Evaluation of Near-Isogenic lines for QTL for oil concentration in Maize. (C07-parrott132532-Poster)

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Abstract:

Value-added specialized corn hybrids, which may provide efficiencies and economic benefits, have the potential to be grown much more extensively in the Midwest. One such example is high-oil corn (HOC) grown for its livestock feeding value. However negative associations with grain yield have hurt success of HOC. We evaluated sets of near-isogenic lines (NILs) for a major oil quantitative locus (QTL) or linked QTL derived from a (B73xIllinois High Oil) B73 BC1S1 population. NILs facilitate confirmation of QTL, fine mapping, and dissecting the basis of the QTL. Three SSR markers linked to a major oil QTL on chromosome 6 were used in the development of BC1 S5:7 and S7:9 NILs. Testcross progeny were made from BC1S8 lines to Mo17 for evaluation of NILs in a hybrid context. Grain collected from the BC1 S5:7 lines were evaluated for their oil, protein and starch concentrations using near-infrared (NIR) analysis. Single factor analysis confirmed the QTL in the S5:7 NILs evaluated in 2001. Marker class means differed by 0.9% in oil concentration. Evaluation of a second year of S5:7 NILs and two environments of S7:9 NILs in both per-se and testcross evaluations in 2002 will be reported.

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