



“Research shows you can go as low as 16 or 17 lb. per day of forage for cows that normally consume twice that much. They are not happy about it, however, even though body demands are being met.” So you use less digestible feed such as straw, coarse hay, baled corn stalks, bean stubble or whatever is available. The best situation is to give free access to poor roughage so they can keep nibbling at it in order to keep them more full and content while you are supplying most of the nutrients with grain.

#### Alternate forages

Roughage is often the basis of an alternative feed program — finding roughage at a low price and then supplementing it with whatever will meet the cow’s needs says Karl Hoppe, North Dakota State University Extension livestock specialist. Low-quality roughages can give cows a lot of digestible energy but they may waste some of it. “Many people grind or chop rough feeds, to eliminate the sorting. Straw and corn stover are good alternatives to hay, but may need to be ground, which also makes it easier to blend the feed. You can grind a bale of straw, a bale of corn stover and a bale of hay, then add in whatever coproduct is needed to balance the ration. You might want 5 lb. of wheat midds to increase the protein or phosphorus content,” Hoppe says.

Vern Anderson, animal scientist at North Dakota State University Carrington Research Center, says cows can eat just about anything if it’s palatable. For fall and winter pasture, you can do creative things with crop residues like double cropping or underseeding triticale. You can add something to a crop so that after it’s harvested there’s an understory left for grazing.

“We plant triticale in the fall after taking off a grain crop and have something to graze later in the fall and in the spring. It comes up fast and is grazable long before range or pasture. If cows are still in a muddy pen from winter and need a place to go, it doesn’t take many acres of fall planted triticale to provide a lot of spring grazing before the grass is available,” he says.

Anderson says cows can be looked upon as scavengers of biomass grown on a farm; his studies suggest that a typical farm in North Dakota can support 85 cows without any pasture just by having them eat all the plant matter left over from crops.

#### Other alternatives

Byproducts from processing can be used as feed. These include wheat midds, distillers grains and soy hulls among others. Wright says, “Most of these contain 80-110% the energy value of corn in the form of fiber. Since it’s fiber, you can add 5, 10, or even 15 lb.



# Alternative Winter Feeds for Cows

by Heather Smith Thomas

If traditional winter feeds are scarce or high priced, there are often alternatives, depending on what is available regionally.

#### Grains

“The first alternative cattlemen think about is grain — corn, barley or wheat — if price is reasonable,” says Cody Wright, South Dakota State University Extension beef specialist. Grain must be used properly, however,

to avoid negative associative effects. When starch is added to the rumen of cows on high-forage diets it reduces the ability of the rumen microbes to digest the forage. The microbe population must be geared for digesting either grain or forage; they can’t efficiently do both.

“The rule of thumb is to either feed just a little grain or a lot of grain,” Wright says, so the microbes can adjust to handle the feed. The recommendation for cows on forage is to give about .25% of the cow’s body weight. A 1,200-lb. cow should not have more than 4 lb. of grain daily to avoid negative associative effects, he says.

If forage is short, you can feed more grain and less hay in a “limit-fed” diet, limiting total dry matter intake and feeding only what the cow needs. “Figure the cow’s nutrient demands (for stage of pregnancy or lactation) and supply those with a concentrate. The forage contributes little, so you can use the cheapest, poor-quality roughage — just for fill to keep her rumen healthy,” Wright says. The poorer the quality, the less digestible — this inability to digest the roughage helps the cow feel more full, since the roughage takes longer to go through the tract, he explains.



of this type of feed to a cow's diet without causing negative associative effects." Using these byproducts works well if you have good hay that won't work in a limit-fed situation. If you just need to stretch the forage, these feeds can do that very nicely and also provide protein.

"Wheat midds are a near perfect supplement for brood cows, being high in energy and 15-18% protein. For wheat midds and soybean hulls, don't feed more than 15 lb. per head per day. They are high in fiber and must be digested in the rumen. If you add too much, they go through faster; some may pass out of the rumen before being fully digested. Make sure there's a fair amount of forage in there to help slow the passage rate. The minimum feeding we recommend for wheat midds or soybean hulls is about .5% of body weight, or about 6 lb. for a 1,200-lb. cow," Wright advises. If you feed a cow 15 lb. of a good grass hay and 15 lb. of wheat midds or soybean hulls, you can probably get her all the way through calving and to turnout on grass, he says.

Distillers grains and corn gluten feeds are about 110% the energy value of corn, or higher, but be cautious about high levels of certain minerals especially in corn byproducts. "They generally contain three

times the phosphorus of corn and may have a lot of sulfur added as part of the fermentation process." These higher mineral levels can skew mineral balances, such as sulfur tying up the availability of copper in the body and making the animal deficient. Wright recommends having feed samples tested. High sulfur levels may also cause polioencephalomalacia, which feedlot people call "brainers."

The high phosphorus is not so dangerous and can be beneficial if your feeds are short on this mineral. Many ranchers supplement phosphorus. "If you use a corn milling byproduct, you can probably use a mineral supplement that does not contain phosphorus, which can save a few dollars," Wright says.

Make sure diet is balanced not only for protein and energy but also for minerals. Hoppe says, "Some alternative feeds can be deficient in certain minerals or have excesses. Wheat midds are very high in phosphorus but low in calcium. Soy hulls have plenty of calcium and adequate in phosphorus. Regarding trace minerals, you have to be careful. Straw won't have as much trace mineral content as hay grasses or alfalfa. You may want to feed almost double the normal amount of minerals with a diet that's mostly low-quality forage.

But if you are already feeding a high mineral supplement, don't double that; just feed at the higher end of the recommended rate. If you overfeed certain minerals you can have problems with toxicity or negative interactions. If iron is too high, you'll have poor uptake of other trace minerals." You don't want to "unbalance" the diet by what you've added. And watch your costs. By the time you balance the ration with extra minerals what you thought was a low-priced feed may not be so low.

In some parts of the country there are other alternative feeds available. California or the Southeast has citrus pulp and citrus byproducts. In some regions there are food processing wastes, byproducts from cotton milling or ethanol plants, oilseed products, cottonseed hulls, potato wastes (sweet or white), beet pulp, cull beets, barley malt sprouts and more.

Some have storage problems, but there are ways to deal with that. "We've used wet distillers grains and can store them in an ag bag for relatively extended periods of time (about three months) without being treated with preservatives. But you need to use this feed fairly quickly; any exposed surface will start to mold. Keep it well covered and away from the air," Wright says.



Byproducts from processing such as wheat middings, soybean hulls and corn gluten feed can be used as alternative feed.

Hoppe says that wheat midds, unless they've been cooled and dried, may not store as well as some of the other dried feeds. "And some of the dry feeds take moisture out of the air and can be hard to store. Some products settle and become more solid and are hard to get out of a bin."

Transportation costs are a big factor in determining what can be economically fed. Most byproduct feeds are more feasible if you live close to the processing plant. Even straw may not be cost effective if it's a long haul, since it is lighter than hay and you can't get enough weight on a truck to make it worth the freight. Hauling some feeds may not be practical if the feed does not have enough nutrient density. "If you are going to haul it in, buy something like barley pellets, wheat midds or oilseed meal; it will stretch a lot farther, though it also must be limit fed (only a few pounds per day per cow)," Anderson says. **HW**