

# Grinding roughage cuts waste, says specialist

**NEW HOLLAND** — The reasons for grinding roughages aren't the same for all operators because individual operations vary widely. But the objective is always the same — it's maximum earnings, according to Dennis Raaen of Sperry New Holland. To see how grinding fits in, he says you have to look at feeding from the animals' viewpoint. In addition, management problems can be solved by grinding roughage.

"When forages are tender and lush you don't have to grind to improve nutrition. Cows get the job done on their own," the product manager says.

"Things change as forages mature. That's one reason we fine-chop for silage. At the time the crop yields the maximum milk per acre, it's too mature and tough to be fed unprocessed.

You'd have a lot of waste in material the cow doesn't eat and in the waste of poor and slow digestion. Production and earnings suffer," he says.

This waste — at both ends of the cow — is an important reason for grinding dry, high-fiber roughages.

Ordinarily, except for mechanical feeding, there's no reason to grind real good quality hay. Alfalfa hay cut in the pre-bud stage is almost too digestible without chopping or grinding. Cows clean it up with very little waste. But over-mature hay and low quality crop refuse will benefit from grinding. Cows, unlike horses, don't have "uppers." They need lots more time to process stringy roughage.

Grinding roughage is almost like changing water into wine. Poor quality roughages, even straw, gain in effective digestibility when you grind — providing you grind fine enough. In the case of straw that's getting it through a 1/2-inch hammermill screen according to Melfort, Saskatchewan research.

Ground that fine, the straw can be used for a larger part of a beef animal's ration.

Unground, it wouldn't keep animals thriving very long.

But, there are limits. You only use the poor quality roughage for part of the ration, even when you grind it fine enough. The finely ground material gains in "effective" feed value but it needs balancing out for protein, vitamins, minerals, and energy. You can use it to substitute for some better material. The substitution is a way to stretch out a limited amount of good hay through the Winter feeding season.

Grinding better quality hay hot-roads it through the cow's insides. As a result, ground hay can substitute for some of the grain.

"Less equals more" when you grind hay real fine. Good-quality ground hay actually loses a little in digestibility percentage because it moves through the animal faster. Apparently, it's through the digestive system and gone before digestion is completely finished. But that faster trip through is also the reason the cow can process a larger total volume of ground material. That increased intake, even at a slightly lower percentage of digestibility, gives the cow the benefit of more total digested nutrients. Result: Beef gains from hay that are more like you'd expect from grain.

With beef cattle, we hear gains over three pounds a day have been chalked up with 80 per cent ground hay and 20% grain," says Raaen.

Grinding the whole ration too fine for the whole year may land you in trouble with dairy cows. It's okay for a while. But, on the long haul you can expect health and reproductive problems if the feed doesn't contain enough long hay. It's something that's related to digestion in the rumen. Also, there's often a problem of very low butterfat test.

Dairy cows have to live a long time to be profitable. But beef animals should get to market as soon after 18 months as feasible, so the difference between dairy cows and slaughter cattle is a matter of about 18 months versus 10 years. This means the beef animal is off to market before the penalty of too-fine grinding catches up with you.

Convenience is a major reason many livestock producers grind forage. If hay goes through a tub grinder it's easy to add silage and grain for an all-in-one ration you can handle with a mixer-feeder wagon. That's fine for a feedlot or large dairy.

There's an additional advantage of waste control. Cattle eat the hay, stems and all, if it's ground and mixed with the silage and grain.

Grinding for this purpose is more likely to be done with a large-hole screen; four inches and sometimes larger.

Coarse grinding probably doesn't do the digestibility trick you'd get with a half-inch screen but you get far more capacity for the same horsepower. The coarse grind gives you the waste control advantage plus the convenience of mechanized handling. Together, these advantages justify grinding in many operations.

Another grinding task is a near perfect fit for custom operators: Reconstituted haylage.

One of the real advantages of the sealed type silo is the possibility of continuous use: Refilling at the top and unloading at the bottom. To make the most of their silo investment, owners like to fill them in the off-season. A tub grinder works the trick by reducing big round bales and loose hay stacks into particles small enough to get them out of the silo with a bottom unloader.

It's workable. Corn or sorghum stalks for reconstitution into silage should be ground fine enough to have the length of the particles about equal the results of a forage harvester cutterhead at a nominal 1/2-inch length of cut.

Hay crops — grass or legumes or even straw — should be ground fine enough to have the particles as short as you'd be expecting from a 1/4-inch length of cut to avoid unloading problems.

Coarser grinding is OK for trench or bunker silos providing enough moisture is added and the compaction and sealing gets done correctly.

Grinding fine enough to get the feed through a bottom unloader in a sealed silo soaks up power. Unless the material is very dry, it's advisable to try to do it in the Winter when the hay and stalks are in nature's deep-freeze.

Hay or stalks that will go through a fairly fine screen at a good clip in February might only go a fourth as fast after they thaw out if there's much moisture.

Very fine grinding is often easier in a grinder-mixer than in a tub grinder. The fan on the grinder-mixer hammermill makes the

difference, according to the Sperry New Holland manager. He points out the fan tends to pull the ground material through the screen. In a tub grinder you depend on centrifugal force and gravity to pass the ground hay through the screen.

For coarse grinding, that's all you really need. And, very fine processing is easy with the grinder-mixer. Either way, forage grinding lets you pocket the profits of "grain-on-grass" beef production all year-round. You stretch forage supply and beat waste, to boot.

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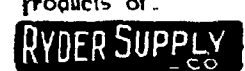

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