Forage Research Updates

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MINNESOTA - Maturity at Harvest Profoundly Affects Spring Yield & Quality of Winter Rye

Winter rye has potential as a forage crop, but its yield and quality vary considerably with environment and harvest maturity.

Spring 2008 forage yield of three varieties of winter rye seeded in early September 2007 at four Minnesota locations ranged from 1.2-2.7 tons/ac at boot, to 1.4-4.2 tons/ac at heading, to 4.4-9.5 tons/ac at dough.

Crude protein, NDF digestibility, and DM digestibility decreased with maturity, while NDF increased. Average NDFD decreased from 82.5% at tillering to 44.1% at soft dough. Three rye cultivars had similar forage yield and quality, except for CP: 'Vitallo' had less CP than 'Rymin' or 'Spooner.'

Table. Average forage yields (ton DM/ac) of 3 winter rye varieties seeded early Sept. 2007 and harvested at variable maturity stages at 4 MN locations in spring 2008.

Maturity	Minnesota Locations			
	St. Paul	Lamberton	Roseau	Morris
Tillering	0.98	0.09	0.49	0.49
Stem Elongation	1.34	0.49	0.71	1.43
Flag Leaf	2.14	1.20	1.25	2.68
Boot	4.19	2.19	1.43	3.92
Flowering	5.22	3.43	2.63	4.59
Early Dough	9.54	6.42	4.37	7.54
LSD (0.05)	1.20	1.04	0.87	0.79

Winter rye yield is maximized by harvesting at dough; in contrast, forage quality is maximized by harvesting at tillering. Therefore, on farm winter rye grazed at early vegetative stages, before planting corn or soybean, can provide high-quality pasture in spring but yields would be low. For mechanical harvest as silage or hay, the highest quality forage is at boot; but later growth stages provide greater yield. The nutritional needs of the livestock and weather will determine the best harvest timing.