

The **POULTRYHOUSE.COM** Electronic Calculator For Broiler House Minimum Ventilation Fan Timer Settings

This calculator is designed to help growers do the best possible job of setting fan timers used in cold weather minimum ventilation. Please note, however, that the results returned by the calculator can only be as good as the input provided. It is the responsibility of the user to provide appropriate input numbers, make adjustments appropriate to particular local conditions, and judge the suitability of the results obtained. The calculator is based on using a five-minute timer, and results will not apply to any other timing.

Instructions: Read the information required, and place your computer cursor (mouse pointer) in the first blank. When the cursor changes from a pointer to an I-beam symbol, click and then enter the number being asked for. After you make an entry, use the tab key to move to the next step. Use a decimal point for the CFM/bird number. Do not put commas in any numbers. When you have entered all three numbers asked for, the correct 5-minute timer setting will be displayed in the RESULT box as the number of seconds of on-time to be used. This calculator works only on-screen to make the calculation for you; but you can print the results when you are finished. Click on the Reset button to clear the worksheet and enter new numbers.

1. ENTER the total CFM capacity of the fans you will be running on timer for minimum ventilation: _____ total CFM's.

Explanation: Your total fan CFM's will depend on the number and size of fans you will run in the timer mode. It is usually best to use at least two fans located in different parts of the house. **If at all possible, base this entry on the actual CFM capacities of the fans being run on timer in your house.** If you don't know the specific CFM capacities of your fans, you can use a ballpark estimate (**but realize the resulting timer calculation will also be only a ballpark estimate!**). Typical 36-inch fans will pull around 10,000 CFM's, and the average 48-inch fan pulls something in the neighborhood of 20,000 CFM's (although there has been a trend to install higher-capacity fans). Here are some **typical** scenarios: Using one 36-inch and one 48-inch fan = 10,000 CFM + 20,000 CFM = 30,000 total CFM's. Using two 36-inch fans = 10,000 CFM + 10,000 CFM = 20,000 total CFM's.

2. ENTER your best estimate of the number of birds in the house: _____ birds.

3. ENTER the per-bird ventilation rate needed: _____ CFM/bird.

Explanation: Per-bird minimum ventilation rates are based on air movement needed to remove excess litter moisture from the house. The proper rate will depend mostly on the age of the bird, and also vary somewhat with breed and sex. **You should check with your company live production specialist for specific per-bird ventilation rates applicable to your operation.** The table at right gives typical per-bird rates used in the U.S. Southeast, for outside temperatures ranging from 30 to 60F. Lower temperatures usually call for adjusting rates 10–20% lower, and higher temperatures for 10–20% higher rates.

TYPICAL PER-BIRD RATES		
Week	Days	Cfm/Bird
1	1 - 7	0.10
2	8 - 14	0.25
3	15 - 21	0.35
4	22 - 28	0.50
5	29 - 35	0.65
6	36 - 42	0.70
7	43 - 49	0.80
8	50 - 56	0.90

4. RESULT: Your 5-minute timer should be set for _____ seconds ON-time.

Note: The calculator assumes you will use a five-minute timer, and the results will not apply to any other timing.

Explanation: The calculator first multiplies the number of birds in the house times the per-bird ventilation rate. This gives the total minimum ventilation CFM's needed. The calculator then divides CFM's needed by the total CFM capacity you entered. This gives the percentage of time fans should run (ON/OFF) to average out to the CFM's needed. The calculator then multiplies that percentage times the number of seconds on a five-minute timer (300), and the result is the number of ON seconds to be set on the timer. If the result is a number over 300, you need more fan capacity (put an additional fan on the timer).

Note: Timer settings may need to be adjusted for prevailing conditions. For example, built-up litter usually calls for slightly longer on-time than new litter. Other adjustments commonly used include adding 15 seconds on-time for high moisture or ammonia, adding 30 seconds for heavy ammonia, and subtracting 15 seconds for dusty conditions.

For more information, go to www.poultryhouse.com and see the Alabama Poultry Engineering and Economics Newsletter Issue 15, Cardinal Rules for Wintertime Broiler House Ventilation.

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