Virginia Cooperative Extension
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DAIRY PIPELINE

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"Fermentation analysis can provide valuable information and help determine expected response to a forage or it's suitability for a given class of livestock on the farm."

"... proofs influence the healthy birth of replacements from healthy dams."

GET A BETTER HANDLE ON FORAGE QUALITY

Have you ever started the herd on a new silage crop and experienced an intake and milk production crash? Producers commonly evaluate silage on the basis of DM%, CP%, ADF% and NDF%. Generally, lower fiber means higher energy content and more milk. However, sometimes these traditional measures are not sufficient to determine how a herd might respond to a silage crop. Fermentation analysis can provide valuable information and help determine expected response to a forage or it's suitability for a given class of livestock on the farm.

Silage depends on fermentation of carbohydrates (primarily sugars and starch) to produce acids which in turn preserve the crop. Rapid filling, exclusion of air by good packing and a plentiful supply of readily available carbohydrates are essential for good fermentation. Goals for silage fermentation are shown in the table below.

What does the fermentation analysis tell us about a silage? A high pH commonly means a poor fermentation has occurred and the silage may not keep very well. It's also associated with higher losses of nutrients during fermentation. High pH is more common with mature forages or those ensiled too dry.

Lactic acid is a strong acid that should predominate in the silage. This is the acid responsible for the rapid drop in pH.

The importance of acetic acid is not as clear. *Lactobacillus buchneri* is included in some microbial additives and it produces acetic acid which helps to extend bunk life after silage is fed. If L. buchneri is not added, higher acetic acid levels might be associated with depressed intake.

Propionic and butyric acids should not be detectable. Butyric acid indicates an undesirable fermentation has occurred. This silage usually stinks!

High levels of ammonia are frequently associated with a poor fermentation. The silage may have been too wet, poorly packed or the silo filled too slowly. It usually indicates excessive breakdown of protein.

What can be done with a poorly fermented silage? Silage with high levels of butyric acid should not be fed to the milking herd and especially not to close up or fresh cows as it will result in low intake and increased ketosis. If it must be fed to the milking herd it should be fed to lower producing, later lactation cows and diluted with a higher quality silage. Older heifers may be more likely candidates to receive this forage. Dry silage with a low pH may be less digestible and have lower palatability. Sometimes the addition of wet brewers grains will help "perk" this silage up and improve intake of the ration. Fermentation analysis is available from many forage testing laboratories at an added cost above the basic analysis.

Item	Legume silage	Corn silage
pH	4.0 – 4.8	3.7 – 4.2
Lactic acid	6 – 8%	3 – 5%
Lactic acid (% of acids)	>70%	>70%
Acetic acid	<2%	<2%
Ammonia	<10% of total N	<10% of total N

—Bob James
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USING CALVING EASE AND STILLBIRTH PROOFS

Genetic evaluations are available for calving ease and incidence of stillbirths in Holstein and Brown Swiss sires. The proofs come in two forms: one which evaluates the bull himself as the sire of the calf (sire calving ease, SCE, or sire stillbirth rate, SSB) and one which evaluates the ease with which a bull's daughters give birth (daughter calving ease, DCE, or stillbirth rate of daughters, DSB). Collectively, these four proofs influence the healthy birth of replacements from healthy dams.

Calving ease proofs in Holsteins range from 3 to 17, with well over 200 active AI Holstein sires available at 7% difficult births or less. Ranges of proofs for Brown Swiss are smaller, as is the range in stillbirth proofs for both breeds.

Dairy producers everywhere recognize the importance of using bulls with lower calving ease proofs on virgin heifers, but what about older cows? Bulls that produce the higher rates of

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Upcoming Activities

Milk Quality Meeting: Focus on PI Counts Nov. 15 10:00—2:00
Smyth County Farm Bureau Building, Marion—Lunch will be provided—Contact Chase Scott at 276/223-6040

PCDART Workshop: Nov. 8 10:00-12:00 at Extension's Northwest District office in Harrisonburg. Focus will be the new protocol feature of PCDART. Participation is limited to 10 farms because of computer space. Contact Tina Horn at 540/245-5750 *or* John Welsh at 540/564-3080

2006 Area Dairy Conferences:

Dec. 11—
Waidsboro Ruritan Club, Rocky Mount. Contact Sue Puffenbarger at 540/483-5161

Dec. 12—
Best Western Inn, Culpeper. Contact Carl Stafford at 540/727-3435

Dec. 13—
Montezuma, Rockingham County. Contact Tina Horn at 540/245-5750 *or* John Welsh at 540/564-3080

Dec. 14—
Southern Piedmont AREC, Blackstone. Contact Cynthia Gregg at 434/848-2151 *or* Ron Duvall at 434/645-9315

If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.

difficult births will transmit genes for difficult calving to their daughters, regardless of the age of the mother. When bulls with high SCE are used on older cows, chances are good that heifer calves will be born easily enough, but they will inherit difficult calving genes from their sire that they in turn pass on to their calves.

Proofs for stillbirth rates are very new to producers, and questions about their importance are only natural. Stillborn calves are an economic loss. Producers can use Holstein bulls in active AI service with sire stillbirth proofs less than 6% and over 11%. A 5% difference between two bulls in stillbirth rates is extreme, but even 1 and 2% differences affect the budget of a dairy farm. Proofs for SSB or DSB of 10 or more are extreme in the wrong direction. There are plenty of proven Holstein bulls available to pass on these outliers.

Factoring the economic value of calving ability in with production, productive life, and other fitness traits for which genetic evaluations also exist is a job for an economic index. Net Merit does the job well, and should be an important guide when choosing which bulls to use in commercial dairy herds.

—Bennet Cassell
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Silage Density

Forage quality is one of the most important factors affecting the level of milk production. Some of the factors affecting forage quality, like weather, are outside of our control. Other factors like forage variety, proper planting and harvesting time can be controlled. Silage density through proper silo packing is another of the factors that can be controlled.

> "Proper packing to ensure good silage density is extremely important."

After getting a good crop harvested it is extremely important to ensure it is properly stored. Proper packing to ensure good silage density is extremely important. Silage density in a trench or bunker silo is related to many factors. These factors include: forage dry matter, packing time, weight of the tractor, silo filling rate.

Good silage density is important for many reasons. Oxygen is the enemy of good silage fermentation. The more densely packed the silage is the less oxygen that will be present. Dry matter loss greatly increases as silage density goes down (see table 1).

In order to see how good a job Virginia's farmers are doing packing silos, extension has purchased a special corer. By taking samples from various places in the silo silage density can be calculated. If you are interested in testing the silage density of your silo please contact your local dairy extension specialist to schedule a visit.

--John Currin
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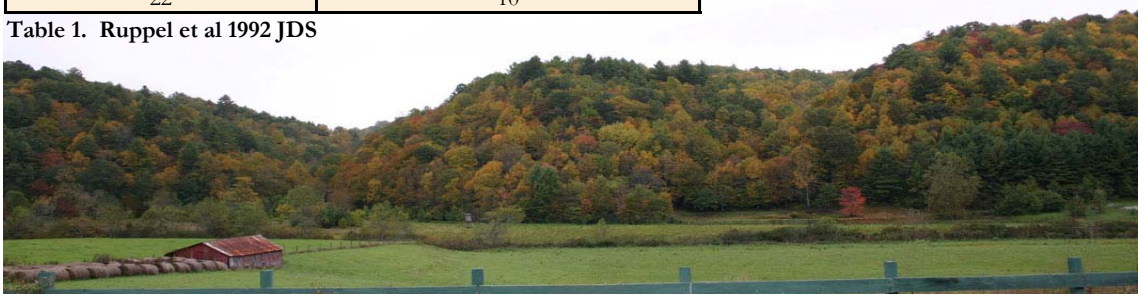
Corn Silage dry matter loss in bunker silos

Silage Density lbs DM/ft³	Dry Matter loss at 180 days (%)
10	20.2
14	16.8
15	15.9
16	15.1
18	13.4
22	10

Table 1. Ruppel et al 1992 JDS



For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy—Home of the Dairy Extension Program on the web at: www.vtdairy.dasc.vt.edu.

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