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Crop Soil News

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March 2024

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

**Advanced Ag Systems
Research, Education, Consulting**

Optimizing Winter Forage Quality and Quantity

The winter is coming to an end much faster than normal years. People in New York say they had less winter than we did in Tennessee (8-inch blizzard – we rarely get 1 inch; and 9 below 0 temp-never that cold). In any case, the winter forage and the grasses are greening up and starting to roll. This is one of those years where you can move early (now) to get a jump on the season. The enormous amount of spring growth on both crops demands sufficient nitrogen and sulfur to optimize the yield and especially the quality. There are many ifs, and's, and buts leading to the best nitrogen rate to apply in the spring. Recommended rates can be from zero to 250 lbs. of N/a. You can't change what happened last fall, but you can use it to determine the optimum N fertilization.

The first and huge determining impact is when was it planted for your climatic region. If you are not planting 2 weeks before the wheat date you are not optimizing yield so don't overdo the nitrogen. This is the card you are working with. If it goes into winter with 3-4 inches of fall growth (see picture at right), and you can see soil between the rows you and expect 1.75 to 2.25 tons of dry matter. For 20% crude protein then 125 lbs. of N plus 22 lbs. of sulfate will be sufficient. If it is smaller and just individual spikes of green, save your money and plant the next crop.



If you plant on time and go into the winter with 7 – 10-inch-tall material (picture at right), with solid cover, and no ground showing between the rows, there are two major benefits. (note: do NOT harvest this fall growth or you will destroy spring yields- been there, done that). First, your spring yield potential could be above 3.5 – 4 tons of dry matter/acre. Ours in our NY trials frequently were. Further south they are well over 4 tons. Secondly, research by Dr. Ketterings at Cornell and my research found that fall growth is 22% crude protein. At that height, you are looking at 1 – 1.5 tons of dry matter which holds 65 to 105 lbs. of nitrogen. This is because the excess manure applied the previous spring before corn had sufficient organic matter to continue to release the nitrogen after corn harvest and was captured by your on time planting as the triticale grows into winter. It could also be because of what we found in our research. In New York conditions without manure, spring yields across all spring nitrogen applications increased as increasing amounts of fall nitrogen were applied to on-time planted triticale. Spring yields increased when up to 60 lbs. of N plus sulfur (10 lbs. of S) were applied in the fall at planting. As you move further south then higher fall application rates may be justified. Do NOT delay triticale planting to apply fall manure nitrogen, you lose more yield than you gain in nitrogen based on mine and Penn State research.



Under these high yield conditions, 3.5 tons of spring yield @ 20% crude protein has 225 lbs. of nitrogen. If 60 were applied and taken up in the fall, you would still need at least 160 lbs. of N (plus 26 lbs. S) to be applied in the spring (we don't know what % efficiency it is taken up, we think it is very high). If 4 tons of dry matter spring yield @20% crude protein has 260 lbs. of nitrogen. The same above calculations are needed to determine what to apply but the fall uptake may be closer to 100 lbs. of N/A.

If you are growing rye all bets are off as when we applied nitrogen to support these high crude protein levels, most of the crop went flat on the ground. The above suggestions are for winter triticale which is shorter and denser than rye to produce superior crude protein without lodging. Keep in mind that most nitrogen applied above what is needed for the winter forage crop will still be there for the next crop to get off a quick start. Continuous cropping is a very efficient nitrogen system. Our mix for both cool season grass, winter triticale forage, and any other crop needing sulfur is 500 lbs. of ammonium sulfate and 1500 lbs. of urea with an anti-volatilization agent. The latter is critical as winter forage and grasses have an enzyme that rapidly splits the urea into ammonia gas which goes off. Untreated urea lost 63% more than treated urea in side-by-side replicated trials. If you are applying liquid nitrogen, a significant portion is in the ammonia form and an anti-volatilization compound will still increase the return on the nitrogen investment. A minimum of one sulfur (sulfate form) to 10 nitrogen is still suggested in the liquid fertilizer.

Finally, for those new to this crop (winter forage acres are increasing rapidly as farmers realize both the very high quality forage it can produce, and the 35% yield increase from double cropping) the picture on the right must be committed to memory. You want to harvest at flag leaf stage (stage 9) for optimum quality at high yield. Stage 8 does not have higher quality than 9 and had a 35% yield penalty from harvesting too soon. If temperatures are normal to warm, then you need to push to harvest at stage 9-flag leaf stage. Conversely, if it is at stage 8, you have a sunny day, and a week of rain forecasted, get it cut so you have quality forage. Further work by John Winchell of Alltech has fine-tuned this prediction. As you can see in the photo at lower right, when the head is 4 inches down (flag leaf may be coming out or out in cool perfect growing conditions) you have three to four days to crunch time. If the head is only 1.5-2 inches down then you need to move now. Delay will decrease the 12-hour digestibility. The 30-hour digestibility starts to drop at a slower rate – and then it crashes down as the head emerges. You are better to be early than late to produce forage for the high group.

If you have a lot of acres, it is still doable. The first planted will be ahead of all. A week earlier planting in the fall gains 3 days earlier harvest in the spring. South-facing well-drained soils will be ready sooner than north-facing poorer drained fields. You can open the harvest window further by planting an early maturing variety first and a later maturity variety later – sort of like we do with corn.



The optimum stage of winter forage harvest is stage 9 where the last leaf (flag leaf) has unfolded yet the head has not emerged yet. Preliminary data is indicating that if temperatures are cool to cold, the forage quality (milk producing ability) could hold into early head.



Sincerely,

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