MORPHOLOGY AND FORAGE PRODUCTION OF MEADOW BROMEGRASS AND MEADOW X SMOOTH BROMEGRASS HYBRIDS

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ABSTRACT

Meadow bromegrass (Bromus riparius Rehmann) is an important forage crop in Canada and the Intermountain West, USA, but it has not been extensively evaluated in the Northern Great Plains (NGP), USA. Meadow brome is a bunch grass and has better regrowth characteristics than smooth brome (Bromus inermis Leyss.), a strongly rhizomatous grass used widely and extensively for forage throughout the NGP. Hybrids between meadow and smooth bromegrass have been produced in Canada. Objectives of this study were to compare meadow, smooth and hybrid bromegrasses for morphology and forage production in eastern SD. Thirteen populations (7 meadow, 5 hybrid, and 1 smooth bromegrass) were evaluated for forage production for 3 yrs (2005-2007) at Brookings, SD. Morphological characteristics (e.g., number of phytomers, blade weight, sheath weight, and internode weight) were determined for reproductive tillers and vegetative regrowth tillers. Initial growth harvested at anthesis (i.e., mid June) was greater for smooth (6.75 Mg ha$^{-1}$) than for meadow or hybrid brome (5.4 Mg ha$^{-1}$) in 2005, but production at anthesis during 2006 and 2007 was similar for meadow and smooth bromegrass. Regrowth harvested during July and October 2005 and November 2006 was greater for meadow than smooth or hybrid brome. Smooth and hybrid (3.8 leaves tiller$^{-1}$) had more phytomers than meadow bromegrass (3.0 leaves tiller$^{-1}$). Meadow bromegrass showed greater potential for multiple harvests during a growing season of high quality forage in the NGP than did smooth or hybrid brome. Populations developed in Canada are valuable germplasms for developing new cultivars for the NGP.