

LIVESTOCK LATEST



Swine producers:

Are heat exchangers for you?

Have you ever watched a farrowing house fan in the middle of winter — and then gritted your teeth because it's pumping heat right out the window?

"Your ventilation system, even in well insulated swine buildings, accounts for 75 to 80 percent of the total heat lost," says University of Delaware extension livestock specialist Dr. Ken Kephart.

The 1983-84 heating season may be over, but he says now's the time for pork producers to think about changes for next winter. What can be done to reduce heat loss from buildings?

One solution may be to install a heat exchanger. This is a gadget designed to recover some of the heat from exhausted air — before it leaves a building. The unit works by moving incoming cold air and warm exhaust air very close together — so close that a sheet of

metal or plastic is the only thing separating the two air flows. The result? Outgoing air is cooled off and incoming air is warmed up.

"You can imagine the advantages," says Kephart. "Instead of dumping zero-degree air into a room, you may be able to bring in 30 or 40-degree air. Because warmer air mixes more readily than heavy, cold air, drafts are often reduced. And reclaiming heat saves money."

Does this mean that anyone adding supplemental heat to a swine facility should buy a heat exchanger? Not at all, says the specialist. Before making that decision there are lots of things to consider, such as ventilation rate, air distribution, and the compatibility of a heat exchanger with your present ventilation system.

The heat exchanger should provide the minimum ventilation

rate for the facility. For example, the minimum airflow requirement for a sow and litter is about 20 cubic feet per minute. If there are 20 sows in one room, the heat exchanger should deliver about 400 cfm or slightly more.

It also ought to have two fans — one to blow air into the unit and one for exhaust. Manufacturers often design the exhaust fan slightly larger than the intake fan. That creates a slight vacuum inside the building, and under most conditions, that's preferred. "Keep in mind that the exhaust fan determines your ventilation rate. So it should be sized to your needs," Kephart says.

Cleaning can be a real chore with some units. The volume of dust and dirt that has to travel through the narrow channels and tubes in these units can get them dirty in a hurry. And as dirt accumulates, air flow and efficiency decrease. So a system that's easy and quick to clean is a must.

Air inlets are another consideration. Most heat exchangers have a single discharge point. This can be a problem in large rooms. To ensure proper air distribution, some engineers recommend connecting a discharge duct to the unit when the room measures more than 20 feet in either dimension.

And then there's the matter of compatibility. "You already have one ventilation system and it must work smoothly with the heat exchanger you buy," points out Kephart. For example, when temperatures get too high in the building, another fan should come on. And when it does, an additional inlet must open to allow air into the room. When the fan shuts off, the inlet should automatically close to prevent backdrafting.

Anything in a hog facility is subject to rot, rust or total destruction, so durability is also important. Be sure to buy a heat exchanger that will last long enough to pay for itself.

The efficiency of a heat exchanger is measured in terms of heat recovered, as a percentage of total ventilation heat loss. According to the specialist, this is determined by the design of the unit and environmental conditions (primarily temperature and humidity) inside and outside the building.

"Most manufacturers advertise an efficiency rating," he says. "A realistic expectation is 40 to 60 percent. When a sales rep mentions the efficiency of his unit, find out the exact conditions under which the measurement was taken. Then discuss the specifications with an extension engineer in order to compare units made by various companies."

Heat exchangers work better when it's very cold outside and quite warm inside. So they're generally well suited to nurseries where temperatures often are maintained at 80 degrees or more.

"They certainly won't pay in a finishing unit," Kephart says.



Studies have shown heat exchangers to be particularly effective in nurseries where high temperatures are maintained.

"And many people question whether putting one in a farrowing house is justified, since temperatures there are usually in the 65- to 70-degree range."

Will a heat exchanger pay for itself? It might. Or it could cost you even more money.

"Suppose you keep the fans turned down to save on heating costs," the specialist explains. "You'll save fuel, but you're also

under-ventilating. So if you install a heat exchanger, you'll be moving more air than you were when the fans were turned back. In this case, even though the unit is recovering heat, your fuel bill could actually go up."

So consider all the details before deciding to go whole hog into heat exchangers, Kephart concludes. They aren't meant for everybody.

Rutgers offers beekeeping course

NEW BRUNSWICK, NJ — Rutgers University will again be offering its ever popular three day beekeeping short course. Probably one of the oldest continuously offered beekeeping short courses in the country, this course has attracted people from all walks of life, people of all ages, and people from all over the United States and from many foreign countries.

The beekeeping background of those attending has ranged from rank novices just contemplating getting into beekeeping to commercial beekeepers.

This year with Dr. Rad Roberts, Rutgers' Beekeeping Specialist being away, the course will be under the direction of Mr. Jack Mathenius, the New Jersey Supervisor of Beekeeping and Dr. Bob Berthold, Delaware Valley College, Pennsylvania's Beekeeping expert. Emphasis will be mainly on the practical aspects of beekeeping with discussions and demonstrations in the classroom and laboratory and hands on experience in the field.

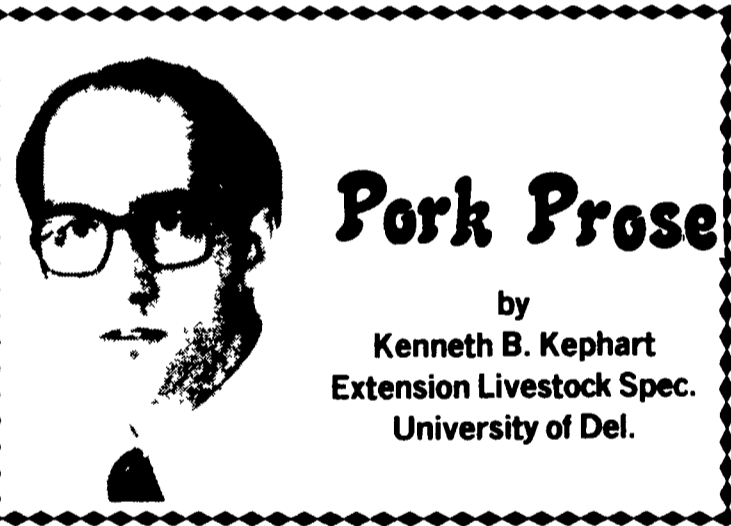
The dates for the course are Wednesday, Thursday, and Friday, June 27, 28 and 29, 1984. Additional information and an application can be obtained by writing or calling Mr. Ned Lipman, P.O. Box 231, New Brunswick, NJ 08903 or by calling 201-932-9271 or 932-8996.

Union County Fair schedules livestock sale

LAURELTON — A Junior Livestock Sale will be held in conjunction with the Union County Fair on August 8, at 8:00 p.m. Staged at the Union County West End Fairgrounds along Route 45 in Laurelton, the sale will feature 4-H and FFA livestock, and will be followed by a sale of Holstein steers.

Proceeds from the steer sale will be donated to a fund set aside by the fair association to erect a new dairy show barn.

Celebrating its 59th year, the Union County Fair has hosted the Livestock Sale for the past five years.



Pork Prose

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Most producers put a lot of emphasis on underline quality when selecting replacement gilts. That makes sense. Without a functional udder on the sow, her baby pigs won't survive.

But believe it or not, it's hard to find solid evidence to prove this theory. In the last 25 years, experiments from Missouri, Nebraska, Minnesota and Europe show little if any correlation between the number of functional teats and the number of pigs weaned.

And now we have yet another report, this time from Auburn University. Researchers on that project, S.B. Jungst and D.L. Kuhlert, conclude: "gilt selection programs that place selection pressure on teat number and against inverted and pin nipples seem unwarranted" for improving litter size or weight.

So, should we just ignore underline quality in the replacement sow herd? Not in my book.

When you look at the Auburn study, the number of functional teats averaged 13.7 per sow. Ninety-five percent of the sows had between 11.7 and 15.6 functional nipples. No wonder they couldn't find an effect. The worst sows in the bunch had over 11 functional teats. While an underline with 11 nipples isn't great, it's certainly good enough to support nine pigs.

And in the other studies (where the data are shown) nearly all of the sows used had good underlines. There just weren't enough poor ones in the group to back up what we've been practicing all these years.

The folks at Auburn looked at a lot of other underline traits besides total number of teats. They also examined number of teats in front of the navel, number of inverted nipples, number of pin nipples, underline length and total body length. The only trait that had any effect on litter survival of litter weight, was underline length.

And as strange as it seems, their data shows that when underline length decreases by five inches, litter size is improved by one pig and litter weight is increased found pounds at six weeks. I'd like to see that study repeated.

Am I saying all these experiments are useless? Not at all. They make an important point, but they miss one, too.

If all the gilts in your herd have at least 12 functional teats, there's probably little justification in selecting for underline quality. But if you've got some that have only 7 or 8 good nipples, they sure aren't going to raise 9 or 10 pigs and you should select against those gilts. That's the point these studies missed.