

## DAIRY PIPELINE

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### DO SILAGE INOCULANTS SURVIVE THE ENSILING PROCESS?

Enterococci are a group of bacteria with similar characteristics to streptococci. Very hardy bacteria, enterococci can survive harsh environmental conditions. These organisms have the ability to cause mastitis, like streptococci do, but unlike streptococci, are also used as silage inoculants. Based on this knowledge, we were curious as to whether these bacteria could also survive the ensiling process.

We conducted a study during the Fall of 2008 to examine the ability of two commercially available silage inoculants to survive the ensiling process in both grass and corn crops. In a laboratory setting, we applied split harvested corn and grass crops into three treatment groups (Inoculant 1, Inoculant 2 and a negative control). Inoculants were applied according to manufacturers directions and the crops were sealed to mimic the environmental conditions of a silo. We examined the enterococci count prior to inoculant application, and then after 1, 2 and 3 weeks of ensiling. Preliminary data suggest an increased number of enterococci on inoculated grass samples as compared to the negative control after the 3-week ensiling process. However, inoculation of the corn silage did not appear to increase the enterococci count following the third week of ensiling compared with the negative control. In all groups (inoculated

and negative control), there were enterococci present after the 3-week study. These preliminary data suggest enterococci are able to survive the harsh conditions of an ensiling period.

You may be asking yourself, 'why should I care?'. If enterococci are able to survive the low pH seen during ensiling, I would venture to guess they can also survive the GI tract of the dairy cow. If we are feeding silage with a high count of enterococci and they in fact can survive the GI tract, these bacteria will be found in the manure. Subsequent mastitis may occur through teat end exposure in the environment.

This is a big puzzle, with many more pieces to put together. If this indeed the case, we may want to choose different bacteria as silage inoculants. Silage inoculants serve an important process in the production of quality feed and the preservation of nutrients. However, there are many different types of bacteria that can act to preserve nutrients and improve the fermentation process. If we prove the hypothesized link, the recommendation would be to alter the bacterial populations in the silage inoculants, as opposed to the elimination of this effective feed management practice. We thank the *AdvanceVT* Program and Virginia Cooperative Extension for the funding of this project.

—Christina Petersson-Wolfe  
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"...we have used 650 lbs as the minimum body weight to breed HJ or JH heifer, while limits of 550 and 750 lbs are used for Jersey and Holstein heifers."

### WHAT WEIGHT FOR BREEDING CROSSBRED HEIFERS?

We have received some questions about the appropriate weight to breed crossbred heifers. At Virginia Tech, we have used 650 lbs as the minimum body weight to breed HJ or JH heifer, while limits of 550 and 750 lbs are used for Jersey and Holstein heifers.

The purebred limits work well, and the 650 lb limit is successful for the HJ and JH animals. Our HJ and JH crosses have been bred to Brown Swiss and Swedish Red bulls for the past three years. We have established a 750 lb minimum for Brown Swiss

sired heifers, but have settled on a 700 lb minimum for Swedish Red sired heifers, as the SRB is a somewhat smaller breed than Brown Swiss. We tried 650 lbs for the BS and SRB sired heifers at first

They conceived well enough at that weight, but the half dozen or so of BS and SRB sired heifers bred at 650 lbs entered the herd at 21 – 22 months, and seemed to struggle a bit. Our HJ and JH heifers were just a bit older when bred at the same weight were ready to go when they first freshened as young cows.

## Upcoming Activities

**Apr il 17–18**

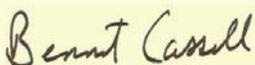
81st Annual Little All American, Blacksburg, VA  
Contact Phoebe for information (540) 231-4769 or phoebe@vt.edu

*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.*

### Southern Virginia Dairy Revitalization Project.

Virginia Cooperative Extension and the Virginia's State Dairywomen's Association has partnered with the Virginia Tobacco Indemnification Commission to offer a cost share program to assist qualifying dairy producers in the counties of Wythe, Smyth, Washington and Franklin, make improvements in the areas of cow comfort and cow handling. This program began taking applications in March and dairy producers in this area will be receiving more information regarding this program. Contact Beverly Cox in Franklin County (540) 483-5836 or Chase Scott for the counties of Wythe, Smyth, and Washington (276)-780-2695.

*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](http://www.vtdairy.dasc.vt.edu).



Bennet G. Cassell  
Dairy Extension Coordinator & Extension Dairy Scientist, Genetics & Management

Bottom line – my recommendations for weight at first breeding:

- ◆ Holstein – 750 lbs
- ◆ Jersey – 550 lbs
- ◆ HJ and JH F1 crosses - 650 lbs
- ◆ SRB sired heifers out of HJ or JH dams - 700 lbs
- ◆ BS sired heifers out of HJ or JH dams - 750 lbs

Today, all crossbred animals in the Virginia Tech herd are mated to Holstein

and Jersey bulls, as we return to two pure breeds following the crossbreeding trial. We intend to manage all of those backcross heifers, regardless of breed composition, as purebreds of the backcross breed as they approach breeding age. This will simplify heifer management initially, and will be the appropriate strategy in succeeding generations as the percentage of the backcross breed increases.

—Bennet Cassell  
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## UTILIZE BREAKEVEN PRODUCTION AS A CULLING GUIDE

The level of milk production needed to cover feed costs increases as milk prices decline. Consequently, over the next few months, more cows will drop below this point. The breakeven point will vary from farm to farm depending on feed prices and pay price received (including quality and fat premiums). To determine breakeven production for your farm use the following formula:

$$\frac{\text{Feed cost cow}}{\text{milk price cwt}} \times 100 = \frac{\text{lbs milk cow}}{\text{cwt}}$$

Any cow making less than breakeven production should be a candidate for culling or early dry off. If she is a cull, your work is done. However, if you are considering early dry off, the cost of feeding her as a dry cow must be considered. While the cow will still be costing you money in the milking string, it may be less costly to keep her there a little longer than in the dry lot where she generates no revenue. For instance, a cow making 30 lbs. at \$15/cwt and a

milk ration cost of \$5.00 costs you \$0.50 per day. Unless you can feed her for less than \$0.50 per day, you should keep milking her. Use caution with cows experiencing long dry periods to prevent fresh cow problems in the next lactation. These cows may need a separate group from dry cows with a normal dry period to prevent over conditioning.

The University of Wisconsin Center for Dairy Profitability has an excellent tool to help calculate breakeven milk production per cow. To access the tool, go to <http://cdp.wisc.edu/Decision%20Making%20Tools.htm>. There are several spreadsheets available on this site which may be of interest. The one addressing cull cow breakeven is titled 'Cull.xls'. The spreadsheet allows input for milk price (including premiums), production data (lbs/cow, fat %, protein %, SCC), and per cow costs for feed, labor, and milking supplies. You are encouraged to take advantage of this tool and others to provide an objective cost management tool.

—Beverly Cox,  
Extension Agent, Franklin County  
(540) 483-5161; [becox@vt.edu](mailto:becox@vt.edu)

“The breakeven point will vary from farm to farm depending on feed prices and pay price received...”

Milk price	Lactating ration \$	Dry ration \$	Cull cow lbs	Early Dry off lbs
12	4.5	1.5	38	25
12	5.5	2.0	46	29
14	4.5	1.5	32	21
14	5.5	2.0	39	25
16	4.5	1.5	28	19
16	5.5	2.0	34	22

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