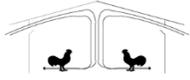




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Poultry Housing Tips

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Environmental Controller Failure...Bird Loss

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A few years ago I visited a commercial-egg pullet grower who had just installed an environmental controller in his house. The grower had installed the controller to increase his control over house temperature and air quality, as well as help coordinate all of his heating and cooling equipment. He was tired of setting more than a dozen thermostats of questionable accuracy and watching exhaust fans and heaters operating at the same time. With this new controller all he had to do was to select the house temperature he desired and the controller would turn fans and heaters on and off to maintain the desired temperature.

After looking at the grower's new controller I asked him where had he placed his back-up thermostats (back-up thermostats turn on fans or heaters when the environmental controller fails to maintain the desired house conditions). He made the comment that the company selling the controller told him as long as he had an alarm system and curtain drops that the back-up thermostats really were not necessary. I discussed with him the importance of back-up thermostats and he said he would install a few in the future.

A couple of months later I visited the farm again. I learned that a few days after I had left the grower had lost about 30,000 birds because lightning disabled the controller. The alarm was set too high so it did not go off and since the power did not go off, the curtains did not drop. I asked about the back-up thermostats, and the grower said he had not gotten around to installing them.

Last week I visited a broiler farm that had lost 15,000 four-week-old birds the week before. An error was made in programming the controller. The controller tried to go from power ventilation to natural ventilation, but the curtain machine was inadvertently deactivated. The problem was that the controller turned off the exhaust fans when in natural ventilation mode. The net result was that the curtains did not come down and fans were turned off by the controller. This farm did have a back-up thermostat and alarm but, unfortunately, they had not been set properly.

There is one sure bet with an environmental controller...**IT WILL FAIL AND WHEN IT DOES YOU WILL VERY LIKELY LOSE BIRDS IF YOU DO NOT HAVE PROPERLY INSTALLED AND SET BACK-UP THERMOSTATS.** It is a fact of life. Environmental controllers are electronic/mechanical devices. Electronic as well as mechanical devices fail.

The fact that environmental controllers will fail should not be used as a reason for not installing one. There are many things in every day life that can fail, and if they do, will cause serious mortality problems if there are not safety back- ups. Elevators are a good example. If an elevator cable breaks, the elevator will fall, and you would have a mortality problem if it were not for the fact that all elevators have mechanical safety brakes. And like elevators, poultry houses with environmental controllers do not have problems with bird loss if there are adequate safety back-ups.

Growers with properly set back-up thermostats **rarely** have a problem with environmental controllers. There is a poultry company in West Georgia that has been installing environmental controllers in all their new houses for the last five years. They have over 60 houses with controllers and have yet to have a bird loss due to environmental controller failure. The primary reason for this is that they have high/low temperature alarms, curtain drops, back-up thermostat for every fan in the house, and (most importantly) the growers use them. This is not to say that they will never lose any birds due to environmental controller failure, but they have significantly reduced the odds.

The following are a few safety guidelines for houses with environmental controllers

1. Each exhaust fan or pair of exhaust fans should have a back-up thermostat located near the center of the house. These thermostats should be wired in parallel with the controller so they are able to turn on a fan whether or not the controller is calling for it to be on.

This may sound counter productive at first. Why allow thermostats to override what the controller is trying to do? The fact of the matter is that if the thermostats are properly set they will not turn on the fans unless the controller has problems. For instance, we installed an environmental controller on a tunnel-ventilated test house. It was about 90° and all the fans were operating. I looked at the controller and noticed according to it none of the exhaust fans should have been on because it thought the house was too cold and was trying to turn on the furnaces.

The cause of this problem was that the controller's temperature sensor had been pecked and grabbed by the birds and eventually was torn off. On this particular controller when the sensor is taken off it thinks the house is 0°, so obviously it tried to turn on the furnaces to heat the house. Since the back-up thermostats were properly set, all the fans were still operating in spite of the controller trying to heat up the house. The furnaces did not come on because they had been unplugged a couple of weeks before the incident.

2. Back-up thermostats should be set at only three to five degrees above the temperature that you would normally expect them to operate. For instance, let's say that you had four-week-old birds and you were trying to maintain a house temperature of about 75°F. You would probably set your controller so that a couple of exhaust fans would come on at 77°. The back-up thermostats for those fans should be set at 80°. Back-up thermostats should not be viewed as a last ditch effort to avoid disaster but rather as a double check to insure that the controller is operating properly.

During warm weather when in tunnel ventilation, a grower should set all the fan thermostats around 85°. This is because by the time the house temperature reached 85° the grower would most likely want all the fans operating if the birds were of any size. For smaller birds you may only want to set the back-up thermostats on half or three quarters of the tunnel fans.

3. It is important to note that in virtually all cases of bird "suffocation" the birds die from heat stress and not oxygen deprivation (see "Suffocation?" February, 1991). If exhaust fans shut off, house temperature and humidity increase rapidly. In most case, birds will begin to die within 20 minutes when the house temperature reaches between 85° and 90°F and relative humidity climbs to 100%.
4. Supplemental heaters should be equipped with back-up thermostats. During the wintertime you want to make sure that if your controller fails, the supplemental heaters will operate.
5. Back-up thermostats should be wired so that they will operate even if the controller is unplugged or blows a fuse.
6. One of the reasons for having back-up thermostats is so you can operate the house if your controller were to fail and it took a while to replace it. Without back-up thermostats how would you operate the house?
7. Turn off your controller once in a while to see if the back-up thermostats are operating properly.
8. High temperature alarms should be set close enough so that they warn you that something is wrong before things become critical. An alarm system set at 40° and 100° serves little if any purpose.
9. Check with your controller manufacturer on guidelines on how to install back-up thermostats.
10. In high-density commercial egg farms a couple of exhaust fans should be hard wired so that they run continuously.

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