

PRECISION FEED MANAGEMENT

By Paul Cerosaletti

The Grants started with the basics to increase forage in their herd's diet

Precision feeding moves Grantson Farm forward

Dave Grant recently summed up the satisfaction he and his wife, Laurie, have with precision feed management (PFM) this way: "I wish we had done this 20 years ago when we were just starting."

The Franklin, N.Y., couple and their two sons, Alex and Andrew, operate a 100-cow dairy and crop 230 acres with the help of employee Michael Driggs and Dave's father, Dick.

When the Grants began working with Cornell Cooperative Extension of Delaware County to implement PFM in the fall of 2006, they were eager to make the PFM process work. That eagerness and the couple's willingness to take responsibility for implementing the PFM process have made the difference in their success with PFM.

The Grants now feed an average of 6.5 pounds less purchased grain per cow compared to when they started PFM in the winter of 2006-2007. They're making 2.5 more pounds of milk per cow per day with a younger herd than in 2006. And their butterfat and protein are more stable and their cows healthier.

"We used to average one to two DAs (displaced abomasums) a month," says Dave. "We have not had one in over nine months now."

Patience and persistence

The Grants' PFM story is compelling. When they first implemented PFM, their ration's forage level was low: 45% of total ration dry matter (DM) and 0.70% of animal bodyweight. Cow health reflected those measures, with DAs and laminitis common.

Until PFM benchmark measurements were made, the Grants didn't realize they were feeding a low forage diet. "We always fed this way," says Dave.

The family simply didn't have the acres and, hence, the forage inventory to feed more forage. The dairy's chronic forage shortage was made worse by crop losses during the June 2006 flood. The first ration move after starting PFM was to get forage feeding levels just high enough to keep cows healthy.

The Grants' next step was to work with their PFM team to plan how to increase forage inventory in the 2007 crop year. Prospective "high forage rations" were developed to determine forage inventory needs. Then the family secured additional crop acres and a truck mounted forage box to make hauling forage to the dairy more practical.

Fertility planning was another major forage management change. With the help of crop consultant Lisa Fields and updated soil nutrient tests, the Grants adjusted fertilizer plans to take better advantage of manure nutrients and organic matter nitrogen.

"We're not only soil sampling more often now, but then we use the information to make fertility adjustments," Dave says. As a result, the family cut corn fertilizer rates 40% and eliminated costly potash applications to alfalfa fields that did not need more potassium.

Dave admits he hesitated to use less fertilizer, especially cutting potash on alfalfa. But skyrocketing fertilizer prices "encouraged" him to make the change. Now after two years of the new fertility program, the Grants haven't seen any decline in yields



Dave and Laurie Grant talk about their herd's higher forage diet with employee Michael Driggs (at left) and their nutritionist Darrin Nesbitt (third from left) of Lutz Feed Inc.

FYI

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or alfalfa stand persistence. They still apply nitrogen to grasses to achieve higher yields – a crucial strategy on their forage-limited dairy.

With more good quality forage on hand going into the winter of 2007-08, the wheels were set in motion to move forage feeding levels higher. PFM team member and herd nutritionist Darrin Nesbitt of Lutz Feed Inc. suggested that the protein mix blended into the Grants' TMR be concentrated further and the dairy feed fewer total pounds of it per cow per day. Simultaneously, ration corn silage levels were increased 10 pounds per cow per day.

In another important step, the Grants eliminated grain topdress on the TMR. Despite that being a long-time practice, Dave and Laurie concluded from the PFM measures that the extra grain contributed to the low forage diet and animal health problems, not to mention higher feed costs.

But instead of stopping the practice cold turkey and risking dramatic production drops, the Grants systematically eliminated the topdress over four months by not putting fresh cows on the topdress and slowly backing down tail-enders. This way the couple eliminated topdress with no loss of milk production, and the cows and the Grants are the better for it.

"You could just see the cows were brighter and ate their TMR better," Dave says. "Without the topdress, they had room to eat more forage."

Frequent forage testing is important to implementing PFM. It's given the Grants information to plan rations and to troubleshoot. "We are staying ahead of forage changes before cows are affected," Nesbitt says.

In herds that do not want to spend more money on forage testing, "we tend to see a lot more fluctuation in milk production," he says.

Nesbitt has been using AMTS.Cattle Pro, a commercial application of the Cornell Net Carbohydrate and Protein System (CNCPS) model, to balance diets on the Grant dairy. With this model, he can take into account feed digestibility and nitrogen fractions in formulating more tightly balanced diets.

Building relationships and a process

The Grants success with PFM stems from their understanding what PFM is. "It's a process," says Laurie. "You have to have the basics first and build from there."

Using a team approach is basic to the success of PFM. The Grants' team included Cooperative Extension PFM dairy and crop specialists and Nesbitt, their feed company nutritionist. "Meeting together periodically to make sure that everyone is on the same page is key," Dave says.

Without the Grants' leadership, the PFM process would not have been as effective. Dave and Laurie set up the team meetings and clearly communicate their priorities and goals. They use cow, crop and financial measures made during the process to monitor progress against the PFM benchmarks. They also value their PFM team advisers as resources and listen with open minds to suggestions they make.

"Having someone with an outside perspective who is invested in helping you succeed is valuable," Laurie says.

The Grants credit Nesbitt for both his technical nutrition support and his willingness to implement higher forage diets. "Having Darrin on board with PFM [goals] from day one has made a big difference," Dave says.

PFM is a continual improvement process that builds on the progress made each year. With the PFM benchmarks in hand, productive

PFM benchmarks on Grantson Farm

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■ NDF intake as a % of body weight	0.96%
■ Forage as a % of diet	62%
■ Homegrown feeds as a % of diet	62%
■ Ration P as a % of requirement	102%
■ Diet crude protein	16.5%
■ MUN	12.2
■ Calving interval	14.1
■ Cows dead or culled less than 60 DIM	3.9%
■ Income-over-purchased-feed cost/cow/day	\$9.60

relationships with their advisers and a willingness to lead the process on their dairy, the Grants are poised for a bright future. "The bottom line is that the PFM process gave us information and confidence to make changes in our best interest," says Dave. ■

Are your rations environmentally friendly?

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ration formulation process. There could be good reasons why your ration N and P levels may be different from the guidelines we're suggesting.

The simplest way to assess P status is to look at the percent P in your rations. The 2001 Dairy NRC publication says rations for lactating dairy cows containing 0.32 – 0.38% P (dry matter basis) will meet her nutrient requirements. These values will change in herds with either high or low dry matter intakes.

You can evaluate the N status of your herd in a number of ways:

- Evaluate the crude protein content of your rations.
- Use milk urea nitrogen (MUN) as an index of N use by the cow. As N is fed in excess of requirements, MUN will go up. Many milk cooperatives provide routine bulk tank MUN data on the loads of milk shipped from a dairy. Some herds get MUN data as part of their DHI test day information.

We obtained the monthly DHI herd MUN data for 822 herds in New York and Pennsylvania tested in July or August. Here is what we found:

- 2% of these herds had MUN values of less than 8 mg/dl.
- 35% had MUN values between 8 and 12 mg/dl.
- 52% of the herds had MUN values between 12 and 16 mg/dl.
- 11% had MUN values greater than 16.

All of these MUN values are the average for the whole herd. MUN levels of less than 8 mg/dl may suggest an N deficient animal with potentially reduced rumen digestibility and microbial yield. ■

Fact check

You can use the following guidelines to make a quick assessment of the N and P status of your lactating cows' ration:

- Ration P level: < 0.4% on a dry matter basis
- Ration crude protein (CP) level: < 16.5% on a dry matter basis
- Herd or bulk tank MUN level: 8 – 12 mg/dl.

These values are a starting point, and your herd values may deviate from them at times. For example, ration P may increase if canola meal is a good feed buy and replaces some of the soybean meal in a ration. Ration CP or MUN may be higher than these guidelines when you feed high protein forages with high levels of soluble protein. Still, the above guidelines are realistic long-term targets for New York dairy herds.