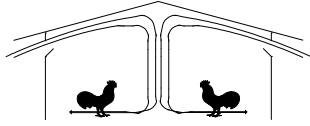




# The University of Georgia Cooperative Extension Service

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## Poultry Housing Tips

### Why Litter Treatments are a Good Investment

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If you want to lower the cost of keeping your birds warm during cold weather you have to limit the amount of cold air that is entering your house. It is as simple as that. The more fresh air you bring into your house either unintentionally or intentionally the higher your heating costs will be. The table below shows how many gallons of propane have to be burned to heat various volumes of fresh air based on the difference between inside and outside temperature. For example, if you are operating two 36" fans 30 seconds out of five minutes (2,000 cfm) and it is 90°F inside and 20°F outside (70°F temperature difference) you will have to burn approximately 36 gallons of propane over a 24 hour period to heat the incoming air from 20°F up to 90°F.

Minimum Ventilation Rate	Seconds on out of 300 (2 - 36" fans)	Temperature Difference (inside - outside)						
		10 F	20 F	30 F	40 F	50 F	60 F	70 F
1,000	15	3	5	8	10	13	16	18
2,000	30	5	10	16	21	26	31	36
3,000	45	8	16	23	31	39	47	54
4,000	60	10	21	31	42	52	62	73
5,000	75	13	26	39	52	65	78	91
6,000	90	16	31	47	62	78	93	109
7,000	105	18	36	54	73	91	109	127
8,000	120	21	42	62	83	104	125	145
9,000	135	23	47	70	93	117	140	163
10,000	150	26	52	78	104	130	156	182

Table 1. Daily propane use associated with various minimum ventilation rates and temperature differentials.

Of course we have to ventilate our birds if we want to keep them healthy and our floor dry, but with rising propane prices it is important to make sure you are not "actively" over-ventilating your houses. One of the most common reasons for growers ventilating "too much" is excessive ammonia levels during partial house brooding. Yes, it is very important to control ammonia levels during brooding but lowering ammonia through ventilation alone is an expensive proposition. For instance, if a producer had four inches of fresh DRY shavings the typical 40' X 500' broiler house with day old chicks would require a minimum ventilation rate of approximately 2,000 cfm (two 36" fans operating 30 seconds out of five minutes). During a cold weather flock if the average outside temperature was 40°F (30°F at night 50°F during the day) and an inside air temperature of 90°F was being maintained, propane usage associated with

### PUTTING KNOWLEDGE TO WORK

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ventilating the house for a week would amount to approximately 182 gallons (7 X 26 gals/day). Now compare this with a house with built-up litter and high ammonia levels forcing the producer to operate two fans 90 seconds out of five minutes. In this scenario, the weekly propane usage associated with ventilation increases to approximately 546 gallons (7 X 78 gals/day), a 364 gallon per week difference. With a fuel price of \$2 per gallon this amounts to an increased operating cost of over \$700! The sad fact of the matter is that in many cases in houses with built-up litter it is not uncommon to find that even with two 36" fans operating 90 seconds out of five minutes that ammonia levels are still higher than we would ideally like to see. So trying to ventilate your way out of a high ammonia situation during brooding can not only lead to excessive fuel usage but even with the increased ventilation rates bird performance may still be less than optimal.

A producer has basically three ways of lowering their heating costs in a house with built-up litter:

- 1) Not increase their ventilation rates to control ammonia and the resulting high ammonia levels will result in decreased weight gains, increased feed conversions, as well as the strong possibility of blind and/or sick birds.
- 2) Clean out the house to the ground, and bed the house with four inches or better of dry shavings. This would solve the ammonia problem and therefore lead to lower heating costs. The problem is of course is that not only are dry shavings difficult to obtain but are becoming increasingly expensive.
- 3) Simply apply some type of litter treatment before placing the chicks which will allow the use of a more economical minimum ventilation rate. This is typically the most cost effective option for most growers.

To properly treat the brooding area of a 40' X 500' house with a litter treatment will typically cost around \$200 and should be able to do a good job of controlling ammonia levels from 7 to 10 days. With ammonia levels under control, providing the litter is dry, a producer should be able to decrease their minimum ventilation rates to more reasonable levels resulting in a relatively quick payback.

In order to be effective in reducing heating costs, litter treatments have to be applied properly. There are steps that can be taken prior to litter treatment application to prolong the time the product is active. The houses should be "caked" out as soon as the birds leave to remove the nitrogen and moisture that is concentrated in that portion of the litter. If the cake is not removed as is the case with "windrow composing" or tilling the litter, application rates of litter treatments may need to be doubled from what is normally recommended to adequately control ammonia levels during the brooding period. Between flocks producers should try to keep the house as warm as possible. This may require closing side wall curtains during more cool weather and putting a fan or two on a timer to help remove excess moisture and ammonia. On warmer days a few fans should be turned on or curtains lowered. Last but not least make sure to closely follow the application procedure recommended by the manufacturer of the litter treatment you are using.



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