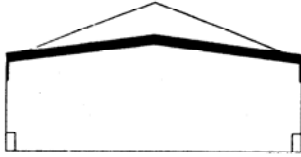




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How much ceiling insulation is enough?

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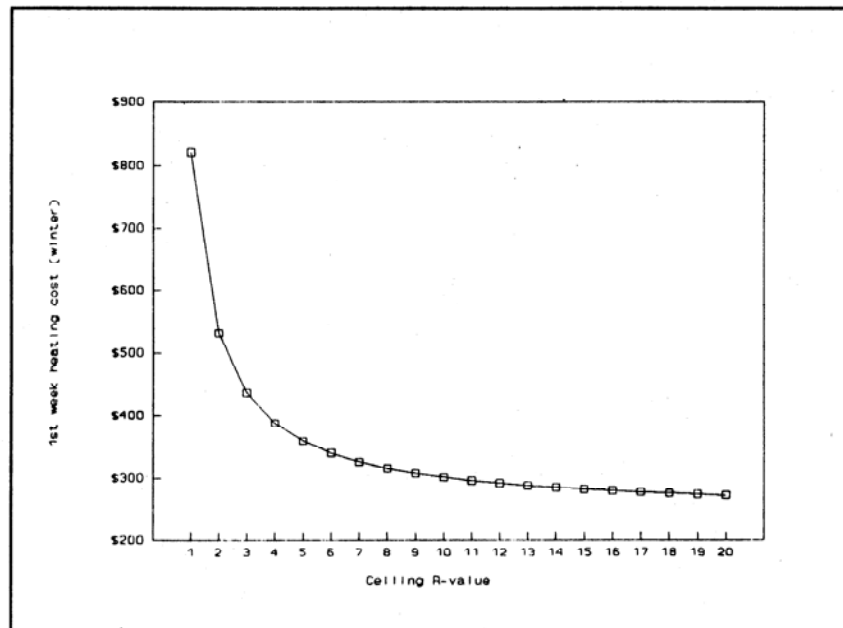
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Ceiling insulation is crucial to the efficient operation of a poultry house. Ceiling insulation minimizes heat gain in the summer and heat loss in the winter. It keeps condensation to a minimum, reducing litter moisture problems as well as increasing the life of a building. Ceiling insulation has proven itself so valuable that few people would consider building a house without it.

The question facing many poultry producers today is not whether ceiling insulation is needed, but how much is needed. Over the years the level of insulation in poultry house ceilings has slowly increased. Where many houses were originally insulated with an inch or so of beaded board insulation (R-value of 3), now it is not uncommon to find a house insulated with six inches of fiberglass batt insulation (R-value of 25). But how much is enough?

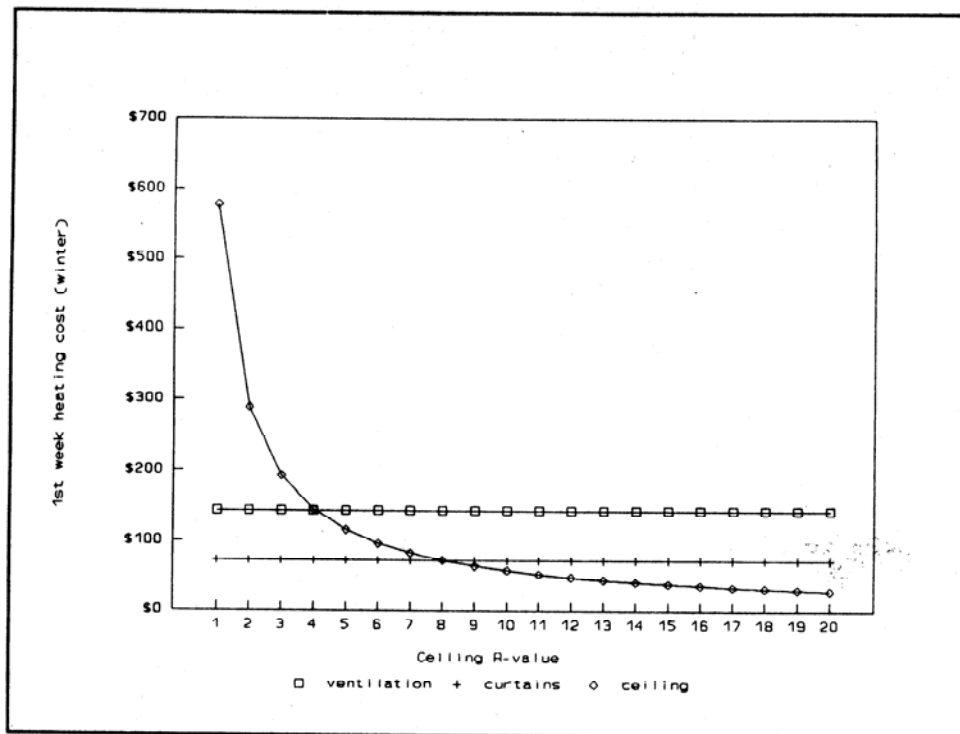
As you might expect, there is a point where adding R-value stops being cost effective. In the Southeast, an R-value of 12 is sufficient. Beyond this, the benefit of increasing the level of insulation in the ceiling is minimal. The graph below illustrates this point by showing how first week heating costs (wintertime) are affected by different levels of ceiling insulation.

One of the reasons for the lack of benefit for additional insulation is the fact that the largest amount of wintertime heat loss is through sidewall curtains and ventilation. In fact, with a ceiling R-value of 12, less than 20 percent of heat is lost through the ceiling. Ventilation and sidewall curtains are responsible for 70 percent of the heating costs. As you can see, if you were to double your level of ceiling insulation, it would only reduce your overall heating cost by less than 10 percent. In fact, studies have shown that increasing a ceiling's R-value to 24 from 12, reduces yearly fuel costs by less than \$150, and the house would be only 0.2°F cooler during the summertime.



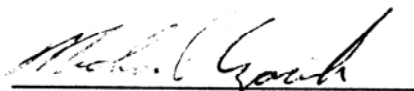
PUTTING KNOWLEDGE TO WORK

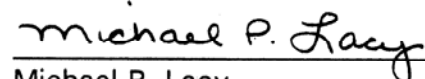
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This is not to say there are not advantages to installing 6 inches of fiberglass insulation rather than 3 1/2 inches. Though the insulating ability of 3 1/2 inches of fiberglass is sufficient when it is first installed, over time factors such as moisture or compression of the insulation decreases its R-value. The combination of these factors can result in the R-value of a ceiling being reduced by 50% in five to ten years. If 6 inches of fiberglass were installed originally, a sufficient level of insulation would still exist even if its R-value were cut in half. Thus, it may be more cost effective to install 6 inches of fiberglass than 3 1/2 inches.

The key to minimizing heat loss through a ceiling is making sure it stays in good condition over the long run. This can be accomplished by installing a strong vapor barrier with bands on 6 to 8 inch centers. Moisture build-up can be minimized by making sure that the attic is well ventilated and that any holes in the ceiling are patched as quickly as possible. Bottom line, when it comes to ceiling insulation, it's not necessarily quantity that counts but quality.


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