Plant spacing effects on forage trait heritabilities in tall fescue. (C01-waldron193357-Poster)

Authors:

- B.L.Waldron* USDA-ARS, Logan, UT
- K.B.Jensen USDA-ARS, Logan, UT
- K.H.Asay USDA-ARS, Logan, UT

Abstract:

The validity of using space-planted nurseries for forage trait selection has often been questioned. This study was conducted to compare the heritability of forage traits in tall fescue using two different spacings. Twenty-four tall fescue half-sib families were established in 10-plant plots in two adjacent space-planted nurseries. Spacing was 1.0 meter between plants in one nursery and 0.5 meter between plants in the second nursery. Row spacing was 1.0 meter in both nurseries. Plots were harvested five times in 1999 and 2000 and annual dry matter yields (DMY) were determined. Leaf color and stiffness were visually rated. Genetic variation and heritabilities were estimated. No genetic variation was found for leaf color or leaf stiffness using either plantspacing. Heritability for DMY was higher at the 0.5-m spacing (h^2=0.56 (s.e.=0.33)) than at the 1.0-m spacing $(h^2=0.33 (s.e.=0.34))$, indicating that the narrower spacing would be preferred for selection. However, a high Spearman's rank correlation of r=0.84 suggested only small differences in half-sib family selection between the two spacings. Overall, these results support narrower plant spacing for forage trait selection. A follow up study comparing seeded rows versus 0.5-m spacing is ongoing.

Corresponding Author Information:

Blair Waldron USDA-ARS-FRRL 696 N. 1100 E. Logan, UT 84322-6300 phone: 435-797-3073 fax: 435-797-3075 e-mail: blw@cc.usu.edu

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