

# *Poultry Housing Tips*

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## *Reducing Side Wall Curtain Leakage*

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Do you realize that on a cold windy day you are probably losing more heat through cracks around your side wall curtains than you are through your timer fans? For example, let's say it is 40°F outside, the wind is blowing 10 mph, you have day old chicks, and two 36" fans are set to run one minute out of five. In this situation 192,000 Btu's of heat are exhausted through timer fan ventilation each hour. This heat loss is necessary to insure that you are bringing in enough fresh air to keep the litter dry and the birds healthy. But, if you have just a half an inch crack between your curtain and side wall, you will lose an additional 507,000 Btu's of heat each hour. This additional heat loss increases your fuel bill and makes the house colder and draftier (The burning of one gallon of propane will produce 100,000 Btu's of heat).

You may be saying, "But, I don't open my curtain a half inch." You may not, but the wind may do it for you. To insure that side wall curtains open easily, many growers leave their curtain straps loose. When the exhaust fans are on, the negative pressure pulls the curtain tightly against the side of the house. But, when the fans are off, the top curtain rod usually rests lightly against the side of the house. When the wind hits a house, it tends to push the upwind

curtain against the side of the house and pull the downwind curtain away from the side wall. If the curtain straps or strings are loose, the wind can pull the top of the curtain an inch or more off the side of the house (Figure 1).

One method of reducing curtain air leakage is to install a curtain pocket for the top of the curtain to slide into when closed. Typically, a 12" to 18" hemmed curtain with a curtain rod is nailed or stripped a few inches above where the top curtain rod rests when the curtain is closed. The short curtain is installed over the curtain straps or strings so that the curtain pocket does not interfere with the opening and closing of the side wall curtain (Figure 2). Sometimes, where the side wall curtains are not raised and lowered often, the strings are installed over the pocket which creates a slightly tighter seal.



Figure 2. House with top curtain pocket



Figure 3. Curtain pocket lifted to view the top of the side wall curtain.

To further reduce air leakage, the bottom of the curtain should be stripped with lumber because it too can be a significant source of air leakage on windy days. Air leakage can become a serious problem during extremely cold weather when ice forms along the bottom of the curtain, pushing the bottom of the curtain away from the side of the house. The strip of wood should be installed so that it extends an inch or so above the bottom of the side wall curtain opening. When the wooden strip is installed below the side wall opening, shavings can accumulate between the curtain and the side wall of the house. Over time, the accumulation of shavings will make the house looser because the curtains will bunch at the bottom reducing curtain overlap at the top of the side wall opening.

How much can a curtain pocket save you? It all depends on how tightly your side wall curtains are presently held against the sides of your house. But you may be surprised to know a field study conducted last winter found significant fuel savings (approximately \$100) even on a house where the curtains were fairly tight. In addition, some other benefits were observed.

Since the first growout in March, 1996 fuel usage in the 40' X 500' broiler houses with the curtain pockets is approximately 10 to 15% lower than in the houses without a curtain pocket (Figure 4). This reduction in fuel usage was not always present on a daily basis. But overall, the fuel usage was lower in the curtain pocket houses 67% of the time during the March growout.

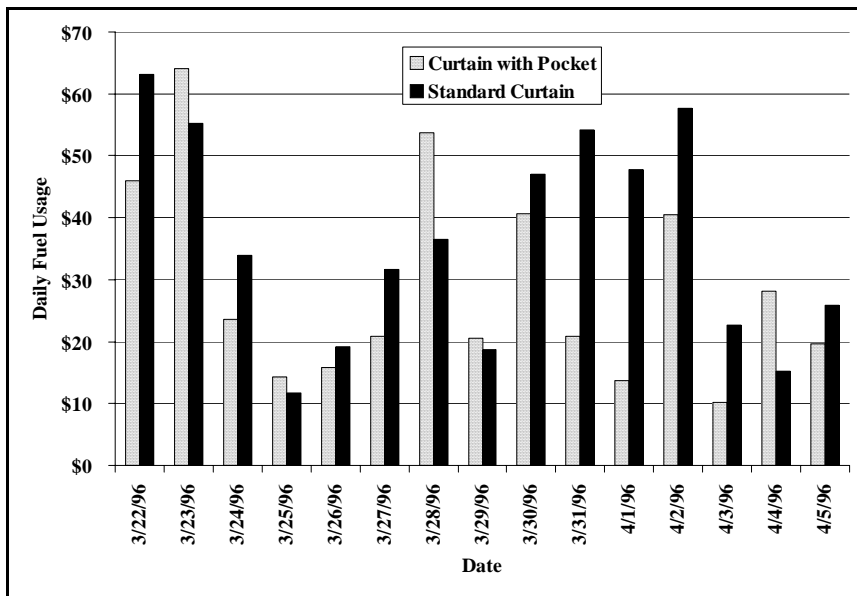


Figure 4. Fuel usage in broiler houses with and without curtain pockets.

A significant difference in fuel usage was experienced from day 10 to 14 during the March growout. Much of the difference was a result of the brooders in the nonbrooding end operating more in the house without a curtain pocket. During this period, the producer was using 48" fans and his side wall inlets to pull the heat from the brooding end to the nonbrooding end. Since the house with the curtain pockets was tighter, the heat being pulled from the brooding end was not diluted with excess cold air coming in from around the side wall curtains. Furthermore, the grower reported that house temperatures tended to be more uniform in the houses with the curtain pocket. This is the result of the houses being tighter when the fans are off, reducing the effect of outside winds on house temperature uniformity.

The study is continuing this winter and observations are being made on other farms that have installed pockets on houses that previously have very loose curtains. Results from these studies will be made available later this winter.

One important point to keep in mind, in many cases after a curtain pocket is added growers have to run their timer fans more than they did in the past. This is because in the past they were relying on the fresh air entering the house through the loose curtain when the fans were off for a portion of the fresh air which was required. But, even though producers may have to operate their timer fans more, they are still bringing in less air than they were previously and their fuel bills will be lower.

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