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# Crop Soil News

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"It is the crops that feed the cows that make the milk which creates the money."

Advanced Ag Systems  
Research, Education, Consulting

## Nitrogen for Winter Forage Production

Winter forage is one of the most rapidly expanding crop acres across the Midwest and Northeast today. The incredibly high quality forage and profitable economic returns from application of the most basic management practices has made this the crop to grow on both dairy/livestock farms, and farms selling forages. With the critical help from New York Farm Viability Institute, Dr. Ketterings at Cornell, and NY farmers, we have found that the nutrient management of this fall planted, spring harvested, crop is very different from normal spring planted forages and even fall planted grain crops. To that end we have been testing planting dates and fall/spring nitrogen rates to determine the optimum combination for both yield and protection of the environment.

As I have written last August, planting date is critical for this crop in the northern regions. **Planting date 10 days to 2 weeks before wheat** (wheat is planted September 20 in our area) sets a very high yield potential, increases storage of nutrients, protects crowns against winter injury and heaving, minimizes weed pressure, and protects against soil loss. Soil health and structure is improved rather than degraded over winter. ***So how much nitrogen should we apply this spring?***

Caution: The critical first question: is it winter rye or winter triticale. We have found rye tends to lodge if we put more than 75 pounds of nitrogen on in the spring. Winter triticale, a crop only 2/3 as tall but yielding 35% more than winter rye, will rarely lodge from high nitrogen rates. For winter triticale, the maximum economic response in Dr. Ketterings summary work has been 99 pounds/acre. Nearly all of these triticale stands were planted in the traditional wheat planting time around September 20. Early planting can increase yields to over 4 tons of dry matter/acre. At 17% crude protein, this could contain 220 pounds of nitrogen (and 22 pounds of sulfur – an element crucial to protein production).

Nitrogen, sulfur, and rainfall are critical to achieving high yields the following spring. In Pennsylvania and other southern areas, they often get 5 to 6 tons of dry matter/A. Here in New York we have reached 3.5 to 4.5 tons of dry matter/A with regularity **if we meet the planting date above**. How much should we apply? We are trying to figure that out, especially for those who applied manure last fall before planting. The work presently funded by New York Farm Viability Institute is determining how much manure we can safely use before fall planted winter forage while protecting the environment, and its impact on spring nitrogen needs. Research in the ground, **planted September 6**, has incorporated and **safely stored 103 pounds of nitrogen** in the tops over the winter. A stand planted the same date in an area with limited rainfall, stored 61 pounds. Stands planted October 6 stored only 4 to 12 pounds of nitrogen/A. Dr. Ketterings work has shown that the greater the biomass, the greater the nitrogen storage (see graph next page). An early trial stored an average of 122 lbs of N/acre with some plots having 169 pounds of N stored. This is on-going research



