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Genetic Variation in Concentration of the 33-mer Protein Subcomponent in Wheat

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Presenters

Robert L. Paris, Kaleb M. Pauley, Ryan K. Lokkesmoe, Sarah E. Lyon, James C. Dunlap, Julia M. Pierre, Timothy VanWingerden, Finny J. Johns, Kyle J. Kilchrist, Tyler J. Reid, and Caleb M. Winn



Research & Scholarship SYMPOSIUM

Genetic Variation in Concentration of the 33-mer Protein Subcomponent in Wheat

Celiac Disease is a hypersensitive response to gluten caused by HLA-DQ2 or HLA-DQ8 T-cell presentation, initiating destruction of intestinal epithelial cells. Currently, the only remedy for those suffering from celiac disease is elimination of all gluten from the diet. Studies indicate that an indigestible fragment of the gluten molecule, alpha-gliadin subcomponent 33-mer, rich in proline and glutamine, is responsible for the hypersensitivity response. Determination of 33-mer concentration in wheat lines could be beneficial to future development of wheat lines with reduced 33-mer concentration. Protein from wheat flour was extracted and subjected to ELISA techniques in order to quantify the concentration of 33-mer. A technique that quantifies the concentration of 33-mer is a necessary first step for future research efforts focused on identification and development of wheat lines with reduced concentrations of 33-mer. It is possible that wheat with reduced 33-mer may be suitable for consumption by individuals with celiac disease.