



ADVANCED AG SYSTEMS'

# Crop Soil News

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## Maximize Winter Forage Quantity and Quality

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

This fall was the toughest for establishing winter forage in the 20 years I have been researching the crop. Each year there is a crop that the weather takes particular delight in hammering—this year it was winter forage. Corn did not come off until mid October and the fields were a rutted mess that needed to be smoothed. Winter came at a normal time (instead of late as it had been doing) with most areas getting significant snow by Thanksgiving. Some stands I have seen have 1 plant/ft. square. A few farms though, have winter forage planted on time and doing very well.

Nitrogen and Sulfur are critical for both yield and quality. To get both yield and **protein** from your forage, **crops need sulfur**. In my research we found that as the nitrogen increased, the crude protein peaked at about 15 to 16%. When we added sulfur to the spring topdress, or switched to fall preplant manure with its sulfur content, the **forage crude protein increased to 20%**. The **minimum** is to add 1 pound of sulfur to 10 pounds of nitrogen.

So what is our yield potential and how much nitrogen will we need to meet both yield and quality goals. For the few who planted on time, then at least **120 lbs. N/A plus sulfur is the minimum to optimize yield and quality** if there was no manure. If you were lucky had manure spread before planting on time, the manure should maximize yield and the same 120 lbs. of N/A would still be needed to maximize crude protein ([March 2018](#) research results). For those who planted late and have 2—3 inch tall plants with minimum tillering, an early application of 100 lbs N/A (plus sulfur) may help the limited spring tillering and still meet the needs of 18% crude protein on a 2 ton dry matter/acre probable yield. These are estimates based on 20 years of research—conducted when the fall was not a mess like 2018. If you think you have less than 2 tons of dry matter/acre it may not be worth to harvest, just treated like a cover crop. If you are very short of forage, then use the 2 ton dry matter/acre yield recommendation and get what you can. Any left over nitrogen will feed the next corn crop. Those who used the new sod injection rolling coulters in November, ([September 2018](#) newsletter) will be all set for nitrogen and sulfur.

**Do not 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**. Adding an anti-volatilization agent even under low temperatures in the spring, will inhibit the urease enzyme from splitting the urea into ammonia that is then lost. **Untreated urea loss was 63% more** than the treated in the same field. The anti-volatilization compound increases the chance of full return on fertilizer money. With milk prices where they are, you need maximum return on your fertilizer dollar.

## Lost Alfalfa: What to Do with Winterkilled Stands

With the wet fall, a number of farms will find at green up, that their fields are not. Alfalfa went into the winter very stressed from excessive rainfall. As soil goes down drainage the stress increases significantly and is magnified by excessive rainfall. Dr. Bergstrom, plant pathologist at Cornell U. said "**There is long term evidence that stresses like excessive or insufficient moisture and nutrient deficiencies interact with diseases to induce more**

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**severe symptoms and more rapid plant death.**” Diseases, normally held at bay by genetic resistance, run rampant. Magnifying the impact, in an effort to make the limited money go further, is the tendency to buy “cheaper” seed with potentially less disease resistance. Compounding this, **fields at recommended pH will persist and yield better especially in the presence of soilborne diseases** yet, as mentioned in the February newsletter, **with low milk price lime applications have been forgotten the past four years**. This fall, fields in my area had diseased, yellow alfalfa except for over the tile lines. Adding insult to injury, a number of states had little or no snow cover when the either of the polar vortex's hit. Snow is an excellent insulator. More farmers are finding that leaving the low yield last 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. We also had multiple events of frozen ground and complete snow melt, leaving lakes and ponds in the fields. This is perfect condition of snow mold to hammer both seedings and winter forage. If the alfalfa you counted on is dead, what are your options?

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 dead/dying alfalfa’s 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 lodging 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 we have researched: <http://advancedagsys.com/site/wp-content/uploads/2013/12/november-2013-red-clover.pdf>

Another option, and often the simplest, is to finish killing what is there, and 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. If you don’t discover the missing hay crop until you pull in to mow, then later planted one cut sorghum or sorghum-Sudan may be better.

A variant that merges both of the above suggestions, is to plant a short season corn no tilled at the earliest possible time in order to have mature corn silage the first of August so you can immediately no-till an alfalfa seeding . My suggestion is a floury kernel type corn as many very short season corns have flint type parentage which means the kernels get hard and even with kernel processing, could through the cow without being digested. I have double cropped corn/alfalfa seeding several times and was able to establish an alfalfa in early August. Andy Brizzell, field manager at the Cannon farm in Johnsonville, NY has been successfully doing this for years—it is a normal part of his rotation allowing him to harvest an early corn silage crop and establish a new alfalfa seeding the same year. 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 the maximum out of your alfalfa seeding. If it is too late for alfalfa, red clover can be established or if early September, winter triticale.



Short season corn no-tilled in early April is shoulder high by mid June. In my trials, short season (83 day) corn yielded 18 tons of silage/acre. When I planted it in the second half of April it was ready August 1, in time for a no-till or minimum tillage alfalfa seeding. Since then there have been numerous superior high yield short season varieties released. We suggest higher populations for short season types.

Sincerely,

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