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Hay & Forage

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Dairy- Forage Nutrition Issue

Nutritionists' Challenges
Feed-Testing Breakthroughs
Drought-Proof Forages
Upgrade Corn Stover

Hay & Forage Grower

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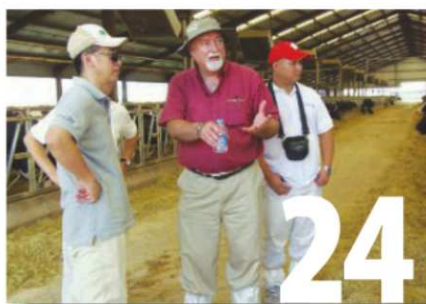
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Rocky Lemus checks a bermudagrass analysis from a new portable forage tester. The Mississippi State University Extension forage specialist says the unit will help producers make harvest and feed supplement decisions.

PHOTO: MSU AG COMMUNICATIONS/LINDA BREAZEALE

In-Field Forage Tester Scores High

Portable unit can pinpoint hay quality, researchers say

by **Fae Holin**

A forage tester that can be taken to the field to quickly measure forage dry matter content and nutrient levels is getting high marks for its accuracy, says a University of Wisconsin dairy scientist.

"At least for dry matter, we're happy with it," says Randy Shaver, who, with graduate student Matt Akins, conducted trials on it. The machine: Dinamica Generale's near-infrared reflectance spectroscopy (NIRS) portable unit recently made available in the U.S.

"We sampled both corn silage and alfalfa silage for 11 weeks from our

farm at Arlington (WI). We ran those through the NIRS unit and then we also did oven dry matters on those for comparisons. It's pretty comparable for both haylage and corn silage," Shaver says.

The Italian-made portable unit is currently available to Mississippi hay growers to determine "when is the best time to cut their hay and preserve quality," says Rocky Lemus, Mississippi State University (MSU) Extension forage specialist.

He bought the unit using \$30,000 in grant funds and says crude protein plus ADF and NDF digestibility data will help growers manage nutrients.

"A lot of producers are applying all fertilizer at once – or they're not splitting their applications correctly. This information will help us show, based on crude protein, how much nitrogen isn't there. And if they need to adjust or split nitrogen applications in a different way," says Lemus.

The unit comes with standard calibrations that users should update using their own samples, Shaver says. That's a matter of scanning 10 forage samples into the NIRS unit that are also analyzed commercially and then updating calibrations.

Lemus suggests using more than 10 – and including samples from different harvests throughout the year. "That will help to account for any environmental changes that might affect forage production and quality," he says.

His tester has been calibrated

for use on Mississippi forage crops, including annual ryegrass; wheat, rye and oat small grains; alfalfa; annual and perennial clover; bahiagrass; bermudagrass; tall fescue; and summer-annual crabgrass, teff and forage sorghums.

"One of our goals is to be able to develop specific equations for predicting the quality of all of these forage crops," he says.

Larger farms may be able to afford the cost of the tester, but Shaver believes it will mainly be used by nutritionists, crop consultants or feed stores as a service to growers.

Its passing the test on accuracy may help override the skepticism people have about portable units, says Matt Dobberstein, a Dinamica Generale regional manager based in Hudson, WI.

"Forage testers out years ago didn't work the way they were supposed to," he says. "Nobody kept up with the calibrations. But we do calibrations constantly, so the systems are always upgraded every year."

The tester will also offer relative feed value as one of its chemical parameters in the near future, he says.

More hay growers may see the value of forage testing as they use the unit, Lemus hopes. "I usually try to emphasize to my producers the need to balance quality and quantity of forage production. You have to be able to go in the field – especially in crops like bermudagrass that tend to lose forage quality quickly – and tell a producer, 'You're now at the prime of this forage's quality. If you wait more than a week or so, you start losing quality.'"

"It's real-time information," he points out. "Usually when you send a sample to the lab, it might take one or

Bucket-Mounted System Measures Consistent Rations

A \$70,000 software system mounted in a loader bucket analyzes feeds and calculates for dry matter adjustments at the TMR mixer. It should pay for itself in a year, figures Steve Brand, who milks 900 Holsteins with his wife, Mary, near Ellsworth, WI.

Brand is the first in his state to buy the dg Precision Feeding System, manufactured by the Italian company, Dinamica Generale. The system uses near-infrared reflectance spectroscopy to measure a feed's real-time dry matter and nutrient contents.

He had a couple of reasons for doing so.

"You get a feed program and the analyzer. We didn't have a feed program. A lot of people who are our size (operation) already have feeding programs, so it may be a little more difficult" for them to justify buying such a system and discarding their current programs, he says.

"Then, too, we have inexperienced feeders; they do a good job but probably not at (measuring) dry matter. This machine really helps; it will tell them how much feed to put in."

The system scans and analyzes each load of corn silage, high-moisture corn or alfalfa silage for dry matter, crude protein, ADF, NDF, starch, ash and crude fat contents

within 30 seconds. Readings transfer to a scale and rations are adjusted for any dry matter variations.

Brand was surprised to find how feeds vary from one bucket load to the next. But the amount left in bunks from one feeding to another is the same, he says, "so you know it's doing what it's supposed to do."

"With high feed prices, it's really a good tool to have because you're not overfeeding forages and you're not underfeeding them. And you're getting the ration more consistent."

Besides a feed savings, he estimates an increase in milk production of about 1-2 lbs/cow/day.

"It's a really useful tool for the nutritionist, because we have it set up where he can go online and look at the feed quality that we're getting. He can adjust the rations from home, then we just have to download it onto our computer and we'll send it to the TMR mixer." The adjustment is WiFied to the loader tractor and scale.

The system shouldn't replace regular commercial-lab tests, Brand stresses. He has feed samples commercially tested about once a month.

For more information on the Precision Feeding System, contact Matt Dobberstein at 715-781-7134 or dg-usa@dinamicagenerale.com. ♦

two weeks, depending on how busy the lab is, to get that sample back."

The forage-analysis equipment can also give a cattle producer a more accurate assessment on when to graze a specific pasture based on the quality

of the grass, Lemus says.

To contact Lemus, call 662-325-7718 or email him at RLemus@pss.msstate.edu. Contact Dobberstein at 715-781-7134 or dg-usa@dinamicagenerale.com. ♦

In-The-Field Device Adds Nutrient Analysis Capabilities

The John Deere HarvestLab now not only measures dry matter content, but also provides crude protein, starch and fiber near-infrared analysis of corn silage, says Steve Siegel, John Deere Intelligent Solutions Group product manager.

Its Constituent Sensing capabilities have been expanded in a partnership with Dairyland Labs, he adds. "With real-time nutrient analysis, producers and nutritionists can more easily and quickly analyze feed

rations for crude protein, fiber and other factors and make adjustments on a daily basis to improve nutrition and reduce feed variability."

The device is used on John Deere self-propelled forage harvesters to monitor corn silage at harvest and can be used as a stationary unit to evaluate silage quality at feeding.

The enhancement also allows more precise application of silage inoculants at harvest because rates can be adjusted according to crop and dry matter



readings, Siegel says.

For more information, visit a local John Deere dealer or www.JohnDeere.com. ♦

milk price is high," Hawbaker says. "But the next year, when the price drops, they can't pay for their decisions the year prior."

Before buying something, Straub encouraged them to ask themselves, "Is there any other way to get the job done without spending money? Is it something that serves multiple purposes? Can we pay for it in cash?"

Other family members who have benefitted from Straub's experience: daughter Patti and her husband, John Warnke, who farm an organic, grass-based dairy at St. Johns, and son Howard III, and his wife, Jamie, who rotationally grazed in Ohio for several years. Howard III is now manager of a Michigan State University pasture-based dairy in Hickory Corners. (A third daughter, Amanda, is the chief financial officer of a Tampa, FL, bank.)

Straub's herdsman and a few other young people have been taken under his wing, too. "I'm helping them put together the financial numbers needed to start their own farms," he says. "To me, rotational

grazing is where the money is, especially for smaller operations, and it makes farming more fun."

The Straubs were convinced 20 years ago that grazing was the way to go. Before the conversion, their confinement herd boasted the second-highest herd average – more than 24,000 lbs of milk – in Clinton County, one of the state's top dairy

**"Grazing-based dairying is a great way to get young farmers started in the business."
– Howard Straub**

counties.

The transition to grazing dropped that average to about 14,000 lbs, but the "balance in the checkbook got bigger," he says. Costs, including labor, fuel, machinery repairs and utilities, dropped significantly.

"Our veterinarian expenses decreased, too. We went from a monthly herd-health check to semi-annual ones. Our cows are healthier than they used to be because they're getting a lot more exercise."

The herd grazes mixtures of orchardgrass, clover, alfalfa and timothy from late April to mid-November. Every 24 hours, they're rotated to a fresh 3.3-acre paddock. Pastures comprise 128 acres of the Straub farm, with another 100 acres in alfalfa, harvested as baleage and fed in winter. The herd's diet is supplemented year-round with purchased corn and a mineral mix.

With annual profits now varying from around \$600 to \$1,800/cow, depending on milk prices and heifer-calf sales, Straub was able to put up a new free-stall barn a few years ago. He paid for it with cash. His first robotic milker was installed in January 2010 and a second one, last February.

"If my health is good, I want to be dairying 20 years from now," says Straub. "With the robots, this can easily be a one-man operation." ♦

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*Weiss, WP, Et Al, The Ohio State University. Willam Farm Variation In Nutrient Composition Of Feeds. 2012 Tri-State Nutrition Conference.