QTL Discovery Using Divergent Selection. (C07-casler072056-Oral)

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Abstract:

Neutral detergent fiber (NDF) concentration is highly predictive of voluntary intake potential and animal performance. Because heritability of NDF is generally only about 0.3 and considerable time and expense is required to process and analyze samples from selection nurseries, marker selection is potentially useful. Two cycles of divergent selection for NDF concentration were completed in four smooth bromegrass (Bromus inermis Leyss) populations. Gain from selection averaged 6.6 to 8.6 g/kg/cycle. Ninety-seven RAPD markers were analyzed on up to 28 plants of each selection cycle within each population. Frequencies of each band were regressed on selection cycles and regressions were tested for homogeneity across populations, lack-of-fit, and for effects of drift. One band met all three criteria, resulting in homogeneous regressions with coefficients of determination of 0.86 to 0.96. This marker will be converted into a sequenced characterized amplified repeat (SCAR) for use in marker selection to test the hypothesis that it is linked to loci controlling NDF concentration.

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