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MARKETS

Demand is leading runaway feed prices

"There are a lot of outside factors affecting the prices you're paying for feed," said Dave Poorbaugh, president of McGeary Grain, Lancaster, Pa.

He has been in the grain business for more than three decades, and shared his insights as a featured speaker at the annual Agri-Basics winter dairy seminar in December. His discussion centered on the supply and demand pressures on dairy inputs in a changing marketplace.

"To give you an idea of where ethanol is going, two companies just merged, and right now they make 870 million gallons of ethanol," said Poorbaugh. By the end of 2008 they will be making 1.6 billion gallons with the plants they have coming on."

According to USDA, the ethanol industry, collectively, used 2.25 billion bushels of corn to make 6 billion gallons of ethanol in the 2006-07 marketing year. Analysts expect 3.2 to 3.5 billion bushels to go for ethanol in the 2007-08 marketing year.

"When I started 35 years ago, Poorbaugh Grain (the previous name of the company) had the only commodity ticker in the area, and we literally would take those numbers and be able to pretty well estimate what the

"This is like a freight train that isn't going to stop for a while. Pick up the paper and read—know what the dollar is doing. It's going to affect the things you buy, since the inputs are going to come racing right up behind the milk prices that you're getting."

Dave Poorbaugh, President,
McGeary Grain, Lancaster, Pa.



market was going to do," he said. "It's gotten a little more complicated from there."

Affecting your prices

Aside from skyrocketing ethanol production in the U.S., Canada just put \$2.2 billion into improving their ethanol industry. By the end of 2010, Canada will require that 5% of all their gasoline be from biofuels.

Food prices are up 4% this year, "although a lot of this is really due to energy" and other factors, said Poorbaugh. In the dairy industry, "the value of milk is coming up

You can see where fluid beverage use is staying fairly strong."

U.S. trade exports went up, "and the dollar value of all the crops that we're producing now is skyrocketing—of course you are seeing this in your ingredient cost," said Poorbaugh.

Become a Student of World Events

"You will want to become a student of what's going on in the world, to understand your feed prices," advised Poorbaugh.

"You need to keep watching what's going on in China and India," he said. "Those were very poor countries; however, with all the manufacturing they are doing, they are starting to create a little income for the lower and middle classes. Suddenly they want to buy meat instead of just rice, or instead of a bicycle they may want to buy a car. These families, that have been so poor for so long, are now having a little money to spend."

For example, according to Poorbaugh, gas usage went up 30% in China this year. "They are out-competing with us to buy oil," he said. "This is like a freight train that isn't going to stop for a while. Pick up the paper and read—you need to know what the dollar is doing. It's going to affect the things you buy, since the inputs are going to come racing right up behind the milk prices that you're getting."

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Worried about rising feed costs & scarce commodities? Focus on preserving forage nutrients

Everyone's talking about feeding strategies: how to maximize milk output while minimizing purchases of costly dairy feed ingredients.

Ensuring enough inventory of high quality homegrown forages is more important this year than ever before.

Forages with more digestible nutrients (mainly fiber and energy), help reduce purchases of costly feed ingredients for the ration. All ingredient sources of protein and energy are rising. And traditional sources of soluble fiber—like cottonseed and citrus pulp—are hard to come (see story beginning on this page).

Total digestible nutrients in forage, are affected by hybrid selection and manage-

ment. Silage expert Dr. Limin Kung, University of Delaware, gives this advice:

"Really high quality, highly digestible forages drive intake, and intake drives milk production."

He also notes grain purchases are affected by starch digestibility of the forage; otherwise, the driver should be fiber digestibility. That would certainly be the case this year as cottonseed, citrus pulp and other sources of digestible fiber are scarce.

Kung also cautions producers on yield. "Yield is more important if you're running out of feed every year. If that's the case, target the higher digestibility hybrids toward feeding the early lactation cows."

Protect your forage investment

with good management practices during harvest, ensiling, storage, and feedout. A slow fermentation—controlled by the wrong bugs—will result in substantial dry matter losses.

Forage energy (as a percentage of dry matter) increases during storage, but total dry matter (and therefore total nutrients) decreases.

Limit losses with a fast fermentation produced by a good inoculant and/or crop preservative. Studies show a good inoculant preserves a high level of crop nutrients and produces a palatable silage and more milk per ton of forage. A good inoculant puts good bugs in charge of the fermentation process. This means more available nutrients from the forage, for your cows, and less money out of your wallet to feed them.

Talk to your AB nutritionist about a game-plan for your feeding needs.

Evaluate management by profiling the herd's older cows

"How is your farm positioned for the future?" asked Peter Drehmann, DVM, a former dairy practitioner now doing nutrition consulting with Crest Animal Health Services, Holland, Michigan. He talked about care and feeding of lactating cows, during the Agri-Basics winter dairy seminar.

An indicator of value in the dairy herd is a look at how the cows leave the farm, he said. If they die, it costs \$50-\$100 to get rid of them, a Canner/Cutter will bring \$50-\$150, Utility and Select can get \$800-\$1,000, but dairy replacements garner \$2-\$3,000.

"If you look at your records, which are your best cows?" he asked. "When you break production down by stage of lactation you can see—as the lactations go out—the third, fourth and fifth lactation cows should be the best cows."

Drehmann observed on "a lot of farms, the second lactation cow is their best cow—they're just worn out by the third lactation, when they should be your big money cow. This is driven by environment. People wonder why don't my cows respond to my ration? It's because of environment, and you'll see it in the profile of the older cows in the herd."

Cow Comfort

Cow comfort is the number one bottleneck on the dairy, according to Drehmann. "If you have the heifers, you should be replacing at least 15% of your herd every year solely on production, and selling culls as replacements with sound udders and sound legs," he said.

He cited the example of how a dairy he worked with experienced dramatic results from installing a bed pack barn. In the old facility, all culling was non-voluntary, at 45%. A year later on the bed pack, that fell to 16%, which tells him 75% of those culls were due to injury.

Within a week of going on the bedding pack, the older cows gained 30 pounds of milk, still eating the same ration, according to Drehmann.

Good Forage

On the feeding side, he said, "the best lab is still the cow. Probably the potential to do best is by making good forage. I know you've heard

that a lot in the past 40 years, but it doesn't change."

"Alfalfa silage is a wonderful crop since you get 3-5 chances every season to get it right," he added. "Harvesting haylage at a consistent dry matter is difficult because the crop has to be wilted before chopping. If you have dry matter (DM) under 30%, don't even feed it because you'll kill your cows. It's critical to make hay silage when the weather permits, when we can dry it properly and get it in quickly."

Drehmann stressed "consistency in the ration starts with consistency and planning in the field."

Forage Storage

"If you look at what you lose in quality between fermentation and poor storage, you can lose a tremendous amount of milk," he said, noting that sometimes the size of the storage is miscalculated, so feedouts are slow.

"Make sure you have the amount of feed you need for the year calculated. Sit down and say, 'this is how many cows we have, this is what we like to feed and how much we have to grow. Put a lot of effort into storing the feed,'" he said. "You could be losing 25% of your crop, if it is exposed to the air for too long."

Drehmann likes corn silage. "You don't have to wilt it, you only need to make it once, it's more uniformly chopped and a quicker fermenter than alfalfa," he said. "Again that planning number—how much do you need? It only takes a month for the fermentation to stabilize, but starch availability improves during storage."

He noted silage hybrids have more digestible neutral detergent fiber (NDF), plus softer cobs and kernels. "I've seen the difference firsthand. At the same NDF value, a silage hybrid can take 25-30% more dry matter to meet the cow's fiber requirements."

This results in a ration higher in forage that will substitute for other purchased ingredients. But remember, it will require more acres of corn planted for silage.



Peter Drehmann, DVM

Feed prices

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What's driving prices on popular commodities?

► **Beet Pulp:** "We were given one-third of the dry beet pulp we had bought from the companies the previous year," Poorbaugh said. "We were told it was bad production, but the real truth is that this year they produced 925,000 tons, so it is down a little bit," he explained. "But really, with energy costs catching up, (and, consequently, the cost of drying the beets), they sold beet pulp as wet to local farmers and virtually cut off our supply of beet pulp. The next thing that happens, after they decide to dry only 50,000 tons, is they take care of the pet food industry first."

► **Citrus Pulp:** "This has been a really popular product the last couple of years," said Poorbaugh. "Up until five years ago, almost all the citrus pulp was exported," until those export markets "began playing games with citrus producers. Then they started selling their citrus to us," he said, noting production is way down now because of the growth of housing in Florida, and the hurricanes.

► **Corn Gluten Feed:** "It's virtually impossible to buy more of this feed from the plants," he said. "A while ago, tremendous amounts of corn gluten feed were traded at low prices. However, all of the quotes that we get weekly on gluten feed will also say that none is available."

► **Whole Cottonseed:** "There's tremendous demand for cottonseed oil; manufacturers are soaking up the excess cottonseed and processing it rather than letting you have it," he noted.

► **Distillers' Grains:** "The price has been going up on dried distillers' grains (DDGS) because there is tremendous demand for it on the export market. With the low (U.S.) dollar, you can figure that if distillers' grains cost you \$170, (the foreign buyer is) probably paying just a little over \$100 for it," said Poorbaugh, explaining that distilleries like to export DDGS because on a pound-for-pound basis, it has roughly three times the nutritional value (protein) of corn, so it's concentrated. He noted that each month in 2007, the U.S. shipped to Canada an amount of DDGS equal to what was shipped for the whole year in 2006.

In November, a new distillery opened in New York and another is slated for spring. Poorbaugh noted some of these DDGS may be able to come this way. There are also plans for building a distillery in Pennsylvania, if that happens, he said, nearby dairymen could be in a position to take those distillers' grains wet.

► **Soy Hulls:** Last year soy hulls traded at \$128, and right now \$148. They are "a little tight to come by," said Poorbaugh. "But there should be a continuing supply of hulls (left over) because soybean oil is in such demand."

► **Bakery By-products:** The supply of this feed ingredient is way down, according to Poorbaugh. "I think the poultry industry is going to fight you for every pound," he said. "Bakeries are only baking what they have demand for. Normally they make excess, and what doesn't get used up, goes into bakery by-product" for feeding. However, with the cost of wheat today, bakeries are only making to order.

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LOW-ENERGY • MODERATE-ENERGY • ONE-GROUP • TWO-GROUP

...confused yet?

Lately, there is a lot of discussion about dry cow feeding concepts. This article seeks to clarify some of the confusion surrounding mixed messages from the research community.

The bottom line is: there's no silver bullet in dry cow feeding—no single right way for every farm. It's a matter of figuring out what works in your situation, with your herd, feeding practices, and management style.

Above all, after pouring over various research papers, power point presentations, studies, and articles... it's clear every researcher putting forth a new concept, adds this warning: if it isn't broke, don't try to fix it.

Why so many new concepts?

On a national basis, there are too many cows leaving herds within the first 60 days in milk: 25% according to DHIA statistics. That's a lot, and it points to continuing problems with post-calving health and performance—nationwide.

The whole host of post-calving metabolic disorders are interrelated. Dry cow diet, environment, and management, all contribute to the root cause: negative energy balance after calving leading to mobilization of more fat from the cow's body reserves than the liver can handle.

Too many cows (one out of every two) experience post-calving problems in the U.S. According to material published by Jim Ferguson, VMD, University of Pennsylvania School of Veterinary Medicine, the combined incidence rate—for dystocia, milk fever, retained placenta, metritis, ketosis, displaced abomasum, fatty liver, and lameness—results in only 50% of all cows calving without health problems.

These sobering statistics are driving researchers to experiment and scrutinize dry cow feeding programs. As a result, we are seeing a range of thoughts on how to adapt dry cows for lactation.

Another factor sparking new concepts is the desire to minimize group and ration changes to keep things more constant for the cows and simplify handling for employees on larger dairies.

Some relatively new ideas include shorter dry periods and single rations, and there's even considerable variation about how to implement a single ration.

While some experts suggest a single ration that resembles a moderate-energy-density transition-like diet; others suggest high-bulk, low-energy-density is the way to go.

Still, the two-group (far-off and close-up) ration system remains the gold standard. And as far as ration fiber goes: straw is not

new, really. Nutritionists have long used comparatively small amounts of straw, as needed, to control rate-of-passage, dry a too-wet ration, and bulk-up dry cow diets to expand the rumen, promote cud-chewing and lessen the chance of DAs after calving.

However, these goals can be accomplished very successfully in high-forage dry cow diets, using palatable forages with high fiber digestibility and 2-inch length particle size. The longer particles balance digestibility of the forage by providing the effective fiber cows need for cud-chewing and rumen mat formation. This leaves straw as an additional tool to use as necessary, but not as a main forage in the dry cow ration.

During the Agri-Basics winter dairy seminar in December, speaker Peter Drehmann, DVM talked about feeding high-bulk, low-energy-density dry cow diets—including large amounts of chopped straw—in a one-group, one-ration system. This concept is backed mainly by data from herds in Europe, but also field observations in the U.S.

Drehmann referenced a recent study by researchers at the University of Illinois, led by Dr. Jim Drackley and Heather Dann.

High-straw study

In comparing the high-bulk or high-straw diet to other dry cow feeding programs, Illinois researchers fed the high-straw diet only to the far-off dry cows. The cows then went to a typical close-up diet in which chopped alfalfa hay and other ingredients replaced the straw. Likewise, the fresh cow diet did not contain straw. Here's what they found:

► **"The best situation** was feeding the low-energy (high straw) diet during the far-off dry period, coupled with (free choice) access to the close-up diet" writes Drackley. "We believe many farms struggling with transition health problems might benefit from reducing the energy density of the far-off diet."

► **"The worst scenarios** were the groups that were allowed to over-consume energy in the far-off dry period, regardless of whether they were feed-restricted or allowed (free choice) consumption of the close-up diet," he summarized.

In his report, Drackley describes the high-straw diet as a way to feed some of the lactation ingredients to dry cows, using large amounts of straw to dilute them. He noted the dry cows could eat as much as they want without over-consuming energy and protein.

In his article—*New Concepts in Nutritional Management of Dry Cows*—Drackley writes: "Overfeeding energy early in the dry period—in combination with feed restriction during the close-up period—are the likely cause of health problems in the field. Feed

restriction during the close-up period can result from overcrowding, poor management, and poor diets."

The Illinois researchers concluded: farms that already have a well-managed transition program, but inconsistent results in post-calving health and performance, may find the key in how they feed the far-off dry cows.

Another approach

For dairy farms that are unable to implement a two-group dry cow feeding program, or simply prefer a one-ration approach, the low-energy-density high-straw concept is not the only option, and it is not necessarily the best option for all situations.

Penn State University researchers, including Dr. Gabriella Varga, note a different approach for one-ration dry cow programs: the feeding of one moderate-energy-density ration, that is in-between a typical far-off dry ration and a close-up transition ration.

The aim here is to "keep the cow ready for the milking diet." In this approach, corn silage, which is already popular as a dry cow feed, keeps the rumen's ability to absorb volatile fatty acids (VFA) from declining.

Transition diets

The two-group dry cow feeding system—where the prefresh cows receive a transition diet including some of the same ingredients found in the lactation ration—is still the preferred method for adapting the rumen to the lactation ration.

Transition, or "steam-up" rations, are more energy-dense than far-off rations. This helps maintain total dry matter intake as cows tend to eat less as they approach calving.

Fed to close-up cows beginning three weeks prefresh, transition diets also restore the rumen's ability to absorb VFA.

Management considerations

Management considerations are important for all of these dry cow feeding systems. For high-straw diets, even Dr. Jim Drackley, himself, notes that: "If feeding management is limiting, high-straw diets may not be the answer—and in fact may be a disaster!"

Here are some management concerns:

1) "High-straw diets are NOT to be used as only a close-up strategy," Drackley cautions. There are major risks in feeding chopped straw diets to close-up cows—if they did not have chopped straw diets in the far-off period. That's because the "bulked up" diets take about 10 days for cows to adapt to; during this time, intake is suppressed.

2) Sorting issues are absolutely critical in high-bulk diets. Straw must be pre-chopped—in a tub grinder or forage chopper—to uniform size of not more than 2-inches long.

3) High-straw diets require a much longer mixing time, and perhaps a different mixer than what is already being used on the farm.

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Uniform distribution is critical because sorting results in some cows over-consuming energy and others not getting enough. In this one-ration system, sorting can be devastating to the close-up cows in the group.

4) More bunk space (at least 3-ft/cow) and bunk management (frequent pushing up) are also required—especially in meeting the nutritional needs of the close-up cows.

5) The quality of the roughage is also important. Whether it's dry hay, straw, mature grass, or corn stalks—whatever it is, it can't be dirty or moldy.

Other nutritional considerations

“The last 6-8 weeks of gestation is the time when the fetus is growing at its most rapid rate and has a tremendous demand for glucose,” writes Dr. Gabriella Varga, Penn State professor of dairy and animal science, in

a Nov. 2007 report: *Dietary Energy Density for the Close-Up Dry Cow—Postpartum*. At the same time, “the cow is manufacturing immunoglobulins (antibodies) necessary for the calf at birth. It has been demonstrated that poor nutrition impacts the composition and quantity of immunoglobulins synthesized. The mammary gland also requires nutrients in preparation for lactation.”

Protein requirements are also important. At recent feeding strategies meetings held by Penn State University Extension, Dr. Jim Ferguson, University of Pennsylvania School of Veterinary Medicine, advised striking a balance in protein feeding during the close-up period. He noted that overfeeding protein is not economically or environmentally efficient, but underfeeding protein in the close-up period will have a negative effect on post-calving performance and fertility, as dairy cows use protein reserves in transition.

It is clear the solution for successfully

preparing dry cows for calving and lactation is farm-specific. It's important to:

1) Work with your independent AB nutrition consultant—who knows your cows, understands your farming operation, evaluates your forages, knows your feeding practices, and tracks your results—he is working for you, not for a company selling a product or program.

2) Pay as close attention to managing the feeding program for dry cows as you do for lactating cows. The ration consumed should be the same as the ration on paper.

3) Optimize the dry cow environment. Ensure plenty of access to clean, fresh water. Also provide clean, comfortable areas for cows to lay down, and be sure to practice good bunk management.

The principles discussed in this article are general, but the best dry cow feeding system is farm-specific. Plan with your nutritionist what will work on your farm.

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