



ADVANCED AG SYSTEMS'S

Crop Soil News

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June 2010

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

Advanced Ag Systems
Research, Education, Consulting

Valatie Research Farm Field Day

The cutting edge of the latest research

New Uses for Old Crops & New Crops for Old Uses

Sponsored by
Cornell University
Cornell Cooperative Extension
Advanced Ag Systems

Tuesday June 22, 2010

12:30 – 3:30

**125 State Farm Road
Valatie, NY 12184**

Aeration Tillage Demonstration: a new tillage system that minimizes rocks to pick, speeds seedings in one pass systems, and can capture \$50 of N/ acre and nearly eliminate smells when spreading stored manure. Adaptable to large and small farms.

Teff: an ancient crop with new uses as high quality dairy forage, horse hay. High yields of 4 – 5 tons of dry matter/acre – low nitrogen use. Easy to dry.

Winter Triticale Research Day In-depth Special Field Seminar:

Harvest at flag leaf stage for more milk/ton than BMR corn.

Harvest at early head for 4 – 5+ tons of high quality head straw without lodging issues

Harvest at soft dough for equal or better than Corn Silage on marginal ground.

Learn how to get 15 – 20% yield increases by double cropping with summer annuals

Winter triticale Varieties. See both available varieties and newest experimental lines.

Winter triticale Management: Planting date, fertilizer, harvest management for optimum results.

Short Season Corn for Double Crop in NY – does it have to yield less? Learn how to optimize yield from shorter season corn and increase yearly yield 25%. What experiments are pushing yields up even further?

85 Day One-Cut BMR Sorghum Not sorghum sudan, but a one cut BMR sorghum we are testing for a high yielding, high quality summer annual to double crop with the winter grains but use the same drill and harvesting equipment. Why there are no drying issues with this crop.

Red Clover the ugly duckling of the legume forage world is about to become a swan. Clover has higher digestibility than alfalfa and the protein is protected as true protein to the mouth of the cow. Learn how to dry it for 65% moisture silage as fast as alfalfa.

Contact Steve Hadcock, 518-828-3346 Cornell Cooperative Extension in Columbia County for further information. No Pre-registration required. Will be held rain or shine (hopefully shine)

Sidedress for Maximum Economic Return

The warmer and drier than normal May has been a benefit in that it allowed farms to get their corn in quickly and for most, to harvest some of the highest quality haylage we have seen in some time. A second benefit of the warm and drier conditions is that it maximizes the release and availability of soil & sod nitrogen, and manure nitrogen for the crop, while minimizing losses so far from excess rainfall. Unfortunately some areas have already moved into the excess rainfall scenario.

Multiple research around New York by Dr. Ketterings of Cornell, has found there is no response, past the 30 lbs of nitrogen in the starter, for the first year corn out of sod. This was true even with high yields (>20 tons/a). They also found that liquid manure spread and immediately incorporated has more than 3 times the available nitrogen for the corn crop compared to incorporating it later. With the dry conditions up until now, almost all of this is available to the crop.

For daily spread or not immediately incorporated, on greater than second year corn, the odds are very high that you will get a substantial economic benefit by adding more nitrogen above and beyond the 30 lbs in the starter band. The time to apply this for maximum economic return is when the corn is about a foot tall. Up until then it uses very little nitrogen which can be supplied by the starter. When it starts its rapid growth it uses a tremendous amount. Fields you do not have to worry about are those buried in manure, or those with a sod plowed down.

Sidedressing: For sidedressing most farms use urea or 32% solution. Where anhydrous ammonia is available it is a superior product in spite of its potential hazards.

Urea is all in the ammonia form. It goes into solution with water in the presence of the urease enzyme and produces ammonia. Applied on the surface, it is at risk for ammonia loss via volatilization (goes off as a gas). A rainfall of $\frac{1}{4}$ - $\frac{1}{2}$ inch shortly after will incorporate this nitrogen and prevent these losses. Soils with a high surface pH will experience more ammonia losses than a soil with a lower surface pH. As urea converts it raises the pH, accelerating the loss. Coarse textured soils have higher ammonia loss than fine textured soils as fine texture does not allow the pH to go up much when the ammonia converts in hydrolysis. Soils that have a lot of surface residue (good farming practice) are at more risk for N loss because the residue itself contains urease. To minimize the losses, the simplest solution is to spread immediately before a rainfall event. Unfortunately, as one farmer found out when he spread just before a heavy forecasted rain, the rain went around his farm and it stayed dry for two weeks after. By adding urease inhibitor product you can gain time to allow for a rainfall sufficient to incorporate the urea and eliminate the risk of loss. These normally last 7 to 10 days depending on the rate. The inhibitor adds about 2 cents to the cost of a pound of nitrogen. If a rainfall event occurs within a day or two after the urea application, a urease inhibitor was not necessary. For those other times it is very cheap insurance.

Because urea is ammonia, it has to be changed into nitrate for the plant to take it up. This delays the availability but also delays the chance of loss through leaching (ammonia does not leach but attaches to the soil particles) or loss through denitrification (where nitrate is converted back to nitrogen gas and goes off in the air). Urea can be applied with the much less expensive spreader truck (make sure it has been calibrated for uniform application) but may need an anti volatilization agent if there is no rain greater than $\frac{1}{4}$ inch in the immediate forecast. The total cost of application with the inhibitor is about 39 – 41 cents/lb of N.

32% solution is composed of $\frac{3}{4}$ nitrate $\frac{1}{4}$ ammonia, so there is very little chance of loss from ammonia volatilization. In addition, being a liquid applied in a band, much quickly soaks into and attaches to the soil.

Spread by sprayers with drop hoses, it is very uniformly applied to each row. Thus it is more readily available for the plant, especially if you are late in topdressing. The cost of 32% solution this year is the same as the cost of urea on a per pound of nitrogen, but the application cost is slightly higher (spray trucks are more expensive to purchase, maintain, and run over the road) and so the cost of application is slightly higher than urea, around 43 – 44 cents/lb.

The key point is that for maximum return on the investment in additional nitrogen (where it is needed) your best practice is to sidedress when the corn is about a foot tall.

Research Update:

As you can tell by the field day on the first page, we have a tremendous amount of farm applied research being done at the Cornell Valatie farm for your benefit. We have had our struggles with equipment breakdowns and equipment limitations, and little or no funding, but have made a number of strides forward.

What we have found:

Aeration Tillage can do an awesome job leveling a moleboard/chisel plowed field without bringing up clumps of sod or stones. It does not leave a yield limiting compacted pan as a disk does.

Winter triticale has produced over three tons of dry matter/acre by the middle of May, with forage quality higher than any other crop we have seen so far. With the sunny days and cold nights, the sugar levels were four times what we see in even the best of other crops. We are awaiting fermented sample results.

Red Clover and Alfalfa were both mowed wide swath and utilizing an old management technique, both were ready for haylage in less than 4 hours of drying.

Alfalfa Variety Trial Wide Swath Not Conditioned: was ready for silage 2.5 hours after mowing (separate study from the above clover/alfalfa study).



Camelina: an oil seed crop with high omega 3 being tested for its potential at the Cornell Valatie Research Farm.

Sincerely,

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Certified Crop Advisor

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Hand
to Better
Agriculture**

