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New challenges of world demand  
***Abstracts***

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*New Challenges of World Demand*

## **ABSTRACTS**

**of Oral and Poster Presentations**



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**GRAINS WITH SYMPTOMS OF FUSARIUM HEAD BLIGHT AND ITS  
RELATIONSHIP WITH TECHNOLOGICAL QUALITY AND WITH MYCOTOXINS AND  
ERGOSTEROL CONTENT IN COMMERCIAL WHEAT SAMPLES**

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The wheat crop in southern of Brazil is quite often affected by Fusarium Head Blight (FHB) caused by *Gibberella zeae* (*Fusarium graminearum*). It is very well known that the presence of mycotoxins produced by the pathogen reduces wheat technological quality, but it is not known if the presence of grains with symptoms of FHB (tombstone kernels) can have the same effect. The objective of this study was to evaluate, preliminarily, the relationship of tombstone kernels with wheat technological quality, with the content of mycotoxins – deoxynivalenol (DON) and zearalenone (ZEA), and with ergosterol (ERG) content of 34 commercial samples of wheat produced in the states of Santa Catarina and Rio Grande do Sul. The samples were characterized for the visual percentage of tombstone kernels. The grain was milled in a Cyclotec Mill for DON, ZEA and ERG analyses. Millings from a Quadrumat Senior Brabender Mill were used for the analyses of wheat technological quality. Included were: test weight (TW), thousand kernel weight (TKW), experimental milling (EXP) – parameters: break time, break flour, reduction flour and flour yield, alveography - parameters: gluten strength (W), tenacity (T), extensibility (E), T/E ratio, swelling index (SI), and elasticity index (EI), and falling number (FN). The range of tombstone kernels found in commercial wheat samples varied from 0.8 to 19.9%, while DON ranged from 101 to 4,887 µg/kg, ZEA 28.8 to 184.4 µg/kg, and ERG, was 0.3 to 9.9 mg/kg. The W value varied from 86 to 343 x 10<sup>-4</sup>J. Significant correlations of tombstone kernels with technological quality parameters and with DON, ZEA, and ERG were found. The tombstone kernels were correlated significantly with TW (r = -0.42), reduction flour yield (r = 0.36), P (r = -0.55) and, W (r = -0.59) of the alveography, and with DON (r = 0.66) and ERG (r = 0.46). DON (r = -0.49), ZEA (r = -0.34), and ERG (r = -0.44) were negatively correlated with test weight, indicating that compounds can affect the wheat commercial value. It should be emphasized that test weight is still a parameter used in wheat commercialization in many countries. In addition to this, gluten strength was negatively correlated with tombstone kernels (-0.59) and DON (-0.43), which confirmed the decrease of wheat commercial value. The preliminary conclusion was that tombstone kernels affect wheat flour technological quality and was related with DON, ZEA and ERG contents in the wheat grain, and, consequently, the sanitary quality of the wheat flour. However, it would be advisable to analyze commercial samples of several seasons for the results to be conclusive.