Recurrent Selection for Stable Groat Percentage in Oat using BLUP. (C01-gogula144417-Oral)

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Abstract:

Groat percentage is an important oat (Avena sativa L.) grain quality trait that is adversely affected by high temperature stress. This study is being conducted to determine the feasibility of selecting genotypes with high groat percentage that is also stable under temperature stress. Eighteen diverse inbred lines were selected for population development. The parents were crossed in a circular diallel and unrelated progenies were then crossed to develop a segregating population. For evaluation, genotypes were planted at a normal and a late planting date at Ames, IA. Late planting creates condition of high temperature stress during seed development. Phenotypic and genetic variances within planting dates and covariances across dates will be estimated to calculate a selection index for optimal gain in groat percentage for both environments. The heritability of the index depends on the genetic covariance between groat percentages at the two dates. Using pedigree records, the additive relationship matrix among genotypes will be calculated to enable breeding value estimation using mixed model analysis. Groat percentage heritabilities and gain from selection will be reported.

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