

Consider crucial elements for better winter cow diet



Milk it !

By Vicky Carson

NOTHING'S more peaceful than green fields full of cows munching away on grass. From a ruminant standpoint, there's no forage more digestible or better suited for rumen microorganisms than pasture.

It all came to an end during late fall. So what's a cow to do? One minute, she has nutrient dense, highly digestible forage; the next, she has fermented forages. More directly, what are you to do to help her?

Hopefully, you began her transition from pasture to winter feed slowly over the last few weeks of pasture season. Changing from high-quality pasture to lower-quality stored feeds is much like changing silos. If you do it too quickly, milk production drops until the rumen bugs adapt to the change.

I recommend that the minimum transition time to winter feeding be three weeks, with time spent on pasture decreasing and time spent eating in the barn increasing. Adjusting to even small dietary changes takes rumen microbes about three weeks.

But they're in the barn now

It's tempting to formulate winter diets to match the digestibility of pasture diets by including a lot of grain. That's not advisable.

Pastured cows were eating 70% to 80% forage diets. Their rumen microbes were very efficient at utilizing a lot of forage. Moving to a high-grain diet will increase rumen acid, destroy fiber fermenting bacteria and cause ruminal acidosis.

Winter diets should be high-forage diets that contain a very digestible source of physically effective neutral

Key Points

- Ration transition from pasture to barn takes a minimum of three weeks.
- Keep winter rations high in digestible peNDF forages for healthy rumens.
- Bypass proteins and vitamins A and D are crucial to milk yields.

detergent fiber. PeNDF is the portion of NDF that'll stimulate rumination and salivation and form the rumen mat layer — primarily NDF from forage.

That mat layer acts as a sieve, allowing smaller feed particles to enter the liquid phase for rapid rumen fermentation. It also holds back larger particles, giving rumen microorganisms more time to digest them.

Luckily, we have laboratory procedures that determine forage NDF digestibility. So, you can pick and choose the forages you want to feed.

Mix and match your carbs

Next, look at mixing and matching carbohydrate sources. Pasture supplements likely contained a starch source like corn meal.

To compliment that starch source, I'd add a source of soluble fiber like beet pulp, citrus pulp or soyhulls. Soluble fiber sources provide energy for rumen microbes. They also stabilize rumen pH.

Soyhulls, citrus pulp and beet pulp are effective NDF sources. They stimulate rumen acetate production and help maintain milk-fat synthesis. But they don't contribute to the rumen mat layer or stimulate rumination.

Depending on the source, they can also add sugar, pectins, glucans or fructans to the diet — energy sources for rumen bugs. But they don't contribute acid to the rumen environment.

The most essential milk-maker

Amounts and sources of ruminally degradable protein are essential to main-

taining milk yield during the transition to winter feeding. On pasture, forage RDP was the primary dietary protein source. Most of it was in the form of soluble nitrogen, easily converted to ammonia in the rumen. It's the preferred N source of rumen bugs.

So it makes sense that winter diets contain adequate amounts of soluble protein from forages plus some extra from urea or protected urea. Along with the soluble N, other RDP sources such as soybean meal and canola should also be included to provide amino acids and small peptides.

Remember, pasture-fed cows depend on the microbial protein passing to the small intestine as their primary bypass protein. That's why winter diets should include a high-quality source, such as heat-treated soybean meal, animal by-product protein blend or both.

What's high quality? It's defined by amino acid composition and the small intestine's ability to digest it. Microbial protein, from rumen microorganisms, is the gold standard. Its amino acid composition most closely matches amino acid needs for tissue and milk-protein synthesis.

Take daily vitamins

Finally, vitamin and mineral composition of the winter diet will be significantly different from the pasture diet. Your cows are now eating stored feeds. So you'll need to replace the beta-carotene from fresh grass with a vitamin A supplement.

They'll also be spending most of their time inside, so they'll need supplemental vitamin D.

You can buy a good combination vitamin A, D and E supplement. You probably can also reduce sodium bicarbonate and magnesium oxide content in the diet, especially if it already has adequate peNDF.

Carson and husband, Steve, partner in Harkdale Farms of Newbury, Vt. She's also a consulting dairy nutritionist.

Livestock Notes

Rumensin-rate recommendations spark response

DECEMBER'S page 24 article on "Fixing Rumensin's milk-fat depression" by Vicky Carson caused a stir regarding the recommendation of starting with rates of 90 to 100 milligrams per head per day, then adjusting.

■ **Elanco's response:** The USDA has approved a feeding range of from 11 to 22 grams per ton a day for dairy cows, notes Howard Green, Elanco's dairy technical alliance manager. That's based on a significant improvement in milk production efficiency, at a minimum of 11 grams per ton vs. control.

If, for example, a lactating cow's daily dry matter intake (100% dry matter basis) is 50 pounds and the ration contains 11 grams per ton of Rumensin, she'll consume 275 milligrams per head per day. In a dry-cow ration where dry matter intake is 30 pounds per head per day, a cow will receive 165 milligrams per day of Rumensin.

■ **Carson's reply:** Depending on the feeding rate of grain (the ton part) and cow intake, actual Rumensin amounts ingested will vary. Part of my recommendation is to work with a per-cow amount rather than targeting a per-ton amount.

For a simple example, let's look at a 50%-forage, 50%-grain diet (not something I'd likely feed) and 50 pounds of dry matter intake (Holstein cow). That's equal to about 25 pounds of grain per cow per day. If we go with the 11 grams per ton of Rumensin, that's about 137.5 milligrams per cow per day. At 22 grams per ton, that's about 275 milligrams per cow per day.

My recommendations are a bit lower than their lower range and significantly lower than their upper range, but are in the ballpark. My area Elanco representative indicated that my recommendations were "off label" use, but not illegal.

Put cottonseed in silo or bag

FARMERS fill upright silos with corn and silage and bag silage and hay, but store whole cottonseed in them?

That's what some dairies do that don't have adequate commodity shed storage, according to Cotton Inc. officials. Think of it as a way to take delivery on much larger orders for better volume-price discounts.

Ryan Keller, of Richland Center, Wis., uses a 55-foot concrete stave silo to store a seven-month supply. It holds 168 to 170 tons, "reducing the number of on-farm deliveries to just once every seven months."

Bagging it is the best storage option for Don Gaspar of Ulysses, Kan. Last year, his operation bagged 3,000 tons of the feedstuff. This year, though, they didn't bag cottonseed because of wet weather and mud problems. If you're going to try it, he advises putting bags on a dry foundation, such as asphalt.

Update on BioPryn pregnancy testing

By HAROLD HARPSTER

In last November's *American Agriculturist*, we noted that the "BioPryn" blood test for pregnancy looks like a real winner. It's drawing much praise from dairy and beef producers who've tried it.

Advantages include 99% accuracy, useful as early as 30 days of pregnancy, economical and safe for the embryo since no palpation is required. The only drawback was that Eastern producers had to ship blood samples to Moscow, Idaho. Now, there's a much closer testing lab option.

Northeast producers can send samples to Laurel Hill Veterinary Services, Burlington Rd., P.O.B. 35, East Smithfield, PA 18817. Charges are reportedly only \$2.10 per test.

BioPryn and Laurel Hill's Jim Wilcox were featured on the July 2005 *American Agriculturist* cover story. For more information, call (570) 596-2020 or visit www.lhvsinc.com or BioPryn's Web site at www.biotracking.com.

Harpster, a Penn State animal scientist, runs an Angus cow-calf herd as a sideline enterprise.

