

Forage Production and Digestibility of Small Grain Forages

G. W. Horn, W. E. McMurphy
and R. L. Mitchell

Story in Brief

Forage production of four varieties of wheat, Kerr barley, Walken oats and Bonel rye was measured on two harvest dates, November 13, 1979, and March 18, 1980. *In vitro* dry matter digestibility (IVDMD) of the forages harvested on March 18, 1980, was also measured. Forage production (pounds of oven-dried forage per acre) of the four wheats ranged from 623 to 227 (11-13-79) and 1129 to 664 (3-18-80). Bonel rye produced the most forage on both harvest dates. IVDMD of the four wheats ranged from 74.5 to 68.4 percent. Digestibility of Bonel rye was 73.2 percent even though it was jointed and in the pre-boot stage of growth. These data indicate that varietal differences among wheats may be important in regard to amount of forage produced and its digestibility.

Introduction

Production of sufficient small grain forage in the fall prior to reduced forage growth in the winter is critical to achievement of good stocker weight gains. Planting date greatly affects fall forage production. Varietal differences may also be important. The objective of this study was to obtain data relative to forage production and digestibility of some small grains.

Experimental Procedure

The forage production data is from the small grain variety test conducted at the Agronomy Research Station (Perkins, Oklahoma) during the 1979-80 season on a Teller loam soil. Planting date was August 24, 1979, at a seeding rate of 100 to 120 pounds per acre. Phosphorus fertilizer was applied August 23, 1979, based upon soil test results. Ammonium nitrate fertilizer was applied in the amount equivalent to 52 pounds of actual N per acre on August 23 plus two more applications of 60 pounds of actual N per acre on November 29, 1979, and March 20, 1980.

The small grains were grown in a randomized complete block design with four replications. Plots were 5 x 20 feet with rows 12 inches apart. The yield sample was taken from the three center rows with a flail mower set to a cutting height of 1½ inches. Precipitation for most of the growing season was below the long-term average. Forage production of other entries in the test is reported in OSU Current Report 2060.

In vitro dry matter digestibility (IVDMD) was determined on forage samples from the March 18, 1980, harvest date. The wheat varieties and Kerr Barley were in vegetative stages of growth and just beginning to joint. The leaf tips of Walken oats were brown from frost damage, which probably reduced digestibility. Bonel rye was jointed and in the pre-boot stage of growth.

Results and Discussion

Forage production (lb oven-dried forage per acre) of the four wheats ranged from 623 to 227 on November 13 and was about 2.2 times greater for Triumph 64 wheat as

compared with the other wheat varieties (Table 1). Forage production of Bonel rye was similar to that of Triumph 64 wheat. On the March 18, 1980, harvest date forage production of Tam 101 was the greatest among the four wheat varieties. Bonel rye produced the most forage.

Dry matter digestibility (IVDMD) of the four wheats ranged from 74.5 to 68.4 percent (Table 1). Digestibility of Bonel rye was 73.2 percent even though it was jointed and in the pre-boot stage of growth.

Production of digestible dry matter (DDM) on the March 18 harvest date was similar for Tam 101 and Newton wheats (i.e., 771 and 696 pounds per acre) and was about 46 percent greater than Triumph 64 and Osage wheats. Bonel rye produced the greatest amount of DDM per acre.

These data indicate that varietal differences among wheats, in regard to amount of forage production and digestibility, may be important.

Table 1. Forage production and *in vitro* dry matter digestibility (IVDMD) of small grain forages^a

	Wheat				Kerr barley	Walken oats	Bonel rye
	Triumph 64	Tam 101	Newton	Osage			
Forage production ^f , lb/acre							
Harvest date							
11-13-79	623 ^a	280 ^{bc}	334 ^{bc}	227 ^c	401 ^b	350 ^{bc}	664 ^a
3-18-80	750 ^{cd}	1129 ^b	933 ^{bc}	664 ^d	684 ^{cd}	532 ^d	1982 ^a
IVDMD, %							
Harvest date							
3-18-80	72.0 ^{ab}	68.4 ^c	74.5 ^a	69.9 ^{bc}	65.8 ^d	64.8 ^d	73.2 ^a
DDM ^g produced, lb/acre							
Harvest date							
3-18-80	541 ^{cd}	771 ^b	696 ^{bc}	464 ^{de}	452 ^{de}	345 ^e	1454 ^a

^{abcd}Means in a row with common-lettered superscripts are not different ($P > .05$).

^fPounds of oven-dried forage per acre.

^gDigestible dry matter (DDM).

Effect of Initial Weight on Daily Gain of Stocker Cattle Grazed on Wheat Pasture

G. W. Horn, T. L. Mader,
R. W. McNew, C. L. Streeter
and S. L. Armbruster

Story in Brief

The relationship between initial weight and gain of fall-weaned steer calves that grazed wheat pasture during the past 4 years was examined by regression. With the exception of Year 2, regression coefficients (measures of the change in daily gain expressed as pounds for each 100 lb increase in initial steer body weight) ranged from