



Northern NY Crop Advisor and NMSP Initiate Double Crop Field Research

By Lisa Fields

Pete Barney, a Certified Crop Advisor and former Cooperative Extension Field Crops Specialist, has seen many ideas come and go during his career in St Lawrence County. He has collaborated on field projects with Associate Professor Dr. Quirine Ketterings, Director of Cornell's Nutrient Management Spear Program (NMSP) since its inception in 2000. In 2012 Barney engaged two of his clients to participate in NMSP's Double Crop Nitrogen (N) Rate Study. He said, "I've always found Quirine's work to be relevant to famers interests and needs, and this project was no exception. There's local interest in finding a way to double crop and still produce quality forage with decent tonnage."

Shona Ort, NMSP technician described the study. "We acquired ample data on cover and double crop performance under a variety of farming practices from a previous study. Double cropped forages looked viable and we saw the need to develop fertilization guidelines. For the N rate study we set up 44 field trials at farms across the state in 33 winter triticale, 8 cereal rye, and 3 winter wheat fields, primarily in rotation with silage corn. In early spring we applied four replications each of five nitrogen rates: 0, 30, 60, 90 and 120 pounds per acre. We used urea treated with Agrotain to inhibit ammonia volatilization, and harvested the plots at flag leaf stage in May."

"The optimum N rate for a crop is seldom related to the total yield as a large portion of the nitrogen that the crop takes up comes from the soil itself. Having 44 fields with various soils and cropping practices in the study means we can now try to understand under what soil and management conditions extra N is needed and when it is not. We can then establish application rate guidelines" Ketterings explained.

Barney noted, "About four years ago I started working with growing winter triticale for spring forage, so the transition to a replicated study of N rates was a really good

fit. Shona took charge of the project, had a great work ethic and was very pleasant to work with."

Barney described double cropping in his region. "At first the interest was for an emergency feed source. After a couple of tough years with tight forage supplies, some of the guys were looking to fill the early spring gap before haylage harvest. The winter grain can do that, and the double crop concept fits CAFO farms well, as the winter cover is a best management practice. During winter dormancy the crop holds the nutrients on the field. This avoids losses to the environment and can save on fertilizer by utilizing manure."



Shona Ort (left) and Peter Barney (right) take a break after harvest of one of the N rate studies in St Lawrence County. Optimum time for harvest is at flag leaf stage.

There are some challenges with growing double crops in Northern New York as well. Barney explains, "Triticale needs to be planted around mid-September to establish roots before the killing frosts and avoid the

excessive top-growth of earlier planting that can cause smothering and snow mold. Ideally we'd like to see this as a rotation crop with corn, but corn silage harvest here can run into late September and early October; too late to establish winter triticale. One solution presents a challenge to the growers' current preference for full season corn varieties. Shifting some of their corn silage acres away from varieties that take the full season to mature would allow for harvest in early September. That gives a good time window to establish winter triticale on those fields. Another tactic to get that wider planting window is the use of new triticale varieties bred for greater winter hardiness. I'm encouraged by the results in Syngenta's variety trial plots. With the good fit of triticale as a dairy feed, addressing the winter hardiness could advance the use of double-cropping here."

Bill Smith, Syngenta Trialing Associate explained, "Triticale was an unknown crop 29 years ago when I started working with it. As interest in winter triticale really got rolling, we began looking at a lot of new germplasm to determine the most winter hardy. It takes great persistence over many years to find that superior germplasm while holding yield and quality characteristics. At this point we have lines that have the potential for commercial release in the coming years."

Barney noted the challenge of selling the double crop concept. "Farmer perception is that double cropping is a high risk proposition here, but management choices have a big impact on whether or not it succeeds. Seedbed preparation is a big issue. I've seen no-till triticale seedlings in hard ground not suited for it. The seedlings had poor root establishment, and most of the crop was lost. One of our study sites, Brandy View Farm, had good timing and meticulous seedbed preparation and got an excellent stand."

The nitrogen rate trial at Brandy View Farm showed an optimum nitrogen rate of 30 lbs N per acre for a yield of 2.7 tons of dry matter per acre. Ketterings commented "This was one

of the trials where the soil supplied a large portion of the nitrogen that the triticale needed to grow, resulting in the need for only a small amount of N fertilizer."

Brandy View's manager, Greg Hargrave commented, "This was the first time we used a winter grain for forage. We grew 70 acres of triticale planted in September after corn silage harvest and disking the fields. Pete and the NMSP crew were great. They took care of the study plots and we had no interruptions to our field work whatsoever. It was neat to see the jump in growth after the N applications in the plots. All of the triticale acreage grew well, but the spring weather prevented harvesting at the ideal time to get high forage quality. It was good enough to incorporate into the dairy ration, but would have been better with a little earlier harvest. Harvest timing presents a challenge, as it conflicts with other crucial spring crop work. Growing shorter season corn varieties is definitely the way to go to make double-cropping work. I think it's a good system and the biggest challenge is juggling the time factor. Getting two crops off of the same acreage makes sense for efficiency. It's also a risk management tool as the triticale can substitute for some haylage. And I could see the benefit of the winter cover, as the triticale helped hold the soil in place."

Barney added, "We had a tough growing season this year, but the project was still very worthwhile. It will take time to get the double cropping idea adopted here, but work like this study makes it possible."

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To learn about the statewide cover crop and/or double crop projects, see the NY On-Farm Research Partnership: <http://nmssp.cals.cornell.edu/NYOnFarmResearchPartnership/index.html>. Specifics for the double crop nitrogen rate studies planned for 2014 can be found at: <http://nmssp.cals.cornell.edu/NYOnFarmResearchPartnership/DoubleCrops.html>.



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The **Nutrient Management Spear Program** (NMSP) is an applied research, teaching and extension program for field crop fertilizer and manure management on dairy and livestock farms. It is a collaboration among faculty, staff and students in the Department of Animal Science, Cornell Cooperative Extension, and PRO-DAIRY. Our vision is to assess current knowledge, identify research and educational needs, facilitate new research, technology and knowledge transfer, and aid in the on-farm implementation of strategies for field crop nutrient management including timely application of organic and inorganic nutrient sources to improve farm profitability while protecting the environment. An integrated network approach is used to address research, extension and teaching priorities in nutrient management in New York State. For more information on NMSP projects and extension/teaching activities, visit the program website (<http://nmssp.cals.cornell.edu>) or contact Quirine Ketterings at qmk2@cornell.edu or (607) 255-3061.