

## **Outagamie County Dairy Intern Final Internship Report Summer 2004**

### **Situation and Objectives:**

Outagamie County is a dairy rich county with 38,000 dairy cows on approximately 330 dairy farms. Producers are currently faced with high costs of protein supplements. Poor utilization of protein in the dairy cow diet is a concern for both economic and environmental reasons, as the milk to feed ration that is increasingly tight, and environmental concerns become more prevalent. Improving the efficiency of dietary protein may reduce the cost of feeding and reduce the loss of urine nitrogen, which contributes to environmental risks.

Milk Urea Nitrogen (MUN) is an indicator of the efficiency of utilization of protein in the diet of dairy cows. My summer objective is to identify whether MUN can be used to help producers improve ration formulation on dairy farms.

Another concern for producers is increased energy costs. It is my job to recruit farms to save energy and improve profits by having an energy audit performed to encourage reduced energy consumption in the milk house.

### **Methods and Procedures:**

Energy audits must be performed to calculate savings with updating new equipment. This will be done on a computer program provided by Focus on Energy and the Biological Systems Engineering Department at UW-Madison.

Feed and milk samples must be collected for the MUN study. Using this data, a correlation between what is fed and what is secreted can be accepted or refuted. Also, other factors that can affect this correlation can be evaluated. Also, the use of MUN as a management tool should be promoted, and any questions should be answered in order for producers to continue to use, or start using the management tool.

### **Program:**

First, the project was promoted and farms were found willing to participate. Various media, such as the local newspaper and UWEX Agricultural Newsletter, helped accomplish this. A poster was created

and displayed at county events such as the Forage Council Summer Field Day, Pasture Walk, and the county fair. Information was also sent word-of-mouth by Dairy/Livestock Agent Zen Miller, as well as myself. I visited about 90 farms to promote both projects.

After farms were found, data collection took place. For energy audits, a laptop computer was used to collect data. This computer contained a spreadsheet that calculated the analysis of the audit.

For the MUN project, milk and feed samples were taken. One milk sample per each total mixed ration (TMR) of the milking herd was taken. For herds with one TMR, a stainless steel dipper was used to collect milk from the bulk tank. For herds with more than one TMR fed to the milking herd, a drip sampler was used. This device consisted of a Teflon gasket and a needle. The gasket was placed in the milk pipeline, and the needle was inserted into the gasket, so milk collection could take place. For each TMR group, a separate sample was taken from the drip sampler.

Milk samples were sent to two milk testing labs weekly. By sending duplicate samples to two labs that use different types of testing equipment, a correlation between testing procedures can be evaluated. Milk was tested for percent fat, percent protein, Somatic Cell Count (SCC), and Milk Urea Nitrogen (MUN).

TMR samples were sent to Marshfield Soils and Forage Lab for analysis. A duplicate of each sample was kept at UW-Madison Dairy Science Department for storage.

Data was gathered and compared. In the TMR, Crude Protein (CP) was evaluated, as well as Dry Matter (DM), Neutral Detergent Fiber (NDF), Fat, Ash, Non-Fiber Carbohydrates (NFC), and Phosphorous (P).

The correlation between CP and MUN was evaluated. This information was presented to the producer with interpretation of the data, as well as recommendations as to how to correct a problem, if need be. A chart was also sent with this information, showing recommended nutrient content amounts in TMR, as well as acceptable MUN levels. Information about further MUN testing was included, as it was encouraged that producers continue to monitor MUN .

Other analysis included a look at how herd production can affect MUN, 3X vs. 2X milking, as well as how MUN relates to when cows are fed relative to when they are milked.

For the energy audits, the data was analyzed within the spreadsheet. This information was presented to the farmer concluding the audit. The analysis summary was printed off and mailed or sent to the producer, along with a statement by me, a cost-share form from Focus on Energy, and any informational publications, if need be.

I was able to visit over 90 farms in the county, and discussed the project with 70 of these producers. I performed 57 energy audits, and had 29 farms participate with the MUN study. I also promoted the use of MUN to more than just these 29 farms, and answered a variety of questions about MUN.

All of this information was presented in the form of a PowerPoint to producers at Extension sponsored Milk Quality Barn Meetings, as well Cow College, a conference for dairy producers. Also, depending on the finding of the MUN research, an article in the popular press may be written.