



ADVANCED AG SYSTEMS'

# 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

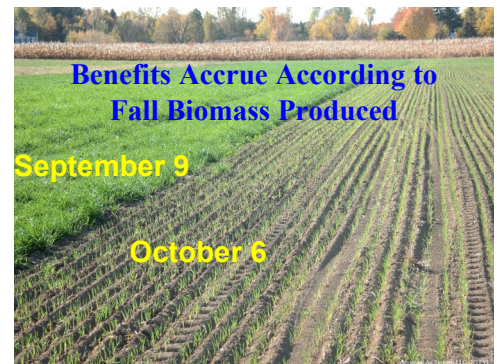
## Nitrogen for Winter Forage Production

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?***

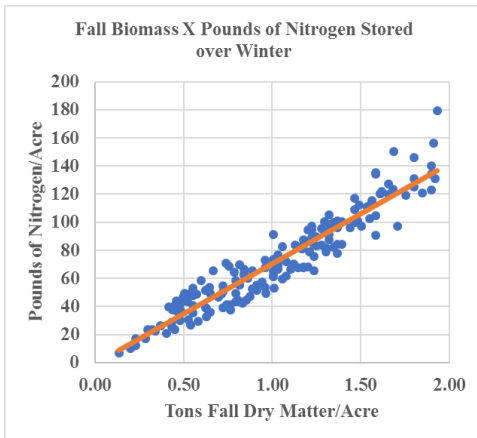
Caution: The critical first question: is it winter rye or winter triticale. We have found rye tends to lodge if we put more than 75 pounds of nitrogen on in the spring. Winter triticale, a crop only 2/3 as tall but yielding 35% more than winter rye, will rarely lodge from high nitrogen rates. For winter 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



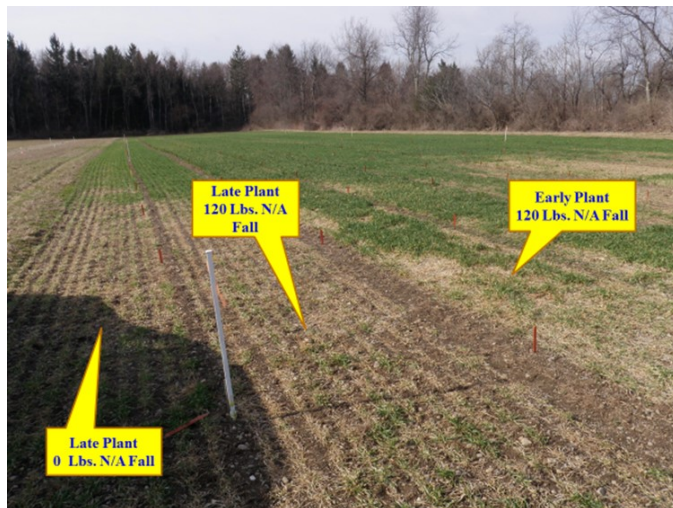
that we will report on in future letters. The bottom line: plant early for higher yield potential and manure could supply a significant amount of nitrogen for the spring growth.

For those who fall manured it will take care of the sulfur needs this spring. If fall growth is a thick heavy crop it will have taken up 60 to 100+ pounds of nitrogen as research above indicates. The confounding factor is that planted early means it also has a much higher yield potential so an additional 100 pounds of N plus volatilization inhibitor still could be the suggested rate for the higher yield. Preliminary work planted September 15 with manure, found no yield increase from addition nitrogen, but a big boost in protein. The saving grace is that any nitrogen not immediately used (manure that is still in organic fraction) will become available for the next crop after the triticale. Hopefully we will have some definitive answers this spring. Until then if you planted later, September 20 or after, then the standard recommendation of 100 pounds of nitrogen with a volatilization inhibitor, plus 10 pounds of sulfur would meet the crop needs. If manure was applied and incorporated before the late planting, sulfur is probably not needed, but 50 to 75 pounds of nitrogen with a volatilization inhibitor is suggested. **DO NOT SPRING TOPDRESS MANURE, CONTAMINATION WILL RUIN THE SILAGE.**



One urban legend is that if you get too much growth in the fall and have too much nitrogen you will need to harvest or clip it to prevent it from winter killing.

Our work over the past 15 years **has NOT found this to be substantiated.** Harvesting in the fall can produce up to 2 tons of dry matter/acre with a Relative Feed Quality of 264 – green grain. It is a wet forage – 24% dry matter – that will not dry in the cool-cold November weather with low sunlight. Mowing or grazing too close will completely wipe the stand out over the winter. In paired, replicated trials **fall harvest significantly reduced the yield the following spring.** Yes, they graze wheat in the fall, but that is harvested for grain not forage. **Finally, we have seen NO winter kill due to early planting with higher nitrogen.** In the picture right, planting early with high nitrogen did not affect the loss of stand. Snow mold- the culprit in most stand deaths- in our work appears to occur wherever water stands on the field in the spring melt. In the picture, where water stood, it killed off the late planted both zero and high nitrogen, and part of the early planted high nitrogen. For winter triticale planted on time, adding some nitrogen (manure) in the fall before planting will increase fall growth and tillering, producing more forage potential the following spring compared to all the nitrogen on the spring (which is why they don't do it for winter grain). For late plantings, fall nitrogen is a waste of resource and potential pollutant.



**Winter Triticale-Maximizing Forage : Webinar March 30, 2017; 11:30 Central; 12:30 Eastern Time**

<http://links.sciencesocieties.org/m/1/17115934/02-b17066-13bac40ea08d40c59fa9b63bc527fb64/6/829/90b70017-12d0-4ad3-8fc8-57ac793be572>

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