



## FOCUS ON DAIRY

### Penn State Cooperative Extension Capitol Region Dairy Team

#### TESTING SILAGES

**Tim Beck**  
Capitol Region Extension Dairy Program Coordinator

Silage harvest will begin soon in some areas. It's time to be thinking about how you'll evaluate the nutritional value of this year's crop.

Forage testing is absolutely essential to provide a balanced ration for the dairy herd. But beyond the basic tests available, there are many other options to consider using when special circumstances arise.

Drought conditions in some locations make it worth considering a nitrate test so that cutting height may be adjusted upward where high nitrates may be present in the crop. During times when rainfall is abundant, it's helpful to check the sugar content of the crop, since heavily eared corn is less likely to have soluble sugars present in the leaves and stalk as they have been used to produce grain.

Many labs offer a standard analysis package that will assess dry matter, crude protein, protein fractions, acid and neutral detergent fiber, and many of the macro and trace minerals. Frequently producers conduct the



**Tim Beck**

standard set of forage tests, balance accordingly, and still encounter poor cow performance.

Many issues may be involved, but frequently poor digestibility of forage crops and overestimated energy values are part of the problem. Fiber digestibility varies from year to year based on how much fiber is bound to lignin and therefore is indigestible to the cow.

Just knowing how much lignin is present doesn't tell the story. We must use procedures such as in vitro (in test tube) digestibility

## SRBC Urges Voluntary Water Conservation

**HARRISBURG** (Dauphin Co.) - In support of the Pennsylvania Department of Environmental Protection's (DEP) drought watch declaration for Central Pennsylvania, the Susquehanna River Basin Commission (SRBC) is calling on water users to conserve water. DEP's current drought watch declaration covers 23 Central Pennsylvania counties, all of which are located entirely or partially in the Susquehanna River Basin:

Adams, Bedford, Blair, Centre, Clinton, Columbia, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Lycoming, Mifflin, Montour, Northumberland, Perry, Schuylkill, Snyder, Union and York.

SRBC Executive Director Paul Swartz noted that the entire Susquehanna basin has experienced below normal precipitation in 11 of the past 13 months. March and June of 2001 are the only months when above normal precipitation was recorded.

"This extended period of below normal precipitation has resulted in ground-water levels dropping below normal, streams flowing well below normal throughout the basin, and very dry soil conditions," said Swartz. "Each day, more and more streams in New York and Pennsylvania are dropping to record daily low flows and the list of communities imposing water restrictions or bans on burning has begun to grow."

Swartz said, "The drought indicators have clearly been reached and so the Commission strongly endorses DEP's drought watch declaration. We urge water users to voluntarily conserve water to help reduce the stresses on public water supplies and individual wells."

Water conservation tips for residential water users include:

- Not watering established lawns (grass goes dormant — does not die — during dry conditions);
- Sweeping sidewalks and driveways, not hosing them down;
- Selecting more drought-tol-

erant vegetation and plant species for landscaping and using mulch to retain soil moisture;

- Taking short showers instead of baths;

- Using dishwashers and washing machines only when filled to capacity;

- Not letting the water run continuously while shaving, brushing teeth or washing dishes by hand;

- Inspecting and repairing all leaking faucets, pipes, hoses and toilets; and

- Installing water conservation devices.

Water conservation tips for industrial/commercial facilities include:

- Inspecting plumbing fixtures for leaks and repairing all faulty piping;

- Installing water conservation devices and updating outdated plumbing fixtures;

- Implementing a water re-use program; and

- Installing best available water conservation technology.

For more water conservation tips and for SRBC's most recent Hydrologic Conditions report, look on SRBC's Website [www.srb.net](http://www.srb.net).

The Susquehanna River Basin Commission is the governing agency established under a 100-year compact signed on Dec. 24, 1970 by the federal government and the states of New York, Pennsylvania and Maryland to protect and wisely manage the water resources of the Susquehanna River Basin. The Susquehanna River starts in Coopers-town, N.Y. and flows 444 miles to Havre de Grace, Md., where the river meets the Chesapeake Bay.

#### Corn Silage Whole-Plant Dry Down Rates<sup>a</sup>

Glenn A. Shirk, Extension Dairy Agent, Lancaster, Pa.

Looks can be deceiving. This week, the better looking corn planted on May 1 was drier than the more severely fired corn planted on the same date. It appears that the droughty corn was less functional and matured more slowly than the healthier corn, as evidenced by milk line progression, and tended to retain more of its moisture than healthier plants that were more active and maturing more naturally. This May 1 planting is now dropping below the desired moisture levels for proper ensiling.

Estimating plant dry down by the amount of firing can be deceptive. Even though the dryer corn showed about 60% firing, the weight of the dry leaves represents only a small part of the plant's total weight and is not necessarily indicative of the amount of moisture that is retained in the stalk.

This week a later planted sample of the same hybrid is added to the table. This corn looks good. It is tall, green and well eared.

Moisture Test Date	Kernel Milk Line	Whole Plant Moist %	Sol Sugar	Plant Firing % <sup>b</sup>	Predicted Days to Harvest <sup>c</sup>	
					Bunker Silo <sup>d</sup>	Tower Silo <sup>e</sup>
<b>110-day corn planted May 1. Well eared and good ear fill:</b>						
Aug 4	None	73.5		33	5	13
Aug 14	1/4	73.3		33	5	13
Aug 21	1/3	69.5		33	-1	7
Aug 28	1/2	63.8		40	-10	-2
<b>Same hybrid and field, but droughty, small ears, 75% ear fill:</b>						
Aug 4	None	73.5		50	5	13
Aug 14	1/4	72.8		50	4	12
Aug 21	1/4	69.3		50	-1	7
Aug 28	1/3	65.0		60	-8	0
<b>Same hybrid planted May 25. Well eared and good ear fill:</b>						
Aug 28	None	76		0	9	17

#### Footnotes

- a-Conducted at the Penn State Field Research Farm at Landisville.
- b-Percent of stalk fired from the ground upward
- c-Based on 0.65 drop in % moisture from last test date
- d-Based on a target moisture of 70% for bunker silos at harvest time.
- e-Based on a target moisture of 65% for tower silos at harvest time.

analysis to get a picture of how much fiber can actually be digested in a given forage sample. During in vitro testing, forage samples are incubated in rumen fluid under controlled conditions and the amount of fiber disappearance is measured.

Today's more sophisticated rumen modeling programs, such as the Cornell Net Carbohydrate and Protein System (CNCPS) and the latest NRC for Dairy Cattle, attempt to estimate the energy value of forages more accurately. To use CNCPS correctly, a producer must request some additional testing. Neutral detergent insoluble nitrogen (NDIN) and acid detergent insoluble nitrogen (ADIN) must be included in the testing regime to use these tools effectively.

Some labs offer a CNCPS package that provides the additional data. Rather than just using book values for energy, these programs calculate the energy value of forages based on more extensive test results than those used in previous ration balancing approaches.

Enzymatic starch and sugar tests may be used to more accurately assess the "true" nonstructural carbohydrate (NSC) present in a given diet. This can help the nutritionist assess and select supplemental energy sources in the diet to achieve a balance of fast, medium, and slowly digested carbohydrates.

When forages have elevated pH readings after fermentation or they have strong or unusual odors, consider a fermentation profile on the samples to assess how the forage fermented. The fermentation acids may help you identify what went wrong during the preservation process so the producer can make appropriate corrections for the next crop. Having soluble sugar checked before and after fermentation may tell a producer the odds for an undesirable fermentation in advance and just how much sugar remains in the forage when preservation is complete. When sugars are depleted during fermentation, the resulting forage has reduced energy value and must be supplemented appropriately.

Many of these testing options will require interpretation by a skilled nutritionist to properly interpret and apply the information to a dairy ration, but producers are encouraged to discuss these options with the herd's nutritionist. The dollars invested in some additional testing may return themselves many times over when "just the right combination" of ingredients can be identified.

More information on this topic may be found in the publication, *Agronomy Facts 44*, "Forage Quality Testing: Why, How, and Where," available from the local extension office or download a copy at <http://www.agronomy.psu.edu/Extension/Facts/AgFacts.html>. To select a forage testing laboratory, refer to DAS 99-18, "Animal diagnostic, forage, and feed testing laboratories in the Northeast" available at <http://www3.das.psu.edu/dcn/catforg/index.html>.

For additional information, contact Tim Beck at (717) 840-7408 or e-mail [tbeck@psu.edu](mailto:tbeck@psu.edu).

## Trust Unveils New Preserved Farm Sign, Kicks Off Harvest Appeal



**LANCASTER** (Lancaster Co.) — Tuesday this week brought the unveiling of the Lancaster Farmland Trust's new preserved farm sign. The signs, designed by Russ Cox of Smiling Otis Designs, will highlight the commitment of farmers to the Trust. Twenty farmers who have preserved through the Trust have already enthusiastically agreed to have the signs placed on their farms. At the unveiling were, from left, Amos Funk (seated), founder of Funks Farm Market, first Ag Preserve Board president, leader of agricultural preservation in Lancaster County; Debbie Schattgen, assistant to the executive director, The Lancaster County Foundation; James B. Sabino, executive director, The Lancaster County Foundation; Gene Garber, former major league baseball pitcher, first farmer to preserve farms through LFT, current Ag Preserve Board president; Tom Stouffer, Lancaster Farmland Trust president; and John Moose, vice president of the agricultural banking division at Fulton Bank. Moose chairs the Trust's fall 2001 Harvest Appeal to help Lancaster Farmland Trust achieve their goal of \$225,000.