



Mass Nutrient Balance Project for Small Dairies

By Sara Zglobicki

"I'm hoping to save money on crop expenses and have as good or better crops. I remember a time when nutrients were not expensive; now they are very dear. We have to change with the times...[and now] it is economical to utilize on-farm resources. We have nutrients here...[with] cows on the farm; we should use the manure while trying to eliminate some fertilizer costs," says Dave Vincent, of Vincent Farms LLC, when he explains why he is participating in the newly started WFA project. Vincent runs a dairy with his brother Silas, milking 150 cows and growing corn, alfalfa, grass hay and oats due north of the Adirondack Mountains, about ten miles from the Canadian border in Malone, New York.



Dave and Silas Vincent, brothers and co-owners of Vincent Farms LLC are collaborating with a dairy nutritionist, crop consultants, and Cornell extension personnel on the Whole Farm Analysis project, continuing the tradition of farming that's been in their family over a century (Photo by Carl Tillinghast).

Vincent has participated in the Mass Nutrient Balance (MNB) project for three years. Each year, he received a MNB report that shows the difference between the amount of nitrogen, phosphorus and potassium imported onto the farm through feed, fertilizer and bedding purchases and the amount exported from the farm in milk, meat, crops, manure or compost.

Through his participation in the MNB project, Vincent became exposed to and interested in the WFA project. "I am trying to gain more knowledge and am hoping to use what [nutrients] are available on my farm," Vincent explained. Both projects are efforts of the Cornell Nutrient Management Spear Program (NMSP) in the Department of Animal Science.

Farmer-Driven Team Effort

"With the Mass Nutrient Balance project, farmers can see how their nutrient balances compare with their peers. This led farmers to ask what they did differently from other farmers with lower nutrient balances but similar milk production levels. If a farm balance looks high when compared to other farms, farmers want to know how they can reduce their farm's mass nutrient balance," explains Patty Ristow, extension associate with the NMSP, and coordinator of the WFA project. "We are hoping to address the questions raised by the MNB with the WFA project. Funding from the Northeast Sustainable Agriculture Research and Education program is helping us address the questions through our work with four farms."

"We are working as a team to identify and develop nutrient management tools to pinpoint what is driving farm mass nutrient balances and to assist farmers in identifying opportunities to improve nutrient efficiency. We are determining what data are needed, how those data could be collected, and how results could be presented most effectively to farmer, consultant and extension audiences," Ristow remarked.

For example, Vincent is using a feed management tool, and with input from his nutritionist, Dave Kinney, they will be advising the group on how the tool fits into a whole farm management toolkit. "The tool lets farmers to see how they measure up to their own goals. In the end, if you can't measure it, you can't manage it. As a farmer, having numbers show how you are doing is crucial to help you see where improvements may be possible," said Kinney. He's been working with Vincent for four years to maintain or improve profitability with healthier cows and is excited to share lessons learned from the WFA team at Vincent's with other farms.

Carl Tillinghast, Executive Director of Cornell Cooperative Extension of Franklin County, arranged the initial team contacts. "I'm hoping our work can help farms establish more efficient use of nutrients on or brought onto their farms towards the growth of crops and make farmers more profitable in the long run," said Tillinghast. His colleague Stephen Canner, agronomy extension educator for St Lawrence and Franklin Counties, is enthusiastic about the team approach of the project. "I am confident that working with farmers from the beginning and asking for feedback on an on-going basis will help produce useful tools for farmers." Canner also values the experience as a way to improve his relationships with farmers, especially Vincent. "This provides me with an opportunity to work with Dave more closely. I'm learning a lot from how he does things."

Eric Bever and Mike Contessa, managers of Champlain Valley Agronomics, an independent crop consulting firm, are beginning their third year of work with Vincent. In the past they helped establish a nutrient management plan for Vincent's participation in a USDA EQIP program. The goals of the project coincide well with Bever's goals as a consultant, by "encouraging the use of organic nutrients in manure as valuable fertilizer when applied at the appropriate times and rates. As we learn more about nutrient availability and movement

on the farm, we can manage nutrients better and that translates into dollars and cents for dairy farmers. There is potential to increase yields and quality without harming the environment."

Contessa shares Kinney and Tillinghast's hope that the project has a 'multiplier effect' and comments that what the team learns working with Vincent on this project "will give us another on-farm experience to bring to others."

Vincent is looking forward to the fruits of the WFA project this fall, and is hopeful all parties profit from what is learned so that "others can lower their crop inputs and still maximize yields by using nutrients they have on the farm." Over the years, he and his brother Silas have been working to improve management practices on the farm that has been in their family over a century. He acknowledges, "I'm interested in good stewardship so the next generation has something to grow crops on."

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To learn about and participate in the statewide whole farm nutrient mass balance project, check out the NMB website of the Cornell Nutrient Management Spear Program: <http://nmsp.cals.cornell.edu/projects/massbalance.html>.



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://nmsp.cals.cornell.edu>) or contact Quirine Ketterings at qmk2@cornell.edu or (607) 255-3061.