

## THE MANAGER

## FORAGE MANAGEMENT

By Lisa Fields

Participating in Cornell's Whole Farm Nutrient Management program improved herd health and increased profitability



Mike McMahon of E-Z Acres, a 645 cow dairy farm in Homer, NY.

## Managing farm nutrient efficiencies at EZ Acres

About 20 years ago the Whole Farm Nutrient Management (WFNM) concept was developed by Dr. Danny Fox, Professor (now emeritus) in Cornell University's Department of Animal Science and Stuart Klausner, former Senior Extension Associate in the Department of Crop and Soil Sciences. The concept views a farm's component areas of crops, animals and their products as an integrated cycle. The nutrient cycle concept is applied to developing a whole farm nutrient management plan (NMP) to maximize nutrient efficiency for profitability while meeting federal and state environmental guidelines. The NMP is widely applied on dairy and livestock farms throughout the US, and is required for concentrated animal feeding operations (CAFO). During the NMP process herd rations and soil resources are evaluated for nutrient excesses and deficiencies, and areas at risk for losses to the environment are identified.

Cornell Animal and Crop and Soil Science students practice Whole Farm Nutrient Management in a class using case farms. Initiated by Fox and Klausner, the class is now led by Dr. Quirine Ketterings, Associate Professor and Director of the Nutrient Management Spear Program. In 1997 Fox was looking for a case farm for the class. Tom Tylutki, then Area Extension Dairy Specialist, asked the McMahons of E-Z Acres Farm to volunteer. The farm has a mix of soil resources and environmental concerns. The well-drained gravelly-loam fields lie over the Homer-Preble Aquifer, Cortland's drinking water source, presenting a nutrient leaching risk, with many fields adjacent to the Factory Brook trout stream. The upland fields are clay loams at risk for nutrient run-off.

Mike McMahon, farm partner in charge of crop management spoke of their decision to participate. "It was a leap of faith for us to become involved with the nutrient management planning process in its infancy. We were struggling with serious herd health issues when Tom approached us. We were very frustrated and at the point where we had to reach out and try something different."

The Cornell students gathered soil and field data, crop production records and herd feeding information to develop a NMP for E-Z Acres. The farm's challenges and the solutions that transpired provided the students with the perfect example of integrating animal feeding and crop production.

McMahon described how Tylutki diagnosed the root cause of the herd health issues.

"Tom followed a group of our cull cows to slaughter along with those from a grazing herd. He brought back samples of the rumen walls from both herds. It was an eye-opening experience to see the lack of rumen papillae in our cows compared to the cows that were eating a high volume of grass. The impact on us was huge. We had perceived that we couldn't grow enough forages as the basis of the cows' diet, and Tom convinced us that we had to turn that around." That year, 200 acres of grass were planted to manage intensively for high quality forage.

"That was a turning point for the business, but it took a good four years for the herd to completely regain their health," he said. "The year after we seeded the grass acreage we began to re-engineer the cows' diets with Tom at the helm, shifting from 45% forage to over 50%. We gradually increased that level, so that we now typically feed a 60% forage ration to the dairy herd, with late lactation cows fed 70% forage."

Shifting from mostly alfalfa to primarily grass forage fit the farm's upland soil resources and use of manure nutrients. Grass receives manure applications between the four to five cuttings during the growing season, when there is negligible run-off risk.

### FYI

■ To learn about and participate in the statewide whole farm nutrient mass balance project, visit the NMB Web site at: <http://nmsp.cals.cornell.edu/projects/massbalance.html>.