

2008 PROGRAM WORK TEAM ANNUAL REPORT FORM

1. Full name of your Program Work Team (PWT):

CALS Integrated Nutrient Management for Dairy and Livestock Farms

2. Names, affiliations and e-mail addresses of the PWT Co-Chairs:

- **Quirine Ketterings***, Associate Professor, Department of Animal Science, 323 Morrison Hall, Ithaca NY 14853. Phone: 607-255-3061, Fax: 607-255-9829, E-mail: qmk2@cornell.edu.
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- **Dale Dewing**, CCE educator , Delaware County, Watershed Project Office, 44 West Street, Suite 1, Walton, NY 13858, Phone: 607-865-7090, Fax: 607-865-5535, E-mail: drd4@cornell.edu.

4. Please identify your PWT's activities, accomplishments, and, most importantly, outcomes and impacts over the past year.

In 2008, we focused on our joint research and extension in the Upper Susquehanna Watershed (USDA-CIG):

- o Project Title: Development of a practical approach for reducing imported nutrients on dairy operations through precise management of feed and forage at a watershed scale. Curatolo, J., Chase, L., Ketterings, Q.M., Cerosaletti, P., and Tylutki, T. USDA-NRCS CIG. Subgroups are working on development of management tools for precision feeding, development of crop and soil management agricultural indicators, and whole farm mass balances. A poster comparing mass balances of grazing and non-grazing operations will be presented at the Northeast Pasture Research and Extension Consortium 2009 Annual Meeting to be held March 4 and 5 at the Lakeview Resort near Morgantown, WV. A journal article is under development based on mass balance data from this project. This project involves faculty from Animal Science, the Upper Susquehanna Coalition, its Soil and Water Conservation Districts, Cornell Cooperative Extension and AMTS (private company).
- o Project Title: Use of whole farm analysis to reduce nutrient losses, improve nutrient cycling, carbon status, and energy use on small dairies in New York State. Ketterings, Q.M., P. Ristow, F. Benson, J. Green, J. Cherney, D. Cherney, M. van Amburgh, L. Chase, C. Nicholson, K. Czymmek. NESARE. This project builds on the whole farm analysis of two central New York farms (completed in 2007) and extends the whole farm agriculture environmental management indicators to small farms. It involves faculty from Animal Science, Crop and Soil Sciences, Applied Economics and Management, Small Farms Program, and PRODAIRY.

We also submitted professional development proposals to NESARE and to the Center for Dairy Excellence:

- Nutrient Management Tools for Small Dairy Farms in New York State. Quirine Ketterings and Patty Ristow, Department of Animal Science, Karl Czymmek, PRODAIRY, and Anu Rangarajan, Small Farm Program, Department of Horticulture. The new curriculum to be developed with farmer input will focus on delivery of information and tools that can aid in farmer decision making related to manure and fertilizer management for optimum use of manure nutrients. (Center for Dairy Excellence; selected for funding).
- Greater impact of advisor-farmer interactions through improved tools for whole farm nutrient management. Quirine Ketterings, Patty Ristow and Caroline Rasmussen, Department of Animal Science, Joe Lawrence (CCE of Lewis County), Keri Bartlett (CCE of Steuben County) and Dr. John Kowal, Chair of Plant Sciences, SUNY Cobleskill. What we propose is to train agricultural professionals in the use of an approach (from the whole farm level to the cropping system and individual fields, to herds and individual cow groups) and train them (us of calculators, record keeping tools, factsheets, etc.) to conduct whole farm assessments. (in review with NESARE).

We continued our nutrient management extension focus with presentations that bridge the different subsystems at the dairy farms (talks on herd nutrition, manure management, fertilizer management, manure storages, etc.) at events such as the Northeast Region Certified Crop Advisor Annual Training (December 4-6, 2008). In addition, we held small-group nutrient management meetings and trainings with crop consultants and nutrient management planners, further gathering stakeholder input.

We completed the documentation of our statewide P balance which showed tremendous improvement over time for New York State; to be published in the Journal of Soil and Water Conservation in March of 2009: Swink, S.N., Q.M. Ketterings, L.E. Chase, and K.J. Czymmek, and J.C. Mekken (2009). Past and future phosphorus balances for agricultural cropland in New York State. Journal of Soil and Water Conservation (*in press*). This document also shows the tremendous reduction in P fertilizer sales that has occurred since 2000 (accumulated savings of 165 million lbs of P₂O₅).

Two PWT members participated in the 2008 SERA17 (phosphorus) meetings in Maryland where whole farm nutrient management and a more performance based evaluation approach were discussed. Preparations for the 2009 meeting are ongoing (Ketterings is the current chair for SERA17).

Our major activities, in addition to continued gathering of stakeholder input on priorities for research and extension, we aim to apply for the CSREES grant on “Integrated Solutions for Animal Agriculture“ in 2009 (Agriculture and Food Research Initiative Competitive Grants Program).