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Poultry Housing Tips

Adjusting Minimum Ventilation Using Relative Humidity Meters

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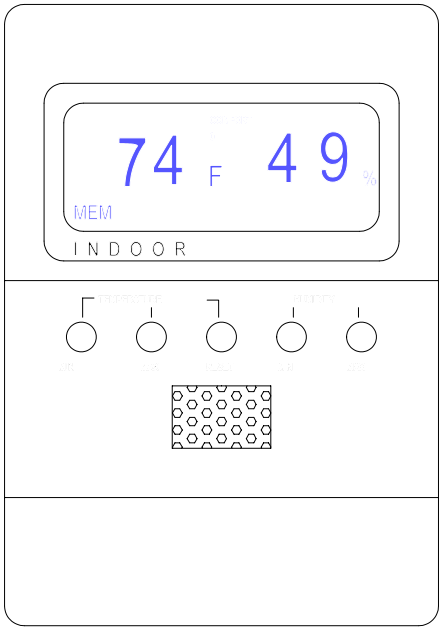
Most broiler producers understand that ammonia levels above 30 ppm can have an adverse effect upon broiler health and performance. The problem is knowing exactly what 30 ppm smells like. To further complicate matters, a person's ability to determine the presence of ammonia decreases over the years. So even if someone knows what 30 ppm ammonia smells like today, a couple of years down the road 50 ppm ammonia may smell like what 25 ppm smelled like a few years ago.

Over the years there has been a significant amount of interest in ammonia meters. Most people agree that if a producer had something on the wall of his house that measures ammonia, like a thermometer measures temperature, he would be better able to manage air quality. The problem is that ammonia meters are very expensive ($1,500), often inaccurate, and require frequent calibration -- all of which make ammonia meters impractical for virtually all broiler growers.



Though it would be nice to have an ammonia meter in every house, it is really not necessary because the key to controlling ammonia is controlling moisture. If moisture is kept from building up in the house, ammonia levels will typically remain in check. After all, we do not want to wait until we have an ammonia problem to increase ventilation. Preferably we want to be proactive and adjust the ventilation to remove the moisture before ammonia ever becomes a problem.

Ideally, house relative humidity should be kept between 50 and 70 percent (In a house with young chicks the humidity should be on the high end of this range). If it drops below 50 percent, airborne dust can become a problem. If it rises above 70 percent, condensation will form on the side wall and curtains and moisture will start to build up in the litter, leading to the production of ammonia.

Unlike monitoring ammonia, monitoring house humidity is fairly easy. Advancements in electronic relative humidity sensors over the past five years have produced digital relative humidity meters that are accurate, easy to use, and inexpensive enough that growers can afford to place them in each house. They are available at electronic stores for about twenty-five dollars. The digital humidity meters measure temperature as well as humidity, record both high and low relative humidity and temperature, and are fairly accurate (+/- 2% Rh, +/- 1.5°F).

With a digital temperature/humidity meter, growers can make adjustments to their timer fans to keep house humidity at the proper level. A chart like the one below can be used for the initial timer settings. If the humidity exceeds 70 percent, then timer settings can be increased. If the humidity falls below 50 percent, timer settings can be decreased. By keeping humidity levels in check ammonia problems can be kept to a minimum.

Timer Fan Settings for a 400' House		
Bird Age	Two 36" timer fans (minutes on out of 10)	Three 36" timer fans (minutes on out of 10)
1	1	1
2	1.5	1.25
3	2.5	1.75
4	4	2.75
5	5.5	3.75
6	6	4
7	7	4.75
8	8	5.25

Michael Czarick
Extension Engineer
(706) 542-3086

Michael P. Lacy
Extension Poultry Scientist