunt management: <http://itab.asso.fr/activites/gc-eng-carie-gestion.php>
3. Borgen, A. og B.J.Nielsen 2001: Effect of seed treatment with acetic acid in control of seed borne diseases. In: Proceedings from BCPC Symposium No. 76: "Seed Treatment: Challenges & Opportunities", eds. A. J. Biddle. BCPC, Farnham, 135-140.
4. Commission implementing regulation (EU) 2015/1108 of 8 July 2015 approving the basic substance vinegar in accordance with Regulation (EC) No 1107/2009, amending the Annex to Commission Implementing Regulation (EU) No 540/2011
5. Review report on vinegar: https://mst.dk/media/173693/vinegar_final_rr_2018.pdf

Authors: Anders Borgen (Agrologica), Stephanie Klaedtke (ITAB), Laurane Boffin, Jean-Pierre Bouchet and Estelle Serpolay (Ubios)

Contact: stephanie.klaedtke@itab.asso.fr

Publisher: ÖMKI Hungarian Research Institute of Organic Agriculture

Date: April 2021

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727230 and by the Swiss State Secretariat for Education, Research and Innovation under contract number 17.00090. The information contained in this communication only reflects the author's view. The REA or the SERI are not responsible for any use that may be made of the information it contains.

