SOUTH DAKOTA - Forage Potential of Meadow Bromegrass and Meadow X Smooth Bromegrass Hybrids

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Meadow bromegrass is an important forage in Canada and the Intermountain West that has not been evaluated in the Northern Great Plains. It is a bunch grass with better regrowth than smooth bromegrass. Meadow x smooth brome hybrids have been produced in Canada.

Table 1. Forage production (tons DM/ac) of meadow bromegrass (range of 7 populations), hybrid bromegrass (range of 5 populations), and 'Signal' smooth bromegrass at 7 harvests over 5 years at Brookings, SD.

Entry	June 20 2005	July 28 2005	Oct. 28 2005	June 27 2006	Nov. 26 2006	June 24 2007	June 18 2009
Meadow brome	2.3-2.6	0.7-0.9	0.5-0.7	1.3-1.7	0.2-0.4	0.8-1.1	1.3-2.3
Hybrid brome	2.1-2.5	0.9-1.0	0.3-0.6	1.2-1.5	0.1-0.2	0.5-0.8	1.2-1.9
Smooth brome	3.0	1.1	0.3	1.3	0.1	1.0	0.9

Thirteen brome populations (7 meadow, 5 hybrid, and 1 smooth) were evaluated for 5 years at Brookings, SD (Table 1). Plots were established in May 2004 on a Vienna silt loam. The initial harvest each year was at early flowering. Regrowth was harvested when there was adequate forage to justify harvest. Below-normal precipitation during June and July 2006 and 2007 restricted mid-summer regrowth. No harvests were taken in 2008 since stands were nutrient deficient and declining. In 2008, 100 lbs N/ac was applied in spring, and stands were allowed to grow to seed maturity when forage was removed but not weighed.

Yield of initial growth at flowering was greater for smooth (3.0 tons/ac) than for meadow or hybrid brome (avg. 2.4 tons/ac) in 2005; however, production during 2006 and 2007 was similar for meadow and smooth brome (Table 1). Regrowth harvested during October 2005 and November 2006 was greater for meadow than smooth or hybrid brome. Forage production in 2009, after rest and fertilization in 2008, was 1.9 ton/ac for meadow brome compared with 1.5 and 1.2 tons/ac for hybrid and smooth brome, respectively. Smooth and hybrid bromegrasses had more leaves per tiller than meadow brome.

After 6 years, meadow brome had greater tiller density, proportionally more vegetative tillers, and greater multiple-harvest tolerance than did smooth or hybrid brome This study indicates cultivars and experimental populations of meadow brome developed in Canada are well adapted and of immediate value for forage production systems in the Northern Great Plains.