Comparison of S1 with Open-Pollination Progenies in Selecting for Forage Yield in Crested Wheatgrass. (C01-berdahl154616-Poster)

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Abstract:

Studies with several cross-pollinated plant species have demonstrated that inbreeding and selection are effective in increasing the frequency of alleles with favorable effects. This study tested the value of one generation of inbreeding in crested wheatgrass (Agropyron spp.) by measuring dry matter yield of synthetic populations derived from plants selected within either S1 or open-pollination families that traced to the same maternal parents. Source material consisted of one diploid and two tetraploid populations with a wide genetic base. Six 15-parent synthetic populations from S1 families and six from open-pollination families were constituted and included in 10-replicate performance tests at two locations. Overall means for dry matter yield of the six S1 and six open-pollination synthetics were 4129 and 4098 kg/ha, respectively. Only one paired comparison between S1 and open-pollination derived synthetics was significantly different (P=0.01), and only at one location. We conclude that S1 and open-pollination families of crested wheatgrass were equally effective when used as the selection unit to choose parents for synthetic populations.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 1010

Keywords:

Cross fertilization, Inbreeding, Effectiveness of selection, Accumulation of favorable alleles