

## Act fast to save flocks if ventilation fails

NEWARK, Del. — Every winter a few growers lose a large part of a broiler flock during a ventilation failure on a cold winter night. The malfunction may be caused by improper management or loss of electrical power. In either case, the proper emergency procedure is simply to revert to natural ventilation. If this isn't done soon enough, birds will die.

What causes their death? And how much time does a grower have to save a flock?

Norm Collins, agricultural engineer with the University of Delaware's Agricultural Experiment Station, says that high room temperature and relative humidity, rather than the levels of carbon dioxide or oxygen, are the lethal factors in such flock deaths.

Furthermore, mortality occurs sooner in houses designed to reduce energy consumption. In fact, the adoption of energy conservation techniques (more insulation, limited area brooding and automatic inlet systems to reduce heat loss due to infiltration) has increased the potential for loss during ventilation failures on cold winter nights, reports the engineer.

In case of a power failure, birds in an airtight house are in greatest jeopardy. And the warmer it is outside when the ventilation system fails, the sooner mortality will occur. For example, if the outside temperature is in the mid-forties, birds over 30 days old can be expected to die within 3 1/2 hours.

After 14 days of age, broilers

produce enough heat to raise room temperatures above the normal brooding temperature. In older birds, room temperature can easily exceed 100 F. But mortality isn't limited to older birds. Young broilers in limited area brooding systems are also vulnerable.

The five to seven days prior to the day of partition removal are critical in limited area brooding, from a power failure standpoint. In the case of one-half house brooding and during the critical period (23-28 days), mortality can be expected in an airtight house about two hours after the ventilation system become inoperative. In the case of one-third house brooding during the first critical period (13-18 days), broilers will die within three hours of a power failure if emergency procedures are not initiated.

When a ventilation system fails there is a rapid rise in room temperature. After an initial jump in temperature, the rate of heat production by the broilers tends to equal the rate of heat loss from the building. But since heat production is still greater than heat loss, the temperature continues to rise.

At some point broilers then begin to die and heat production declines. This allows some birds to survive.

After a large part of a flock has died, the room temperature will drop rapidly. If this happens, a grower entering the house some time later may not be aware of the high temperatures which were reached.

Even in older, less well insulated houses, infiltration from typical wind and thermal forces on the

peninsula is not great enough to prevent lethal conditions, warns Collins. The time required for lethal conditions to develop will simply be longer.

Collins lists several recommendations for growers:

- Install, maintain and use a thermal alarm system.
- Depending on broiler age, set the alarm for 10 to 15 F above the desired room temperature.
- Because room temperature increases rapidly when a ven-

tilation system fails, check broilers immediately after the alarm sounds.

- If you are aware of a power failure, don't wait for the alarm.
- Start natural ventilation in the house by opening curtains or windows and doors.
- Check broiler house at frequent intervals until power is restored.
- Use room temperature as a guide for natural ventilation.
- Watch for changes in weather conditions.

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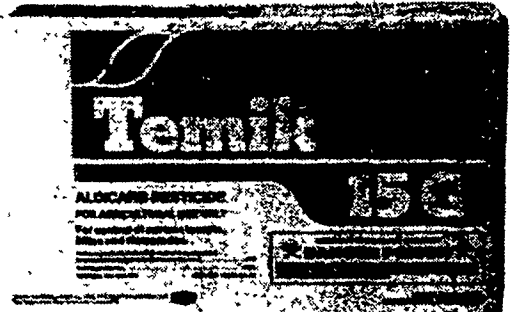
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