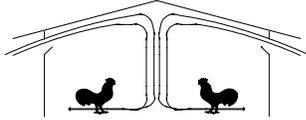




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# Poultry Housing Tips

## Comparing Heating Costs - Natural Gas Vs. Propane

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With the deregulation of the natural gas industry in many states it has become increasingly difficult to compare the cost of heating a house with natural gas vs. propane. For the most part propane pricing is fairly straightforward. A producer is given a per gallon price that is either fixed or that will vary throughout the year based on market rates and possibly usage. Natural gas pricing on the other hand can be quite involved. First, a producer is charged a per therm of gas used (1 therm = 100,000 Btu's of heat) which like propane can be fixed or float with market rates. Then there are gas company charges, pipeline capacity charges and gas marketer charges. All of which can vary significantly depending on the gas company the producer is supplied by, usage, pricing plan, as well as other factors.

Below are summaries of the natural gas bills from two poultry farms, each with two houses, for 2003. Farm A is on a therm pricing plan that varies with the market price of natural gas while farm B is on a fixed therm price (Tables 1, 2). The first step in determining how the cost of heating with natural gas compares to the cost of heating with propane is to sum the number of therms used to heat a farm as well as the total of all the natural gas charges (gas company charge + pipe line capacity charge + natural gas charge + gas marketer charge) for an entire year. Next, to obtain an equivalent usage in gallons of propane simply divide the total number of therms used by 0.92 (one gallon of propane contains approximately 92,000 Btu's of heat). Finally, to get an equivalent propane cost you simply divide the total natural gas cost by the equivalent gallons of propane you just calculated.

Date	Therms Used	Price per Therm	Gas Company Charge	Pipeline Capacity Charge	Natural Gas Charge	Gas Marketer Charge	Total Gas Cost
Dec-02	962.475	\$0.70	\$295.25	\$60.63	\$672.77	\$5.95	\$1,034.60
Jan-03	2316.47	\$0.75	\$637.10	\$60.93	\$1,735.04	\$5.95	\$2,439.02
Feb-03	740.344	\$0.95	\$238.34	\$61.16	\$702.59	\$5.95	\$1,008.04
Mar-03	807.273	\$1.10	\$255.27	\$60.99	\$887.19	\$5.95	\$1,209.40
Apr-03	629.805	\$0.86	\$124.72	\$61.58	\$541.00	\$5.95	\$733.25
May-03	467.687	\$0.80	\$105.75	\$61.34	\$373.68	\$5.95	\$546.72
Jun-03	185.623	\$0.80	\$72.75	\$61.34	\$148.31	\$5.95	\$288.35
Jul-03	38.443	\$0.75	\$72.36	\$178.09	\$28.79	\$5.95	\$285.19
Aug-03	297.792	\$0.75	\$102.70	\$177.24	\$223.05	\$5.95	\$508.94
Sep-03	40.092	\$0.75	\$72.84	\$176.21	\$30.03	\$5.95	\$285.03
Oct-03	1220.268	\$0.75	\$379.14	\$175.18	\$913.98	\$5.95	\$1,474.25
Nov-03	691.894	\$0.77	\$243.60	\$175.18	\$532.07	\$5.95	\$956.80
	8398.166						<b>\$10,769.59</b>

Table 1. Farm A natural gas bills (price paid varies with market price)

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Date	Therms Used	Price per Therm	Gas Company Charge	Pipeline Capacity Charge	Natural Gas Charge	Gas Marketer Charge	Total Gas Cost
Dec-02	1465.75	\$0.58	\$151.95	\$95.41	\$848.67	\$5.95	\$1,101.98
Jan-03	3488.61	\$0.58	\$151.24	\$95.87	\$2,019.91	\$5.95	\$2,272.97
Feb-03	666.93	\$0.58	\$151.24	\$96.25	\$386.15	\$5.95	\$639.59
Mar-03	1308.339	\$0.58	\$151.24	\$95.97	\$757.53	\$5.95	\$1,010.69
Apr-03	1261.692	\$0.58	\$151.24	\$96.90	\$730.52	\$5.95	\$984.61
May-03	879.376	\$0.58	\$151.24	\$96.53	\$509.16	\$5.95	\$762.88
Jun-03	653.31	\$0.58	\$151.24	\$96.53	\$378.27	\$5.95	\$631.99
Jul-03	0	\$0.58	\$364.19	\$285.62	\$0.00	\$5.95	\$655.76
Aug-03	416.702	\$0.58	\$364.19	\$284.25	\$241.27	\$5.95	\$895.66
Sep-03	124.388	\$0.58	\$365.08	\$282.60	\$72.02	\$5.95	\$725.65
Oct-03	1833.468	\$0.58	\$366.92	\$280.95	\$1,061.58	\$5.95	\$1,715.40
Nov-03	1214.136	\$0.58	\$364.80	\$280.95	\$702.98	\$5.95	\$1,354.68
	13312.701						\$12,751.86

Table 2. Farm B natural gas bills (fixed price per therm)

For example, in the case of Farm A during 2003, 8,398 therms of natural gas were used. The equivalent usage in gallons of propane can be calculated by simply dividing 8,398 therms by 0.92. The equivalent per gallon propane cost can then be calculated by dividing the total cost of the natural gas, \$10,769.59 by the equivalent gallons of propane used, 9,128 ( $\$10,769.59 / 9,128 = \$1.18$ ). During the same time period Farm B's natural gas usage was equivalent to 14,469 gallons of propane. When the total natural gas cost, \$12,752, is divided by equivalent gallons of propane, 14,469, the equivalent per gallon propane cost turned out to be \$0.88 per gallon, 25% lower than Farm A.

Date	Therms Used	Total Gas Cost	Equivalent Gallons of Propane	Equivalent Propane Cost	Cost of heating with \$0.85/gal propane
Dec-02	962.5	\$1,034.60	1,046	\$0.99	\$889.24
Jan-03	2,316.5	\$2,439.02	2,518	\$0.97	\$2,140.22
Feb-03	740.3	\$1,008.04	805	\$1.25	\$684.01
Mar-03	807.3	\$1,209.40	877	\$1.38	\$745.85
Apr-03	629.8	\$733.25	685	\$1.07	\$581.89
May-03	467.7	\$546.72	508	\$1.08	\$432.10
Jun-03	185.6	\$288.35	202	\$1.43	\$171.50
Jul-03	38.4	\$285.19	42	\$6.83	\$35.52
Aug-03	297.8	\$508.94	324	\$1.57	\$275.13
Sep-03	40.1	\$285.03	44	\$6.54	\$37.04
Oct-03	1,220.3	\$1,474.25	1,326	\$1.11	\$1,127.42
Nov-03	691.9	\$956.80	752	\$1.27	\$639.25
	8,398.2	\$10,769.59	9,128	\$1.18	\$7,759.18

Table 3. Farm A heating cost comparison

Date	Therms Used	Total Gas Cost	Equivalent Gallons of Propane	Equivalent Propane Cost	Cost of heating with \$0.85/gal propane
Dec-02	1,465.8	\$1,101.98	1,593	\$0.69	\$1,354.23
Jan-03	3,488.6	\$2,272.97	3,792	\$0.60	\$3,223.17
Feb-03	666.9	\$639.59	725	\$0.88	\$616.19
Mar-03	1,308.3	\$1,010.69	1,422	\$0.71	\$1,208.79
Apr-03	1,261.7	\$984.61	1,371	\$0.72	\$1,165.69
May-03	879.4	\$762.88	956	\$0.80	\$812.47
Jun-03	653.3	\$631.99	710	\$0.89	\$603.60
Jul-03	0.0	\$655.76	0	\$0.00	\$0.00
Aug-03	416.7	\$895.66	453	\$1.98	\$385.00
Sep-03	124.4	\$725.65	135	\$5.37	\$114.92
Oct-03	1,833.5	\$1,715.40	1,993	\$0.86	\$1,693.97
Nov-03	1,214.1	\$1,354.68	1,320	\$1.03	\$1,121.76
	13,312.7	\$12,751.86	14,470	\$0.88	\$12,299.78

Table 4. Farm B heating cost comparison

Once the total equivalent gallons of propane and cost per gallon is calculated it becomes easier to compare the cost of heating with natural gas compared to heating with propane. For instance, let's say that other producers in the area were paying a fixed propane price of \$0.85 per gallon. If Farm A had been using propane they would have saved \$0.33 for every gallon used or a total savings of a little over \$3,000. On Farm B, because of a better pricing plan, the savings would have only been \$0.03 per gallon or a yearly savings of \$434.

It is important that when comparisons are made they are done so over a period of at least a year. In general, you will find that with many natural gas pricing plans that the equivalent per gallon propane cost will often be the lowest when usage is at its highest, which of course is desirable. Conversely, during the summer when very little gas is used some of the additional fixed charges can produce extremely high, nearly \$7 per gallon, equivalent propane costs (Tables 3, 4). As a result if you just looked at bills for the summer months the high per gallon costs would not paint an accurate picture of your actual equivalent propane cost.

If you are considering switching to propane from natural gas keep in mind that the orifices in all the brooders/furnaces will need to be changed as well as all the low pressure regulators. It will typically cost between \$5 and \$10 per brooder and around \$25 to \$35 per forced air furnaces to replace the orifices and low pressure regulators typically run around \$35. These prices do not include labor. There also will likely be costs associated with hooking up the new propane tanks to the existing plumbing. All these costs will have to be taken into account when determining if switching to propane is worthwhile. (Though it is possible to switch from propane to natural gas, it is rarely done because of the high cost associated with installing larger heating system gas lines required for natural gas [*Poultry Housing Tip: Propane vs. Natural Gas. Vol 13 No 3*])

As can be seen in the two farms above the pricing plan you are on can have a substantial effect on the price you pay for natural gas. Before going to the expense of switching from natural gas to propane make sure you shop around to see if there is a pricing plan available that would have reduced your heating costs. Furthermore, keep in mind that propane prices can also vary significantly depending whether you are on a fixed or variable pricing plan. The upside of a fixed pricing plan is that you are somewhat protected if propane prices increase over the course of the year. Since the price per gallon is fixed you will have a pretty good idea of what you will be spending on heating your house for the upcoming year and can budget accordingly. Keep in mind, most gas companies have some type of clause in their contracts that allow them to increase the "fixed price" if wholesale propane prices increase dramatically or your usage goes above a set amount. Of course the downside of a fixed pricing plan is if gas prices go down over the course of the year you can end up spending more to heat your houses than those on a variable pricing plan.



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