

Breeding for bunt resistance in organic wheat and spelt

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Abstract

Common bunt (*Tilletia caries*) is one of the most devastating plant diseases, and a particular problem for organic seed production. Organic farming aims at controlling pests and diseases with the use of biodiversity and resistance. However most organic wheat fields today are sown with monocultures of pure line varieties, and resistance to common bunt is rarely used, even this disease causes severe problems for seed producers and for farm saved seed, as infected seed lots are discarded because of contamination with bunt spores. To improve the system, organic wheat needs resistance to common bunt that is effective enough to prevent development of the disease over time.

For this reason several initiatives are ongoing to improve bunt resistance in organic wheat production. This include screening of spelt (*Triticum spelta*), macha (*T.macha*) and heritage varieties of bread wheat (*T.aestivum*) for susceptibility to bunt. Pure lines of resistant plants have been selected and will be evaluated for quality and agronomic performance. The material will be used both for development of new varieties, and for development of composite cross populations of wheat with resistance to common bunt. In a separate project (BIOBREED) DNA markers will be developed to assist selection for bunt resistance and quality characters including baking quality, nutrients including antioxidants.