Cooling hogs in summer need not be expensive

By Daniel J. Meyer
Extension Agricultural Engineer
The Pennsylvania State University

UNIVERSITY PARK — Hot weather reduces swine performance. Lowered feed consumption, conception rates, and higher large hog death losses are the result.

Pork producers can reduce their economic losses by adding various cooling systems. These options include using:

1. Drip cooling on crated sows.
2. Snout cooling on crated sows.
3. Evaporative cooling cells.
4. Up-to-date summer ventilation fan rates.
5. Large sidewall vent doors on naturally ventilated buildings.
6. A wide ridge opening (24") on naturally ventilated buildings.
7. Timed sprinkling in open pens.
8. Overhead paddle-type circulating fans.

The simplest and lowest cost cooling idea for sows in crates is the dripper system. A 0.8 gallon per hour greenhouse dripper is forced (needled or drilled) into a plastic water line over the top of each sow. The line can be on the crate if protected or attached to the ceiling. It should be located 18 inches behind the front of the crate to reduce wetting the feed. Two valves are needed - one to shut it off and one to keep the flow uniform (adjust only once). About 1-2 drips per second is adequate on the sow's shoulders. Ideally the floor should be totally slotted to prevent wet floors for the little pigs. Some companies manufacture a unit with a thermostat to turn it on automatically when temperatures exceed 80°F. The greenhouse dripper is about eight inches long, 1/8 inch in diameter and sells for about ½ cent each.

Sows in the farrowing house and boars can benefit from snout cooling. A flexible pipe (four-inch) is connected to duct work which provides 50 cubic feet of air per minute (cfm) per sow or 100 cfm/boar of tempered air (cooled by earth tubes or an evaporative cooler). If the air isn't tempered, ventilate at the snout with five-inch tubing and 100 cfm/boar of tempered air (cooled by earth tubes or an evaporative cooler). If the air isn't tempered, ventilate at the snout with five-inch tubing and 100 cfm/sow and 150 cfm/boar. The air should be directed as close to their nose as possible since the lungs do most of the cooling for the sows. A suspended 8-10" diameter PVC pipe with foggers inside and a fan at the end is a type of commercial system available which uses the concept of evaporative cooling in a pipe. The pipe is placed six to seven feet above the floor and can cool sows and boars in rows up to 70 feet long. Four-inch PVC pipes with 90° elbows extend from the 8-10 inch pipe down to the sows or boars.

Piping geothermally cooled air through PVC snout cooling systems is one way to keep sows comfortable throughout the hot summer months.

Evaporative cooling wall pads, circular drums, and box units are available commercially. The incoming air is passed through a moist pad, where the heat in the air evaporates moisture into the air. This raises the relative humidity while lowering the temperature of the air. The lower the relative humidity of the incoming air, the more effective evaporative cooling is. A rule of thumb is that evaporative coolers are effective when the temperature in degrees Fahrenheit plus humidity in percent total less than 120. Most units use a circulating pump to distribute water over a fibrous pad. Air is drawn through the pads into the animal area. Routine maintenance is essential to control algae growth and dirt buildup. Pad life is 3-5 years.

The pad area needed in square feet can be approximated by dividing the ventilation rate in cfm by 150 for aspen pads and by 250 for cellulose pads. The water sump should have a capacity of 0.5 gal/sq ft of aspen pad and 0.8 gal/sq ft for a cellulose pad. The flow rate in the distribution pipe over the pads should be 0.3 gal/min. Economics usually dictate that the breeding and farrowing buildings are evaporative cooled.

Recent educational swine information on cooling sows and boars suggests higher rates than previous materials. The following table summarizes their recommendations. If your swine facility is over 2 years old your ventilation rates may be too low. The rates for mechanically ventilated buildings should be checked against the table.

Summer Ventilation Rates

Animal Type	cfm
Sow & Litter	500
Boar	300
Gestation Sow	150
Sow in Breeding Bldg.	300

There are four methods of cooling naturally ventilated buildings for growers, finishers, gestation and breeding animals. These are summarized as the previously listed options five, six, seven, and eight. Ventilation doors on both sides of the building should be open one foot for every ten feet of building width for summer ventilation.

A recently developed concept for naturally ventilated buildings is to open the ridge 24 inches. This option is not possible in buildings with ceilings at 8-10 feet. The ridge opening size is adjustable with two 2x12 doors for winter. The door adjustment is controlled by a thermostat on an automatic door controller. This helps to maintain a constant temperature. The suction at the ridge is directly proportional to the wind velocity. The wide ridge aids summer ventilation in buildings less than 75 feet apart and in buildings which have prevailing summer winds blowing parallel to the ridge rather than perpendicular to the ridge. On still days and in wide buildings over 48 feet the wide ridge can drop inside building temperatures 10-15°F. The open ridge also reduces ammonia levels in buildings with pits underneath in winter since ammonia rises.

Sprinklers on timers (over slotted floors preferred) are effective in pen type situations. The timer is needed to allow the moisture to evaporate off the wetted skin. Research studies measuring the performance of finishing hogs in hot weather reveal that animals perform as well with sprinklers as they do with evaporative cooling of inlet air. Sprinklers should be designed to run one to two minutes in every 30-minute period above 80°F. For a pen of 20 pigs the water requirement at 40 psi is 0.4 gal/hr. An in-line filter is needed to keep the nozzles from plugging.

A cooling technique that increases the sprinkler system ef-

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Montgomery extension offers foaling tips

Waiting for your broodmare's first foal can make you almost as nervous as waiting for a baby to be born. But knowing how to take care of the mare prior to foaling as well as knowing how to recognize problems during foaling, can reduce the novice's stress and the risks to the mare and foal, says Nancy Kadwill, County Agent, Montgomery County Cooperative Extension Service.

A mare should receive regular, adequate exercise during pregnancy. But don't turn the mare out on slippery, rough ground. A fall could hurt the unborn foal.

Worm the mare during the last four to six weeks of pregnancy with a medication approved by your veterinarian to reduce the danger of the foal being infected at birth with worms. The veterinarian may also recommend administration of one or more vaccines in late pregnancy.

During the last 30 days of pregnancy, keep the mare in a stall at night. She will have a chance to get used to both the stall and the horses in neighboring stalls. She will be less nervous about her surroundings when the foaling date comes.

Mares begin to get ready for foaling 24 to 48 hours ahead of time, although they may develop some udder size four to six weeks earlier. The foal begins to position itself inside the mare. The udder becomes distended and may ooze a honey-colored fluid or colostrum. If the mare actually drips milk, you should save the colostrum and feed it to the foal.

Birth usually occurs within 24 hours of these signs.

Check the mare at two-hour intervals around the clock as foaling time approaches. Leave a small light on so you can check the mare without disturbing her.

When foaling time is close, the mare may be restless. If undisturbed, she will probably foal lying down. Once labor begins, birth should occur in less than an hour. A normal delivery time is 20 to 30 minutes.

The foal's nose and feet appear first. The foal's membranes should be broken to allow it to breathe and clear its nostrils after delivery. Do not disturb the mare and foal, though. Allow them time to get acquainted.

If the feet appear without the nose or if the birth is taking too long, call for professional help. Foaling difficulties are an absolute emergency.

Once the foal is born, saturate the naval cord in 7 percent iodine as soon as possible. Have your veterinarian give the mare and foal a complete physical within 24 hours.

Trichinosis blood test developed at Beltsville

WASHINGTON, D.C. — A new blood test for pigs may strip some of the mystery from trichinosis, a disease that costs the pork industry millions of dollars in sales annually.

Animal disease scientists for the U.S. Department of Agriculture's Agricultural Research Service today said the test — the result of biotechnology research — is more than 90 percent accurate in detecting trichinosis in live pigs.

Identification of infected pigs posed problems in the past, said H. Ray Gamble, developer of the new test and a parasitologist based at USDA's Beltsville, Md., research center. He said it had been difficult using earlier tests to separate trichina parasites and certain other parasites of pigs.

"The new test specifically detects trichina infections — nothing else — at a higher level of accuracy than previously achieved without slaughtering the animal," Gamble said.

Pigs are the main domesticated food animal to contract trichinosis, he said, but occurrence among them is uncommon. Only about one in a thousand is believed to be infected.

Even if a pig has trichinosis, thorough cooking or freezing (at -10 degrees Fahrenheit for 10 days, for example) will make the pork safe to eat, according to USDA recommendations.

A total of 29 cases of human trichinosis were reported to the United States last year. Because the symptoms are flu-like in mild cases, there probably are far more undiagnosed cases each year, Gamble said.

Originally, the new blood test was developed as a research tool, but the research agency's national swine trichinosis epidemiology project is using it to determine the prevalence and distribution of the disease, said K. Darwin Murrell, chief of the agency's Helminthic Diseases Laboratory at Beltsville.

He said USDA's Food Safety and Inspection Service and Animal and Plant Health Inspection Service, state regulatory agencies and agricultural experiment stations, and industry are cooperating in the project.

When the geographical distribution is known, scientists can concentrate control measures in the most critical areas, Murrell said.

Experts are uncertain how pigs become infected with trichinosis. Some attributed infection to eating improperly cooked garbage, others to pigs eating infected farm rats or wild animal carcasses, or directly to hog cannibalism.

If researchers can determine the method of on-farm infection, then farmers can develop and use more effective preventive measures, Murrell said.

The National Pork Producers Council is coordinating a task force of federal, state and industry researchers that seeks to eliminate trichinosis in pigs by 1987.