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Small Grain Annual Forages Following Soybean Production

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Robert Mitchell - USDA-ARS Research Agronomist | Daren Redfearn - Extension
Forage Crop Residue Specialist

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This is one of several [briefs on NU cover crop research](#) featured in this week's CropWatch.

Background

Triticale is a cool-season annual that results from crosses between wheat and cereal rye and includes breeding efforts to stabilize the new species. NE422T is a winter forage triticale being used on about 25,000 acres in Nebraska and South Dakota. It appears more drought tolerant than wheat in western Nebraska. Currently, its primary use is as a second crop in irrigated production systems, and it is planted on sandy soils in the fall after corn or soybean harvest. This provides a cover crop to meet conservation compliance on sandy soils, and provides quality forage during winter and spring. The forage is grazed or harvested in spring before planting another annual summer grain crops.

NE422T performed extremely well in two years of fall-seeded forage testing in Nebraska cultivar performance trials in

Table 1. Yield, in vitro dry matter digestibility (IVDMD), and crude NE422T, Newcale, and Trical 100 triticale, and Arapahoe and Pr wheat grown in three locations during two years in Nebraska (E Vogel 2002)

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dryland production systems (*Table 1*). The main advantages of NE422T compared with most other forage triticale cultivars, within its area of adaptation, is its high forage yield coupled with a good grain yield and its broad adaptation in rainfed production systems. NE422T is a tall triticale that is late in maturity, has moderate straw strength, and its winter hardiness is comparable to winter wheat and Trical 100, which is one of the most winter hardy triticale cultivars. It is moderately resistant to stem rust, leaf rust, and wheat streak mosaic virus. NE422T should be well adapted to most rainfed winter annual forage production systems, with high forage yield potential in Nebraska.

	NE422T	NEWCALE	TRICAL 100	ARAPAHOE
YIELD (LB/AC)	8090	7790	7610	6420
IVDMD (%)	63.9	67.9	63.5	67.7
CP (%)	9.0	8.5	9.0	8.5

Study Description

A three-year grazing trial comparing ‘Millenium’ winter wheat, ‘Elbon’ cereal rye, and NE422T triticale was conducted near Mead. Pastures were no-till seeded into soybean stubble after roundup-ready soybean harvest in autumn during three consecutive years and grazed the following spring. Pastures were fertilized with 60 lb N/ac in the autumn prior to planting. Each pasture was continuously stocked in spring with four cross-bred yearling steers for 17, 32, and 28 days in 2005, 2006, and 2007, respectively.

Table 2. Beef cattle gains on fertilized wheat, cereal triticale pastures at Mead

	TOTAL	TOTAL	TO
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SPECIES	AVERAGE DAILY GAIN (LB/HD/D) 2005	AVERAGE DAILY GAIN (LB/HD/D) 2006	AVERAGE DAILY GAIN (LB/HD/D) 2007	AVERAGE DAILY GAIN (LB/HD/D) MEAN	BODY WEIGHT GAIN (LB/AC) 2005	BODY WEIGHT GAIN (LB/AC) 2006	BO WE GA (LE 20
WHEAT	1.9	2.7	-0.2	1.46	109	343	.
CEREAL RYE	3.6	1.4	-0.5	1.50	202	174	.
TRITICALE	2.6	2.4	0.4	1.83	147	310	

Applied Question

Which small grain is most suitable to plant after soybean to offer the best opportunity for grazing?

No single forage provided superior steer performance across all years (*Table 2*). In 2005, cereal rye ADG exceeded that for triticale and wheat by 1 to 1.7 lb/hd/day. In 2006, wheat ADG exceeded that for triticale and cereal rye by 0.3 to 1.3 lb/hd/day. In 2007, steers grazing wheat and rye lost weight, while steers grazing triticale gained 0.4 lb/hd/day. During the 3-year grazing trial, triticale averaged greater ADG and BW gain than cereal rye and wheat and likely will provide the most stable steer performance across years for much of Nebraska.

For small grain grazing following soybean, there is a small window of opportunity for spring grazing from 17 to 32 days. For spring grazing, cereal rye has the advantage that it begins spring growth earlier than either triticale or wheat. However, this results in a much earlier maturity for cereal rye which also causes forage quality to decline more quickly.

Cereal rye, triticale, and wheat had variable spring forage production. Generally, cereal rye had greater growth than either triticale or wheat. However, higher forage quality in wheat and triticale may have offset lower forage yields.

If grazing is planned prior to early May, it is likely that cereal rye will produce greater yields. However, for grazing after early May, triticale may produce greater yields.

Additional Resources

Baenziger, P.S., and K.P. Vogel. 2003. Registration of 'NE422T' winter triticale. *Crop Science* 43:434-435.

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- 105 Ag. Communications Bldg.
Lincoln, NE 68583-0918
- (402) 472-7981
- ljasa1@unl.edu

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