



# Agricultural Journals

*Czech Journal of*

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# **Czech J. Food Sci.**

**Chloupek O., Both Z.,  
Dostál V., Hrstková P.,**

**Štěpánková I., Betschke I.,  
Hrušková M., Horáková  
V.**

## **Better bread from vigorous grain?**

Czech J. Food Sci., 26 (2008): 402-412

A high seed vigour is a desired trait in agronomy as it promotes the fast field emergence and homogeneity of harvest, which is necessary for producing quality food raw material. In this work, we studied the effects of the seed vigour on the bread quality. Relationships between the grain vigour, nutrients and anti-nutrients, contents, and bread volume were evaluated using the samples acquired from official variety trials. In the trials, the grain vigour was perceived as the grain ability to germinate in stress conditions, i.e. at 10° C in a solution of polyethylene glycol (PEG 6000 at osmotic pressure – 2 bars, the so called permanent wilting point). The results showed that the locations and years changed the bread volume but not the rank of the varieties tested in the trait. A higher grain vigour

was significantly related to a higher fallin number during two of the three trial years. The vigour was negatively related to the lipase activity. Moreover, other decomposing enzymes showed a similar tendency as was that found in the samples with the most diverse vigour. The grain samples with 80– 90% vigour produced the greatest bread volume. The grain with a vigour below or above this range produced less voluminous loaves. The varieties of the highest quality produced the most voluminous bread from the samples reaching the grain vigour of 90– 95%. The standard germination test was not related to the vigour and was less responsible for the bread quality. High-quality varieties had higher contents of total polyphenols than