

Forage Yield Response of Alfalfa to Percent Hybridism

M. Velde ^{1*}, D. Undersander ², P. Sun ¹, D. Gardner ¹, S. Wagner ¹, B. Anderson ⁴, C. Brummer ³, J. Hanson ⁶, R. Leep ⁸, K. Roozeboom ⁹, C. Schaeffer ⁷, G. Shewmaker ¹⁰, K. Silveria ², M. Smith ³, D. Swanson ⁷, R. Todd ⁵, M. Trummell ⁴, D. Viands ⁶, M. Witt ⁹, ¹ Dairyland Research Clinton, WI 53525, ² University of Wisconsin, Madison, WI 53706, ³ Iowa State University, Ames, IA 50011, ⁴ University of Nebraska, Lincoln, NE 68583, ⁵ The Pennsylvania State University, University Park, PA 16802, ⁶ Cornell University, Ithaca, NY 14853, ⁷ University of Minnesota, St. Paul, MN 55108, ⁸ Michigan State University, East Lansing, MI 48824, ⁹ Kansas State University, Manhattan, KS 66506, ¹⁰ University of Idaho, Twin Falls, ID 83303

The purpose of this study was to determine the yield response of alfalfa with varying hybrid percentages. Treatments were obtained by mechanically mixing pure hybrid seed with seed of a non-hybrid line. One study was conducted in 1996 through 1998 at three sites in MN and WI. An elite hybrid, DS1HYB, was blended with a genetically dissimilar line, DS2R, to create treatments ranging from 0 to 100% hybridism in 10 unit increments. A second study was conducted in 1999 through 2001 at twelve sites (PA, NY, MI, WI (4 locations), IA, MN, NE, KS, ID) across the north and central United States. In this study, DS1HYB was blended with the DS1HYB restorer line, DS1R, to create treatments ranging from 50 to 100% hybridism in 10 unit increments. Plots were planted according to NAAIC standards and managed for maximum yield.

The results of the study are presented in the graph below. Forage yield tended to increase with an increasing percentage of hybridism ($r^2 = 0.95$ and 0.64 , for the 1996-1998 and 1999-2001 studies, respectively). Yields of treatments with 80% or greater hybridism were significantly higher than treatments with 70% or less hybridism ($P < 0.05$ and $P < 0.001$, for the 1996-1998 and 1999-2001 studies, respectively). The maximum forage yields in hybrids may be achieved with 80% or greater hybridism.

Two-Year Yield for three 1996 Locations and nine 1999 Locations

