

Alfalfa-grass mixtures performance in North Dakota

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Well-managed alfalfa-grass mixtures can yield as much or more as alfalfa alone. Mixtures also provide greater fiber content and digestibility, thus increasing average daily gain and milk production. The objective of this study was to determine the performance of alfalfa grass/mixtures in North Dakota. Replicated plots of 24 alfalfa-grass mixtures treatments were seeded on 2 June at Fargo and Prosper, and 3 June at Carrington, ND, in 2010. Grasses used for the mixtures were smooth brome (*Bromus inermis* L.), orchardgrass (*Dactylis glomerata* L.), reed canary grass (RCG) (*Phalaris arundinaceae* L.), tall fescue (TF) (*Festuca arundinacea* L.), meadow fescue, (*Festuca pratensis* L.), intermediate wheatgrass (IWG) (*Thinopyrum intermedium* (Host) Barkworth & D.R. Dewey), crested wheatgrass (CWG) (*Agropyron cristatum* (L.) Gaertn.), and tall wheatgrass (*Agropyron elongatum* (Host.) Beauv.). Treatments included 13 grasses in monoculture, alfalfa in monoculture, and 9 alfalfa-grass mixtures. Forage yield and quality was determined for two harvests in the seeding year and four harvests in the first year of production. The 2011 results indicated a strong interaction between treatments and location. The Carrington location was much dryer than the Fargo and Prosper locations and the sole alfalfa and the alfalfa-grass mixtures had much lower biomass yield than the grasses in monoculture, due to the high water requirements for alfalfa sole or in mixture. At Prosper, the highest biomass yield was for the alfalfa monoculture treatment although not significantly different than alfalfa grown in mixture with TF or RCG. At Fargo, the highest biomass yield was for the mixture alfalfa/CWG although the CWG in the mixture was only 20%. This treatment was not significantly different than the alfalfa monoculture or alfalfa in mixture with RCG, TF, or IWG or sole RCG. The combined analysis indicated highest forage yield was for RCG sole (14 Mg/ha) or in mixture with alfalfa (13.4 Mg/ha) treatments. Forage quality was highest for alfalfa alone, but increasing grass in the mixture increased fiber digestibility as well.