



Oneida County Extension Specialist Explores Double-Cropping with NMSP Field Study

By Lisa Fields

Jeff Miller, Extension Field Crops Specialist in Oneida County, has learned over the years to welcome new ideas with open-minded skepticism. He described his reaction to the double-crop concept. "I wasn't sure if it would be a good fit here, or what the level of farmer acceptance would be. When Quirine asked for host sites for a Double Crop Nitrogen (N) Rate field study, I welcomed the opportunity to evaluate this practice with an interested local grower."

"Results of a previous study showed the potential for a double crop of winter grains for forage followed by silage corn to be a viable alternative to the traditional corn and alfalfa rotation, with the added benefit of winter cover of the soil, enhancing nutrient management and soil health," explained Dr. Quirine Ketterings, Associate Professor and Director of the Cornell Nutrient Management Spear Program (NMSP) in the Department of Animal Science. "We determined our next step was a replicated study to evaluate nitrogen response of the winter grains at dormancy break so we could start to develop fertilization guidelines."

Shona Ort, NMSP technician, took the lead for the study, working with Extension staff, farmers and crop advisors at 44 sites throughout the state this past spring. She said, "We had 33 winter triticale, 8 cereal rye and 3 winter wheat fields. We applied four replications each of five rates of N in early spring: 0, 30, 60, 90 and 120 pounds per acre and used urea treated with Agrotain to inhibit volatilization. All trials were harvested in mid-May prior to heading."

Miller explained why double-cropping might be a tough sell. "Large areas of farmland in the Mohawk Valley are comprised of well drained soils that can produce high yields of corn silage and hay under good management. It's tough to get farmers to consider new alternatives when their current practices are working well. In contrast, other areas in the region comprised of wet soils and high elevations limit corn silage yield potential."

Double cropping may provide more high quality forage per acre in these situations."



Jeff Miller and Marylynn Collins of Cornell Cooperative Extension of Oneida County measure plant height prior to winter triticale harvest at Jim Pritchard's Farm.

Miller's site for the Double Crop N Rate study was Jim Pritchard's Farm in Rome, New York. He scouted their winter triticale plots each Monday to track crop growth and help achieve a timely harvest. He noted, "Jim harvested when the heads were 2 inches below the point of emergence. The crop was chopped for silage the day after our plot harvest and he got respectable feed quality."

Pritchard described his experience. "We planted 30 acres of winter triticale on September 8th, 2012, applying 4,000 gallons per acre of manure. We chopped most of that for haylage on May 15th, and got an average dry matter yield of just over 2 tons per acre. We fed it as a haylage substitute during June and July, to fill a gap until the 2013 haycrop fermented, and the cows really loved it. We

usually see a summer drawdown in milk production during hot weather, but it held while we fed the triticale. That inspired us to plant it again.”

Pritchard explained the challenges of having the triticale on ground where corn would be planted. “We planned on zone tilling after triticale harvest, but decided to chisel plow half the acres because of the triticale’s very dense root mass. That ate up a lot of labor and machinery expense. We need to move quickly to get the corn in and the hold-up set us back. We also had excess rainfall in June, so the corn was just starting to grow when it was too wet for it to thrive. We followed the triticale with Brown Midrib (BMR) corn, which is less hardy than the standard varieties. We’re likely to change that to non-BMR corn in 2014. After corn silage harvest we decided to stick with zone-tilling and accept a yield loss in the crop from a less than ideal seed bed. It’s worth it when you look at the labor and machinery savings. We plan to try following triticale with soybeans, which will save planting time. The total yield on double-cropped acres plus the winter cover are a great benefit.”

Although Pritchard’s site didn’t show a yield response to N fertilizer additions, there were visible color differences between the zero N plots and those that were topdressed at green-up (dormancy break). Ketterings commented, “Individual farm data from the Double Crop N Rate Study showed variation in the level of N application that provided an economic response. This was expected, given the different soil types, crop histories and management practices. We’re currently analyzing the soil and forage samples for data trends. The goal is to determine if and when N additions give an economic response, and provide guidelines on how much to apply.”

Looking back on the project, Pritchard added, “This was a good project and the crew worked really hard. It was fun to see the checkerboard look of the plots with the different N rates. We’ll continue to double crop

some acres and keep fine tuning it as we learn.”

Miller discussed double-cropping’s prospects. “Currently, most of the interest is for emergency forage. In 2011 we had five weeks without rain, so the hay crop was short by a full cutting. That inspired some double-cropping of winter rye as forage before corn. Then this year we had excess rain and double cropping created the challenges that Jim described. We’re having a post-Double Crop N Rate Study discussion with our Large Herd Group that’s been sharing ideas and experiences for about 15 years. It’s a forum to analyze why particular practices do or don’t work. Progressive growers won’t come to conclusions based on one season. They’ll talk about their management choices and will likely try it again with some changes.”

Miller spoke of his years of participation in NMSP field projects, stating, “Quirine’s approach is to listen to what the educators and advisors have to say about farmers’ needs. Then she garners the funds and offers us the opportunity to collaborate on projects to meet those needs. It connects people across the state, covering the full gamut of soil types and farming practices. This makes the final data and information very powerful. It’s a perfect marriage between the field staff and the University. It shows the power of Cooperative Extension to help identify growers’ needs, conduct research and provide timely information.”

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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.