

## North Dakota - Managing Yellow-Flowered ('Falcata') Alfalfa Mixed With Grasses for Enhanced Pasture/Range Yield

by John Hendrickon, Mark Liebigh, and John Berdahl, USDA-ARS Northern Great Plains Research Lab

**Forage Research Update** Compiled and edited by Paul Peterson, University of Minnesota

Including alfalfa in pastures can enhance their quantity and quality. In recent research at Mandan, ND, adding alfalfa to mixed grass pasture increased total yield up to 185%. The study assessed the impact of clipping timing and selective clipping on three alfalfa varieties: Anik, Yellowhead, and Vernal. Anik is a diploid, falcata, grazing-type developed by Agriculture and Agric-Food Canada (AAFC) in Alberta. Yellowhead is a falcata-type developed by AAFC in Saskatchewan. Vernal is a hay-type, 'sativa' variety released by the University of Wisconsin. Varieties were space-planted into an existing mixed grass prairie and clipped at mid-bud, flower, or flower followed by mid-bud.

The predominant grasses were western wheatgrass, green needlegrass, needleandthread, and blue grama. Total annual precipitation during the study was 12.5, 13.3, and 18.7 inches in 2003, 2004, and 2005, respectively, compared to the long-term average of 16.3 inches.

Greater total yield achieved with alfalfa was primarily due to adding alfalfa; productivity of the associated grasses and forbs was unaffected. Yellowhead consistently performed well even in a dry year (2004) and produced ~20+% more total yield than the next highest variety every year. In 2003 and 2005, alfalfa yield was increased 1.5-2.7 times by clipping only alfalfa in flower and regrowth stages compared with a mid-bud clipping of only alfalfa. Yellowhead and Vernal performed well when clipping was delayed to flower stage, but clipping Anik at mid-bud produced as much or more total forage as did later clipping.

Producers with primarily Anik in their pastures should consider grazing at mid-bud, but producers with Vernal or Yellowhead should wait until after flowering. Alfalfa stage of development had a greater effect than did selective clipping of alfalfa in the study. Thus, loss of alfalfa productivity due to selective grazing is unlikely at moderate grazing levels.

**Table 1.** Total alfalfa/grass/forb pasture yield and percent alfalfa in 2004 and 2005 at Mandan, ND, as influenced by alfalfa variety and maturity at clipping.

Alfalfa Maturity	Anik		Yellowhead		Vernal	
	lb DM/ac	% Alfalfa	lb DM/ac	% Alfalfa	lb DM/ac	% Alfalfa
-----2004 (dry year)-----						
Mid-bud	434	61	377	48	256	41
Flower	224	14	331	44	662	67
Flower, then mid-bud	300	25	466	45	235	27
-----2005 ('wet' year)-----						
Mid-bud	1024	39	749	52	881	45
Flower	813	25	1151	60	1810	46
Flower, then mid-bud	1082	30	1464	55	908	35