



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 & Winterkill Alfalfa

Research on spring nitrogen for triticale found that a two dry matter ton crop of winter forage removes about 100 lbs of N/acre. About 50 lbs of N is needed for each ton of dry matter removed. To get both yield and protein from your forage, crops need sulfur. There is no longer enough sulfur being deposited in rain to meet the needs of the crops we grow. For a field that has not had manure last fall it is highly suggested that sulfur be added. In our work with winter triticale at the Cornell Research Farm, adding urea gave us 14% crude protein. Where we added 13% less total nitrogen but had sulfur with it, the winter forage produced 17 – 18% crude protein. A very effective ratio is 1 lb. of sulfur for every 10 lbs. of nitrogen. Urea mixed with ammonium sulfate will produce a 40-0-0-4S mix. This holds true with all cool and warm season grasses, or the winter forage grains such as triticale. The fact sheet at <http://nmsp.cals.cornell.edu/publications/factsheets/factsheet34.pdf> will give you a quick understanding of sulfur in the plants and in the soil.

Don't apply nitrogen on snow covered ground. It is a prescription for high losses of your investment and low return on the crop. Losses were as **high as 44%** with an average of 26.3% loss when applied to cold or frozen surfaces, especially if they are high in water and/or **have some snow on them**. Even with temperatures near freezing, the worse cases were frozen soils with a saturated surface. The surface water dissolves the urea and then as the surface dries, the dissolved urea leaves as a gas instead of attaching to the soil. If you get rainfall or snow **after application** on non-frozen ground, the urea has much less loss.

It is highly suggested to add an anti-volatization agent even under low temperatures in the spring. This will inhibit the urease enzyme from splitting the urea into ammonia that is then could be lost. **Treated urea loss was 63% less** than the untreated in the same field. An anti-volatization agent in research kept losses under 10%. The addition of an anti-volatization compound increases the chance of full return on your fertilizer investment.



No, it is not woolly bear caterpillars grazing on winter triticale. Bill Vebeten and Mike Stanyard, Extension agronomists, are helping us determine optimum fall and spring nitrogen rates for winter triticale. This trial was on Bill Young's Will-o-Crest farm Clifton Spring



In the rush to get nitrogen on, spreading on snow is a prescription for disaster from high losses. Even at cold temperatures, an anti-volatization agent is needed to keep the urea from being lost.

What to Do with Winterkill Alfalfa

With the wild winter, a number of farms, especially those in the Midwest, will find at green up, that their fields are not. A number of states had little or no snow cover when the -25 degree weather hit. Snow is an excellent insulator. More farmers are finding that leaving the low yield 4 or 5 th cutting captures blowing snow and gives better spring yields. Without it, snow blows off and extreme conditions can kill alfalfa, grass, winter forages, weeds, etc. If the alfalfa you counted on is dead, what are your options?

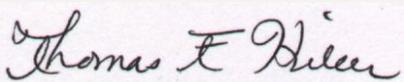
Some Suggestions:

The first, and simplest is to plant no till corn to take advantage of both the nitrogen (only need a starter) and the improved soil structure (rotated corn usually yields 15 – 20% higher than continuous corn). This will give you a low cost forage supply – but will mess up both your planned rotation and your forage storage capacities.

A variant on this is to plant a short season corn no tilled at the earliest possible time, in order to have mature corn silage in early August. My suggestion is a floury kernel type as many very short season corns have flint type parentage which means the kernels get hard and go through the cow without being digested, even with kernel processing. I have double cropped corn/alfalfa seeding several times and was able to establish an alfalfa in early August. Of course, anything that delays corn maturity – prolonged dry period, cool or cold summer, extended rainy conditions- will delay the corn harvest and subsequent chance of getting a highly productivity alfalfa seeding. If it gets too late for alfalfa, red clover can be established as can winter triticale plus a red clover. For my location (south of Albany NY) the clover and triticale combo needs to be in before September 1, or the legume fails.

When alfalfa fields are winter killed, your forage and rotation ratios are off balance. The quickest potential way to re-establish them is to immediately no till in oats plus red clover. The oats will take advantage of the nitrogen and produce high yields of high quality forage by late June. This replaces the first cutting alfalfa you lost. Harvesting the oats at flag leaf (just before the head emerges) will give you milk cow quality forage yet minimize any potential for the crop to lodge from the variable nitrogen left by the winterkilled alfalfa. We are suggesting red clover because dead alfalfa produces a compound that keeps new alfalfa plants from getting started. Dr. Cosgrove and Dr. Undersander explain autotoxicity in: <http://fyi.uwex.edu/forage/files/2014/01/AlfalfaAutotoxicity.pdf>. The red clover is not affected by the alfalfa compounds and can give you a 2 – 3 year forage crop to get your rotation back on schedule. Red clover can be dried for silage the same day it is mowed using modified wide swath techniques: <http://advancedagsys.com/site/wp-content/uploads/2013/12/november-2013-red-clover.pdf>

Sincerely,



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