

Quality assessment of organic wheat

Lene Pedersen, Dep. of Horticulture, Danish Institute of Agricultural Sciences, Research Centre Aarslev, DK-5792 Aarslev

Bread making quality of wheat is mainly related to protein and gluten content of grain and flour. For conventionally grown bread wheat, with high levels of N-addition, high protein levels are achieved. Organic wheat, which is grown with restricted nutrients and with competitions from weeds, tends to have a lower protein and gluten content. Despite this, baking quality measured by baking tests seems to be fairly good for some wheat varieties. This experience indicates a strong interaction between the environment and genotype on baking quality.

In order to meet the demands from millers and bakeries using organic wheat, agronomic and quality performance of a range of varieties must be evaluated under low-input conditions. Results from these investigations should be used to select the genotypes, which are suitable for organic farming, and additionally have good baking performance. Further, quality measurements using different methods should be related to results of baking tests, in order to develop methods and quality parameters which can be used to predict baking quality of organic wheat.

In a present study, 12 bread wheat varieties are grown during three years at different organic farm sites, with application of animal husbandry (from pigs and cattle) in two levels. Additionally the same varieties are grown conventionally, with application of mineral N-fertiliser according to normal practice. Protein and gluten content of grain and flour are determined by standard methods and by using NIR-methods. Functional properties of gluten proteins are characterised by rheological methods (creep and oscillation). Results will be used to select varieties, which have the potential to store N in the gluten proteins during organic growth conditions. Further, differences in properties of gluten between organic and conventional wheat can be revealed.

Preliminary results from the first harvest year will be presented.