



**Penn State Cooperative Extension
Capitol Region Dairy Team**



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**CIRCULATION FANS
CAN HELP REDUCE
HEAT STRESS**

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After providing shade and an adequate air exchange, air movement can be beneficial by reducing heat stress in dairy cattle.

Air moving across a cow's body can improve the rate of heat loss from her body and also aid in evaporation of moisture from her skin. Circulation fans in the animal space accomplish this by mixing air and minimizing "hot spots."

To help reduce heat stress during hot weather, proper selection, placement, and operation of circulation fans is important. Studies indicate that an air speed of 220-440 feet per minute (2.5-5 mph) is necessary to be beneficial for dairy cattle. Most circulation fans are able to produce air velocities greater than this for a distance of approximately 10 times their diameter (24 inches in diameter for 20 feet; 36 inches in diameter for 30 feet, etc.). However, the guard design, blade design, motor size, and blade speed all affect performance. Dust and dirt build up on the blade and guards can also greatly affect performance.

Some fan manufacturers claim "their" fans are able to move air in the 2-5 mph range for up to 20 times the diameter. However, my evaluation of these fans (with cows in the area) indicates that the spacing should be no more than 15 times the diameter.

Cows influence the effective air movement. Air leaving the fans strikes standing cows and creates a "wind shadow" or an area of little air movement for cows that are downstream. Spacing the fans 10 times their diameter or less (in the direction of airflow) usually provides uniform, effective air movement.

In naturally ventilated shelters, the direction of airflow should follow the predominant prevailing winds during warm weather. However, if quality fans are placed as recommended, performance is still acceptable when breezes come from the opposite direction.

Circulation fans are usually installed with the bottom 7 to 8 feet above the cow alley (out of cow and equipment reach) and tilted 20 to 30 degrees downward.

Circulation fans should be placed in the areas where the cows spend the most time — the resting, feeding, and the milking area. In tiestall barns, a single row over each stall row is adequate, while freestall and loose housing systems generally require multiple rows of fans.

Typical recommendations for freestall shelters place fans over each stall row and at the feeding area. Sometimes a single row of fans is used over head-to-head rows of freestalls. However, in these head-to-head arrangements, the fans should be spaced no further than 8 times their diameter to provide adequate airflow.

In tiestall shelters, fans are usually placed above the front third of the stall. When sidewall fans and perimeter inlets are used to provide an air exchange, some fan suppliers suggest that fans above one stall row move air in one direction while the other row moves in the opposite direction to circulate the air more evenly. However, circulation fans used in conjunction with tunnel ventilation systems should encourage airflow in one direction — toward the exhaust fans.

Circulation fans are useful when the temperatures go above 70 degrees Fahrenheit (or so) in the animal area. Thermostats or sensors with NEMA 4 enclosures should be installed in the animal area and kept clean to accurately sense the conditions. During periods of hot weather, circulation fans improve the cow's ability to get rid of heat at night. Research at the University of Missouri found that core temperature of a cow could be reduced up to 1 degree Fahrenheit (F) by using circulation fans to aid cooling at night compared to using fans during the day only.

The most effective heat stress abatement systems use circulation fans along with spray or evaporative cooling during hot weather. The next article will discuss cooling systems for dairy cattle using water.

FORAGING AROUND

*the newsletter of the
Pennsylvania Forage and
Grassland Council (PFGC),
includes several farm features
with a focus on pasture quality.
The special summer section
will be included with
Lancaster Farming July 14.
Another section, the fall PFGC
issue, is scheduled Sept. 15.-*

Somerset County Day At The Farm Cancelled

**GAY BROWNLEE
Somerset Co. Correspondent**
SOMERSET (Somerset Co.) — The annual Somerset County Day at the Farm has been cancelled by the Somerset County Farm Bureau, according to Harold Shaulis, Farm Bureau president and chairperson of the event.

Normally the event is scheduled the last Sunday in June, which, this year, would have been June 24.

In arriving at the difficult decision, Shaulis said the agency had to consider livestock at the host farm in view of the potential that some 1,500 visitors could be expected to attend the summer event.

"We did not feel comfortable to ask anybody to put their farm at risk," said Shaulis. "There are too many 'if's,'" he said.

"There are a lot of disappointed people, but they understand. We want to come back bigger and better next year."

Lynette Ely, secretary of the Somerset County Maple Producers Association, which at the last three events has served maple sundaes to the public, was down-to-earth about the news and took a practical view. "It's one of the things that go with farming. You roll with the punches," she said.

"It's sort of symbolic. Some years are good and others aren't," said Ely.

Interestingly, Shaulis said that very few people ask about foot and mouth disease. There tends to be a blasé attitude. In general, when people interact with each other and the livestock — as in the very popular petting zoo — to some, the risk potential doesn't seem to be an issue.

"The big thing is (foot and mouth disease) is not a 'people thing,' and they take a lackadaisical attitude about it," said Shaulis.

Shaulis said the success of Somerset County Day at the Farm is owing to a combined effort of many people who handle the afternoon program. Some 100 volunteers roll up their collective sleeves 3-4 months in advance and work to showcase agriculture through commodity samples, demonstrations, hayrides, and so forth. Monetarily, the investment for Day at the Farm, Shaulis said, is \$5,000.

"The Farm Bureau organizes it, but we really rely on other people's expertise for segments of the program," said Shaulis.

That would include representatives from the dairy, beef, lamb, maple, potato, beekeeping, and grain industries; 4-H clubs; hoof trimmers; sheep shearers; veterinarians; equipment dealers and other agri-businesses; chemical dealers; and other exhibitors.

Among those helpers, for instance, Dorothy Naugle handles dairy promotion from inside the Little Red Barn owned by the Allied Milk Producers Cooperative, Inc. She is the cooperative's dairy marketing specialist and usually assisted by the dairy princess, dairy maids, or volunteers from

the local dairy promotion committee.

Naugle reported they are going to miss the 2001 Day at the Farm, but the feeling of Allied Milk Producers is "better safe than sorry."

Visitors are known to line up at the Little Red Barn for cool and creamy refreshments. The same is true when the mobile dairy bar is used at events throughout Pennsylvania and neighboring states.

The event provides a great venue to reach uninformed urbanites who otherwise couldn't tell you where their food comes from.

"The main objective is to pull in people from urban areas and educate them," said Naugle.

Naugle said up to five area dairies contribute the ice cold milk used at the event.

"Somerset County is called the 'Land of Milk and Maple,' and it is very opportune that the two products can be presented together (at Day at the Farm)," said Ely.

She said that in some ways, though, it is nice to have a break from all the planning.



Keep by the Phone

Prevent a Foot and Mouth Catastrophe Watch for Signs of Foot and Mouth Disease

Clinical signs of Foot and Mouth Disease (FMD):

Early Signs may include:

- Fever
- Off feed
- Reluctant to move
- Excessive squealing when forced to move

Followed by blisters:

- Just above the hoof and on the heels
- Between the cloven hoofs
- On the snout

If you suspect Foot and Mouth Disease FMD in your herd:

1. Do **NOT** under any circumstances move any animals off the farm
2. Immediately report suspected case to either the Pennsylvania Department of Agriculture (PDA) or the United States Department of Agriculture (USDA).
Contacts:
PDA - Dr. Phil Debok at 717-783-8300
USDA - Dr. Lynne Siegfried at 717-782-3442
3. A veterinarian especially trained to diagnose foreign animal diseases will come to your farm to make the diagnosis.
4. Government programs are in place to reimburse farmers for the value of their animals sacrificed in the control program.

Provided by the Pennsylvania Pork Producers Council