

DAIRY PIPELINE

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“... a farm with no cooling in place... will have major impacts on production, overall cow health, and breeding.”

HOW WELL DO VIRGINIA COOLING SYSTEMS PERFORM?

Summer heat causes major disruptions in milk production and breeding for many Virginia dairy cattle. During the summer of 2008, data was collected by Virginia Cooperative Extension to assess effectiveness of different cooling systems. Over 15 different farms in Southwest and Central Virginia participated in the project. Farms in Central Virginia fell into one of three categories: fans only, fans and sprinklers with moderate natural ventilation (F&S1) and fans and sprinklers with better natural ventilation (F&S2). Each farm provided 4 or 5 cows to receive intravaginal temperature recorders for 7 days; this was repeated monthly for 4 months. Table 1 shows the average temperature differences between each of the different cooling systems. Graph 1 shows average body temperatures for cows in each of these cooling systems for a 4-day period in July, while graph 2 depicts average barn temperatures for this same period.

What can we learn from these data? It should come as no surprise that the combination of fans plus water provided superior cooling. Across the summer periods, cows cooled only with fans were on average 0.25 to 0.80 °F hotter than their counterparts cooled with fans and water. This temperature difference exceeded 1.25 to 1.5 °F at peak temperatures dur-

Date	Average temp difference (°F)		
	Fans vs. F&S1	Fans vs. F&S2	F&S1 vs. F&S2
7/7/08	0.56	0.57	0.06
8/5/08	0.46	0.24	-0.22
8/29/08	0.78	0.80	0.01
10/7/08	-0.06	0.57	0.67

Table 1.

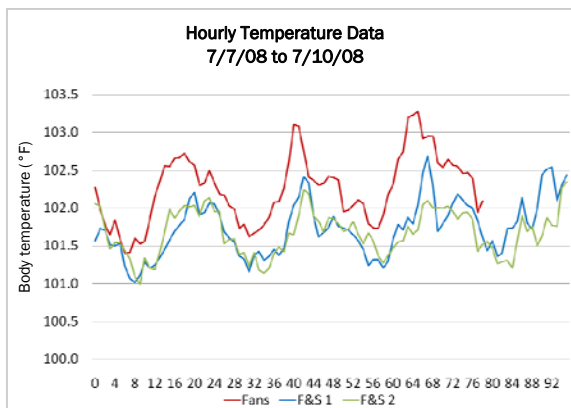
ing each period. Keep in mind 2008 was a relatively mild summer compared to other years. This could look worse during more extreme summers!

Looking at the difference between farms with both fans and sprinklers, but different natural ventilation shows little difference in average temperatures. However, facilities with better natural ventilation tended to have fewer and less severe temperature spikes.

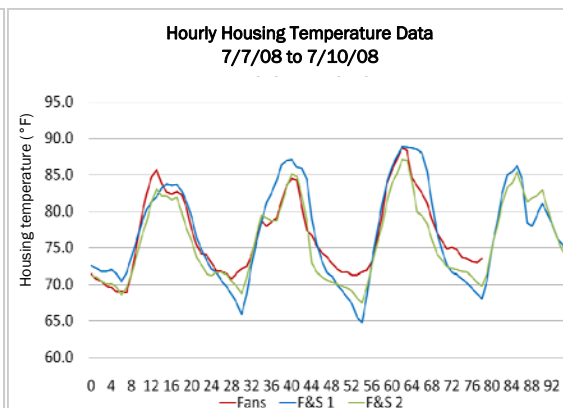
The take home points from this field project are use the best cooling system your facilities will allow. Where feasible, using a combination of fans and water will provide the best cooling. However, if your water supply is limited or manure system cannot handle the additional water, make sure you have good quality, clean fans in place. Also check to make sure your system is operating properly.

One farm on this project experienced a temporary electrical problem which shut down a portion of the fans. Average body temperatures rose from 101.5 °F to over 103 °F. Peaks during this same period exceeded 105 °F. This is comparable to a farm with no cooling in place; long term this will have major impacts on

production, overall cow health, and breeding. Contact your local dairy extension agent for recommendations on fan size and spacing or sprinkler settings.



Graph 1.



Graph 2.

—Beverly Cox, Extension Agent, Franklin County
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Upcoming Activities

Reminder: July 10 DMI second session

July 17 - VA Holstein Field Day (540) 564-3080 for details

July 21 - Hoof Care Workshop - Location TBA
VCE Rockingham
(540) 564-3080

July 25th 4-H Dairy Show at the Franklin County Recreational Park. Participation open to ages 5 to 19 – (540) 483-5161 for details

Virginia Ag Expo – August 6, 2009 hosted by the John N. Mills & Sons farm in King William County – details posted at www.viriniagrains.com

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.

WHAT LEVEL OF MILK PRODUCTION IS APPROPRIATE TO DRY OFF OR CULL A DAIRY COW?

Due to the increases in feed cost and depressed milk prices, it is time to re-evaluate the proper level of milk production at which to dry off or sell a cull cow.

The two most important determining factors are feed costs and milk price. The other two factors that go into making this decision are forage availability and overcrowding. If you are short on forage then it may be more beneficial to dry off or sell cows earlier than the breakeven milk production to avoid running out of feed. If the dairy is overcrowded the extra cows may be affecting the milk production of

the entire herd and thus they should leave the lactating string earlier than their breakeven point. The easiest way to determine if overcrowding is an issue on your farm is to dry off and/or

sell 5-10% of your cows at about the same time. You then need to see what happens to the bulk tank milk weights. If the bulk tank weights stay about the same or even go up a little you will know that overcrowding was affecting milk production. Table 1 shows the breakeven milk production level to dry a cow off for different levels of milk and feed prices.

Table 2 shows the breakeven level of milk production to cull a cow. Several assumptions have been made to model the breakeven point. The first assumption is that a cow at this level of milk production will eat approximately 85% of the herd average dry matter intake. The second assumption is that feed costs make up 90% of the variable cost of milk production for these cows.

As previously mentioned, it also assumes no overcrowding. It is important to note that even with the same input data there is a different breakeven level of milk production for drying off versus culling. This difference is due to the fact that dry cows must still be fed.

“It is important to note that even with the same input data there is a different breakeven level of milk production for drying off versus culling.”

Lactating Cow Ration Cost (per cow per day)	Dry Cow Ration Cost (per cow per day)	Mailbox Milk Price (per hundred weight)	Breakeven Milk Production (pounds)
\$5.00	\$1.75	\$12.00	25
\$5.50	\$2.00	\$12.00	27
\$6.00	\$2.00	\$12.00	31

Table 1. Breakeven Milk Production level for drying a cow off

Lactating Cow Ration Cost (per cow per day)	Mailbox Milk Price (per hundred weight)	Breakeven Milk Production Level (pounds)
\$5.00	\$14.00	39
\$5.50	\$12.00	43
\$6.00	\$13.00	47

Table 2. Breakeven Milk Production level for culling a cow

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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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