

Small grains plus vetch provide economical haylage

BY
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NEWARK, Del — Using hairy vetch plus small grains as cold season forages, double cropped and followed by corn or corn and soybeans for silage produces more feed tonnage, digestible energy, fiber and protein, and more milk and meat per acre in this area than any other dairy farm practice that I can think of, with the exception of forage brassicas.

With the capable help of Delaware Experiment Station farm with superintendent Larry Ford and his staff, we've experimented more with these crops during recent years at our university dairy farm, while trying in vain to secure good seed sources for brassica alternatives. And we've found many advantages to small grain forages plus vetch.

With this combination, we've been able to produce up to 10 tons of excellent haylage or silage, or up to 2 1/2 tons of good hay per acre in addition to plenty of corn silage for year-round heavy silage feeding, which is our most profitable way of producing milk.

There is little difference in

nutritional value or yield between rye, wheat, barley or oats, but rye gives us fewer optimal harvest dates. For forage use, small grains must be harvested in the boot stage at the end of April to beginning May and before head emergence. This doesn't give maximum tonnage but will give you the highest protein and digestible energy values per pound of harvested forage. The maturity stage of the grain plants—not the vetch—determines the harvest date.

The vetch contributes protein and digestible energy to the small grain mixture. Besides that, it enriches the soil for the subsequent corn crop. We estimate that hairy vetch has added an average of at least the equivalent of 50 pounds of nitrogen per acre per year over the last ten years, thus reducing our corn production costs. These estimates are based on observations by our university farm management team.

Another agronomic advantage of harvesting small grain forage early in the boot stage is that more residual winter moisture is available for the following corn silage crop, which can be planted

without yield-reducing delays—especially if you're using no-till.

One of our most successful production practices for small grains plus vetch involves plowing in a rotation program at least every third year. In non-plowing years we disk and smooth cultivate more than once. Some corn herbicide residues, such as Dual or Trizine may affect subsequent small grain and vetch growth, so some form of tillage is important.

To determine our fertilizer needs we analyze soil samples take after corn harvest. Phosphate, potassium and lime are usually applied in early fall. In the spring we apply about 70 pounds of liquid nitrogen before March 20 or, if it's a wet year, we may use granular nitrogen. Other fertilizer needs for the corn are based on harvest removal of nutrients by the preceding small grain/vetch crop. We like to maintain a soil pH of 6.0 to 6.5.

The small grain and vetch are seeded before November 1 as follows. In a cement mixer, we combine 48 pounds of barley seed and 9 pounds of inoculate hairy

vetch seed. We drill the seed at a rate of 2-1/2 bushels of small grains, such as barley, and 22 pounds of vetch, on a total of about 140 pounds per acre at a depth of 1.5 inches. The seeder is a conventional grain drill with double disk openers and a chain drag.

When selecting small grain varieties we prefer those with strong stems to support the vetch. This is because, if harvest were delayed, we've sometimes had problems with the vetch lodging on the grain plants.

We have harvested several hundred tons of vetch-plus-small grain forage each spring in recent years. This provides one-fourth to one third of our annual forage needs, allowing us to supplement our corn silage without increasing acreage—a real advantage, since cropland is limited. We usually make 60 to 70-percent moisture haylage (after wilting for about a day) with no preservatives. This goes into 100-ton plastic bags which we use as temporary, horizontal silos, since we don't have enough upright storage units for haylage.

On a dry matter basis our

barley- or rye-plus-vetch haylage mixtures have been testing between 14 to 20 percent crude protein, 32 to 42 percent acid detergent fiber and 0.40 to 0.5 megacalories of net energy per pound for lactation. By comparison, our corn silages usually test only 7 to 9 percent protein, the same fiber content but 50 to 90 percent higher energy due to the kernels.

Using small grain/vetch haylage has allowed us to use less commercial protein feed in our grain supplement program than we did when corn silage was our major or only succulent forage, since that tested only half the protein content or less.

For our university dairy herd the extra work and expense of planting, growing, harvesting and storing small grains plus vetch for supplementary forage has had decided agronomic, nutritional and economic benefits. If you've haven't tried it yet, I suggest you give this practice a try on your farm, too. In these tight economic times we must make good use of all available resources.



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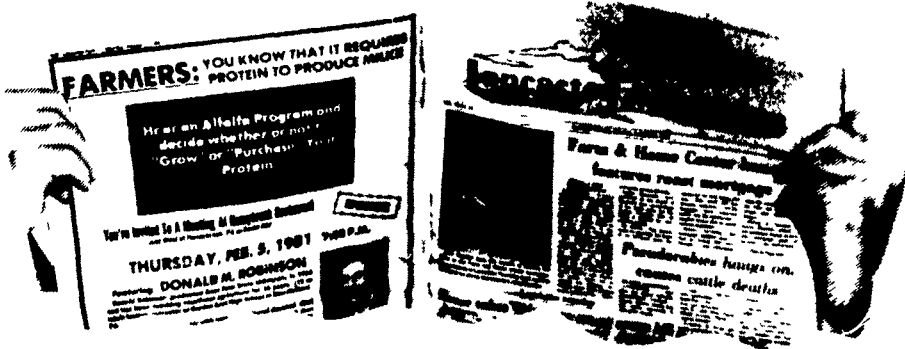
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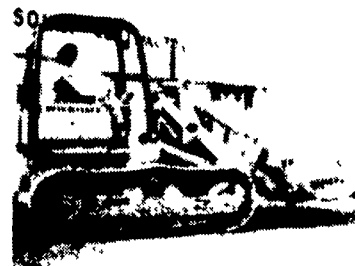
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