Breeding for Seed Traits of Wildrice: Heritabilities, Gain From Selection, and Trait Correlations. (C01-porter171845-Poster)

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Abstract:

Some newer cultivars of American wildrice (Zizania palustris) appear to be shorter than their predecessors, causing concern among some marketers. In spite of substantial variability in seed length within cultivars, significant differences among cultivars have been detected. Previous estimates of broadsense heritability across locations were high (87%). Older single-location estimates of narrow-sense heritability were lower (70%), and may have been inflated by unaccounted-for GxE variance. This study further investigates the genetics of seed size and how it correlates to seeds per panicle and total yield. Narrow-sense heritability and predicted gain from selection for seed length are estimated using half-sib families and parent-offspring regression of the halfsibs on their maternal parent. Digital image analysis was used to provide more accurate measurements, and replication of families at two locations gives a truer estimate of genetic variance. Predicted gain from selection is estimated for a current breeding population having shorter seeds than older varieties.

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