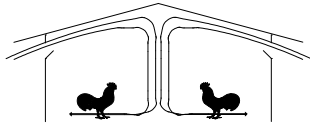




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College of Agricultural and Environmental Science/Athens, Georgia 30602-4356



Poultry Housing Tips

Extreme Weather Tips

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Heat is produced as a birds digests feed just as your car's engine produces heat when it "consumes" gasoline. In both cases, excess heat has to be removed to prevent overheating. A car's engine is cooled through the use of a radiator and to a lesser extent by air blowing over the engine as you travel down the road. A bird rids itself of excess heat primarily in two ways, evaporating water off of its respiratory system as it breathes and by giving off heat to the air moving over and around its body.

During cold weather getting rid of the heat produced by the digestion of feed is not a problem. But, as house temperatures rise during the hot summer months, the birds have to work harder and harder to get rid of heat. They will pant to increase respiratory heat loss and spread their wings out to increase heat loss to the air. When a bird cannot get rid of all the heat that is being produced, its body temperature will rise and it will back off feed and performance will suffer.

Through the use of tunnel ventilation and evaporative cooling pads/foggers most producers have found that heat stress related problems can be kept to a minimum during the summer months. But there are days when it seems even the best ventilation system can be challenged. The first week of July in 1997 was one of those times.

July 2 through July 4 provided a very unusual combination of temperature and relative humidity. During this time period temperatures were in the high nineties and relative humidity ranged from the high fifties to the low sixties. Table 1. provides an illustration of what a broiler producer in a tunnel-ventilated house with fogging pads in Macon Georgia might have experienced on July 2.

The following are some points to consider when faced with extreme conditions:

1) Do not turn off your evaporative cooling system.

Even when the relative humidity is very high, a good fogging nozzle or fogging pad system can still produce approximately ten degrees of cooling during the hottest time of the day keeping house temperatures in the high eighties (see Table 1). It is crucial that the temperature of the air in the house is kept from exceeding 90°F. Whereas you can get a ten to twelve degrees of windchill effect when the air temperature is in the eighties, if the house air temperature increases in to the nineties the windchill effect can drop to less than five degrees. So you can end up with a situation that an increase in air temperature of a degree or two can mean an increase in effective temperature of five degrees.

PUTTING KNOWLEDGE TO WORK

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2) Be careful about turn off interior fogging nozzles.

Last years newsletters “*Fogging Nozzles and Temperature Reduction in Tunnel-Ventilated Houses*” (June, 1997), illustrated that having and using twice the number of fogging nozzles during the first week of July last year dramatically increased livability. This is not to say that you cannot shut a few nozzles off, if the fog is not evaporating and you are wetting your exhaust fans.

3) Evaporative cooling maintenance.

Is you entire pad wet? Do you have any clogged nozzles? Are your water filters clean? Is you tunnel curtain covering some of your pad? Do you have adequate water pressure? Losing a couple of degrees of cooling due to improper evaporative cooling system maintenance will often have a negligible effect on bird performance during the average hot spell. But, the same couple of degrees can make a big difference in bird performance if it means keeping house temperature out of the nineties.

4) Make sure your exhaust fans are operating properly.

As mentioned above, a bird has two ways of cooling itself, panting and air movement. When it is very humid, panting is less effective and proper air movement becomes crucial in removing heat from the bird’s body. Make sure that fan shutters are clean and worn belts are replaced. Check your static pressure. If it is above a 0.10" your pads are dirty or your tunnel curtains are not opened enough, and as a result, you are restricting the fans ability to create the proper windchill effect.

5) Make sure your birds are spread out evenly.

If migration has occurred and t he birds are packed together, your ability to cool the birds will be limited. When birds are packed tightly together, the air cannot get between them to help pull heat from their bodies. Furthermore, it is difficult for a bird to make it to the waterers to get a drink of cold water. Access to water is critical to a bird’s ability to withstand heat.

6) Run all of your fans all night long.

After a hot day it is crucial that the birds are adequately cooled at night. A number of studies have shown that running additional fans at night significantly improves bird performance (*Heat Stress and Nighttime Ventilation*, April 1992). So, if you have big birds and house temperature has reached into the high eighties or low nineties, you should run all of your fans all night long.

Time	Outside Temp (F)	Outside Rh (%)	Cooling Produced by pads/foggers	Average Inside Temp (F) (front, mid, rear)	Effective Inside Temp with Windchill (F)
12:00 am	80	91	-	82	72
2:00 am	79	91	-	81	71
4:00 am	78	91	-	80	70
6:00 am	76	97	-	78	70
8:00 am	78	94	-	80	68
10:00 am	87	77	-3	86	70
12:00 pm	93	64	-6	89	76
2:00 pm	95	56	-9	88	82
4:00 pm	97	53	-10	89	81
6:00 pm	96	55	-9	89	82
8:00 pm	93	58	-7	88	82
10:00 pm	85	82	-2	85	75
12:00 am	83	85	-	85	75

Even though they may be infrequent, there will always be extreme days. Though they can cause losses in bird performance they need not cause excessive bird mortality. The key to keeping production losses to a minimum is make sure that your fans and evaporative cooling system are properly maintained, your birds are spread out, and your birds are cooled off at night.

Michael Czarick
 Extension Engineer
 (706) 542-9041

Michael P. Lacy
 Extension Poultry Scientist