



# Agricultural Journals

*Czech Journal of*

**FOOD SCIENCES**

[home](#) [page](#) [about us](#) [contact](#)

**us**

## Table of Contents

**IN PRESS**

**CJFS 2014**

**CJFS 2013**

**CJFS 2012**

**CJFS 2011**

**CJFS 2010**

**CJFS 2009**

**CJFS 2008**

**CJFS 2007**

**CJFS 2006**

**CJFS 2005**

**CJFS 2004**

**CJFS 2003**

**CJFS 2002**

**CJFS 2001**

**CJFS Home**

## **Editorial Board**

### **For Authors**

- **Authors Declaration**
- **Instruction to Authors**
- **Guide for Authors**
- **Copyright Statement**
- **Submission**

### **For Reviewers**

- **Guide for Reviewers**
- **Reviewers Login**

---

### **Subscription**

# **Czech J. Food Sci.**

**Balla K., Rakszegi M.,  
Li Z., Békés F., Bencze**

S., Velsz O..

## Quality of winter wheat in relation to heat and drought shock after anthesis

Czech J. Food Sci., 29 (2011): 117-128

Raw material quality, which is influenced not only by the protein content, insoluble protein polymers, and glutenin-to-gliadin ratio but also by the starch granule size, is very important for the quality of bakery products. This study investigated the effect of high temperature and drought (during grain-filling) on the quality and components yield of five winter wheat varieties. Drought and drought + heat were found to have a much greater influence on the yield and quality than heat stress alone. Averaged over the varieties, the yield losses were 57% after drought, 76% after drought + heat, and only 31% after heat stresses. The reductions in the unextractable polymeric protein fraction and glutenin-to-gliadin ratio indicated a poorer grain yield quality, despite the higher protein content. Quality

deterioration was observed after drought or drought + heat, while high temperatures alone resulted in no change or in a better ratio of protein components. A significant negative correlation was observed between starch granule size and relative protein content after drought, demonstrating that this parameter contributes, together with protein, to the baking quality of the flour.

**Keywords:**

starch granule size; protein content; glutenin-to-gliadin ratio; high temperature

[ [fulltext](#) ]

---

© 2011 [Czech Academy of Agricultural Sciences](#)