Quantitative Trait Loci Associated with Protein and Oil Content of Cultivated Oat. (C07-kaeppler163704-Poster)

Authors:

- H.Kaeppler* - *University of Wisconsin-Madison, WI*
- S.Zhu - *University of Wisconsin-Madison, WI*
- B.Rossnagel - *University of Saskatchewan, Saskatoon, SK*

Abstract:

Information regarding the number, position, and effect of quantitative trait loci (QTL) for groat protein and oil content, and epistasis between these QTL would facilitate the development of oat cultivars with desirable levels of the two traits. QTL for protein and oil content were mapped and characterized in an oat population consisting of 152 recombinant inbred lines from the cross of 'Ogle' (low) / MAM17-5 (high). Percentage of groat protein and oil was measured for samples harvested from field hill plots across two years using an Infratech Whole Grain Food and Feed Analyzer. Composite interval mapping was used for QTL analysis with a framework map consisting of 272 molecular markers. On average, nine and six QTL significantly (a LOD score threshold of 3.5) associated with protein and oil content, respectively, were identified. Significant epistasis was found between some QTL. The final model including the epistatic effect explained 34.3 and 50.4% of the total phenotypic variation for protein and oil content, respectively. The identified association of markers and the two traits should be useful to identify desirable recombinants among progeny.

Corresponding Author Information:

Heidi Kaeppler
University of Wisconsin-Madison
1575 Linden Dr.
Madison, WI 53706

phone: (608)262-0246
fax: (608)262-5217
e-mail: hfkaeppl@facstaff.wisc.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 1403L

Keywords:

Quantitative trait loci, Molecular markers, Protein and oil content, Oat