

Putting your learning to work on dairy farm

By Doris Crowley

RISING SUN, Md. — It's hard to measure the value of an education, so many of the returns are intangible. That's one reason Bob Miller felt so pleased when he learned his family's dairy operation had saved an estimated \$2,000 during the first three months of this year as a result of recent dairy feed ration changes. Miller helped make those changes, based on what he learned while working on a special least cost dairy ration project during his senior year at the University of Delaware.

Bob graduated in June from the College of Agricultural Sciences with a bachelor's degree in animal science and agronomy. He now works full time in his family's 350-acre dairy operation, Pleasant View Farms, near Rising Sun, Md.

He, his brother John and cousin Al run the two-farm complex for their fathers, both retired from active dairying. (Bob's father, Jack Miller, is in charge of public affairs for the Maryland Farm Bureau; his uncle Grove is a past MFB president.)

While attending the university, Bob drove home weekends and holidays to lend a hand with the work — the Millers presently milk 55 Holsteins, down from 60 before the start of the milk set-aside program. And wherever possible he related his studies to the needs of Pleasant View Farms. When, during a conversation two years ago with college dean Dr. Donald F. Crossan, he expressed a desire to do something that would help improve the family dairy operation, Crossan suggested he look into least-cost feeding programs.

Uses computer

The University of Delaware has three computer-based dairy management programs which are available to farmers through extension dairy specialist George F.W. Haenlein, one of Miller's teachers. When Bob approached him about learning how to use one of these programs, Haenlein was delighted.

So in the spring of his junior year Bob Miller undertook a special problem with Haenlein, using a computer to compare the costs of various feed alternatives in order to develop a pleasant least-cost ration for the Pleasant View herd.

"Bob was one of my attempts to

take extension to the classroom," Haenlein says. "I've shown several of our older dairy farmers how to use this program, with good results. And I wanted to bring its benefits to some young farmers, too."

After teaching him some basic techniques, Haenlein told Miller he was on his own. The assignment — to use a computer to explore the various feeding options available to satisfy cow needs as well as his own economic goals as a producer. He was advised to look at three different parts of the ration:

3 Parts of Ration

— First, alternative sources of dry roughage. "What do you do when you run out of alfalfa hay?" Haenlein asked. (This actually happened to the Millers last winter.) "What can you buy or grow instead of your present roughage? What will it cost as a substitute? What will it do to production?"

— Next, alternative succulent feeds — silage, haylage, green chop, wet brewers' grain. How will changes in this feed component affect production and income over feed cost?

— What's the best grain supplement? Can barley be substituted for corn? How about whole roasted soybeans?

"I told Bob to look at each of these ingredient changes separately, so he could see how each would affect production, and then decide which would put money in his pocket," Haenlein recalls. "Then, instead of telling him what to do, I let him discover the facts for himself. This way I figured he was more likely to accept what he found out."

Reviews DHIA records

After playing around with various hypothetical feed options, last September Bob Miller began running samples of his herd's Delaware DHIA (Dairy Herd Improvement Association) records through a computer to see how different feed ingredients might have affected actual feed costs. He also looked at the way ration ingredients might have influenced milk production and composition.

He used the computer all last fall, calculating hypothetical rations and comparing them with the costs and effects of actual rations. Then he wrote up his



The Millers dug new trench silo this spring to increase feed storage capacity on the farms.

findings. It was a valuable learning experience.

"I knew there was a way to cut feed costs," he said during a recent interview. "But none of us had any idea how deficient our ration was before we started looking at it this way."

"Computer least-cost feed programs are great," he continued, "but you have to know what a cow will eat. And though the program balances the ration for calcium and phosphorus, you have to add the other minerals and vitamins." This meant doing a lot of research on the cow's nutritional needs — valuable background for any dairy farmer.

Nutritionist helps

When Bob's family decided to reevaluate their current feeding program last winter in an effort to improve output per cow and at the same time reduce costs, they got in touch with Maryland extension dairy nutritionist E. Kim Cassel. Bob was also able to offer some concrete, practical suggestions, based on what he'd learned.

"I used rations from the program," he said. "Then I'd go to the books and find out the cow's requirements and check them with Cassel, since she might know of cheaper ingredients. We gave her information on our production goals. We're still working with her and she's doing a real nice job helping us develop rations."

When he began running the computer feed program, Miller found it a bit confusing. "At first I'd just throw in different feeds to see what they'd do. Then I got a feel for it. Towards the end, I valued that time experimenting. I learned an awful lot."

The program lets a dairy farmer do several things. "You establish production goals for your herd (based on the number of cows, feed selection and prices). The program provides a basic ration but it isn't strictly least-cost — it's designed for maximizing income, and you must adjust the ration for the cows' specific needs. It also indicates how much less than current ingredients a certain feed must cost for profitable use."

Found improvements

By comparing the Miller herd's actual ration and production level with those provided by the computer, Bob learned what was likely to work on their farm and where improvements might be made.

"For example," he says, "alfalfa is an excellent feed ingredient, and we're growing more of that now. We didn't realize how much more economical it is to feed than what we were using. But when we started working on our ration last winter, we didn't have

any on hand. In January we were running so low we had to start buying feed. Based on what I'd learned and Cassel recommended, we bought alfalfa."

At first his family was reluctant to make some of the changes he suggested, but since they weren't satisfied with their present feeding program they were willing to listen to his ideas.

Forage Tested

The Millers try to grow as much of their own feed as possible, though they ran short last year because of the drought. "We used to buy all our protein," Bob says. "Now we grow alfalfa and use that, plus some soybean meal which we buy. Our extension agent, Ted Haas (Cecil County), has been a great help in managing the crops."

You've got to have quality crops to have quality cows and high production," says Bob. "We sent our forage away for testing. It can look and smell good but not be very nourishing. We're trying to learn how to compensate, so that when we do hit some bad hay or silage we can avoid a drop in production."

The Miller herd presently averages 15,000 pounds of milk per cow per year, with 600 pounds of butterfat. Their goal is to increase that to 17,000 pounds over the next two years, without losing butterfat or raising feed costs.

Achieving this will involve improved mastitis control as well as improved nutrition. "We're working on that problem, too," Bob says. "We've been using A.I. for a long time and have real solid cows. We think we can reach our goal with overall good management in our feeding and health programs."

Barley silage

This summer the Millers are experimenting with another idea Bob brought home from college — barley silage. "I was trying to figure out what we could do to increase our supply of homegrown feed, and read about using barley this way." So he went to another of his professors, agronomist Merle Teel. "He helped me look up research information on barley silage, and we found a farmer in our area who uses it. We talked with a lot of people about it and our nutritionist recommended it."

By cutting the barley before it matures — while grain is still in the dough stage or, preferably, earlier — it's possible to get a high protein barley silage and then double crop corn afterwards. This is a good way to boost total feed yield per acre.

The key to selling the barley silage idea was the fact that the

need was there. The Millers are anxious not to run out of feed like they did last year. They cut 25 acres of barley on May 18, treated it with a preservative and put it into their silo, no-tilling corn right after it. They're feeding the silage now, mixed with grain, and the cows seem to like it very much. "Barley silage isn't much talked about today," Bob says, "but it used to be a fairly common feed."

New Trench Silo

The Millers also dug a new trench silo this spring and the first thing to go in was their first cutting of alfalfa.

To keep abreast of feed ideas, Bob recently joined the new Delaware-Maryland Forage Council. "Eventually," he confides, "we'd like to be the most efficient dairy farm in the state."

Listening to him talk, one can sense his excitement at being part of a close-knit family enterprise, and the challenge he feels to help improve it. "I've milked cows for a while," he says with a smile. "I wouldn't want to do anything but farm."

Now that he knows what a computer can do for him, Haenlein hopes Bob Miller will use it in the future to make other management decisions. "He did well on this project and it paid off for him. That makes me feel good. Because he comes from a farm, Bob's project had immediate practical interest, which may help explain why he got so involved and did such a thorough job."

"Poultry production has been programmed on computers for a long time," the dairy specialist continues, "but the digestive process and nutritional needs of cattle and other ruminants are much more complex than those of chickens, and we're just developing programs that deal with these multiple needs."

Haenlein would like to see other students do the same thing, as this is an excellent way to learn how to improve dairy management. It's also an opportunity for dairy farmers to increase their computer literacy. He is convinced that electronics is the key to future economic survival for producers like the Millers, because computers can help them make more objective management decisions.

"Dairy farmers must learn to base their management decisions on facts, not emotion," the specialist says. "We're developing tools now which enable them to do this. These computer programs aren't just a technological spillover, a fad. They're an economic necessity."



Bob Miller examines barley silage, a feed ingredient his family is experimenting with this summer in order to boost total feed output per acre for their dairy herd.