



DETERMINING DAIRY GOAT MILKING SYSTEM COSTS PER CWT OF MILK PRODUCED

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Dairy goat producers at times consider if one is better off with a different milking system. Preferences abound for certain milking systems over others but when cost is factored in, preference often changes to the decision about the trade-off with milking system investment costs versus labor efficiency.

To highlight the differences, realize that bucket milking systems, though a good, cost-effective system for very small scale dairy goat herds, may be a very high cost system for commercial herds simply due to the high amount of labor needed. And, whether the labor is paid or unpaid, labor has an economic cost.

The double sided, low-cost milking parlor (D24) tends to be the

milking system of choice for most commercial herds with a carousel parlor (C24) often the preferred, if it can be afforded. The D24 can line up 24 goats per side while the C24 has 24 stalls circling around in a rotary fashion. The D24 can often be self-built at a lower cost or purchased. The C24 is most often purchased though some have built their own.

To compare the two, the table below uses the annual fixed cost approach of the DIRT1 5 (Depreciation, Interest, Repairs, Taxes and Insurance) and then adds in labor cost based on labor efficiency. The outcome is divided by the cwts. of milk produced to determine a cost per hundredweight. This is provided simply as an example because each of these milking systems can have over 100% variability in labor needed per goat for milking, so the goal is to learn the process to figure for one's own situation, not focus on this example as it could more than 100% off for one's particular situation.

The D24 was built for \$15,000 with \$0 in salvage value after 20

DIRTI 5	Low-Cost Parlor - D24	High-Cost Parlor – C24
Depreciation	$\$15K - \$0K = \$15K/20\text{yrs} = \$750/\text{yr}$	$\$240K - \$20K/20\text{yrs} = \$11,000/\text{yr}$
Interest	$\$15K \times 4\% = \$600/\text{yr}$	$\$240K \times 4\% = \$9,600/\text{yr}$
Repairs	$\$1,000/\text{yr}$ (not incl. teat dp/ chems)	$\$2,000/\text{yr}$
Taxes	no taxes on agricultural equipment in Iowa	
Insurance	$\$15K \times .005 = \75	$\$240K \times .005 = \$1,200$
Sum	$\$2,425/8,400 \text{ cwt./yr} = \$0.29/\text{cwt}$	$\$23,800/8,400 \text{ cwt./yr} = \$2.83/\text{cwt}$
Labor &/or other Variable Costs	$5.33 \text{ hrs} \times \$12/\text{hr} \times 365 = \$2.78/\text{cwt}$	$4 \text{ hrs.} \times \$12/\text{hr} \times 365 = \$2.08/\text{cwt}$
Total	$\$3.06/\text{cwt}$ 150 goats/person/hour	$\$4.91/\text{cwt}$ 200 goats/person/hour
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400 Goat Dairy @ 2,100 lbs/goat/yr.		

years for an annual depreciation of \$750 per year. The C24 was purchased for \$240,000 with \$20,000 salvage value after 20 years for \$11,000 per year annual depreciation, straight-line method. Interest at 4% equals \$600 for the D24 and \$9,600 for the C24, annually. Repairs are estimated at \$1,000 for the D24 and \$2,000 for the C24, annually. Taxes are exempt on agricultural equipment in Iowa so no comparison costs there. Insurance at \$0.005 per \$1000 of value is \$75 for the D24 and \$1,200 for the C24, annually. This gives a fixed cost sum of \$2,425 for the D24 and \$23,800 for the C24, annually. Notice the D24 has an annual fixed cost of only 10.2% of the C24.

The next step is to divide these fixed costs by the cwts. of milk produced. For this example, the herd for comparison was a 400 doe herd selling 2,100 pounds per doe for a total of 8,400 cwts. of milk sold annually. This gives the D24 a \$0.29

fixed cost and the C24 a \$2.83 fixed cost per cwt. of milk sold, highlighting the labor versus investment cost trade off between the two systems.

But, the investment can make labor more efficient. It is estimated the D24 can milk 150 does per person per hour while the C24 can milk 200 does per person per hour. With labor at \$12 per hour, the annual labor cost for the D24 is \$2.78 and the C24 is \$2.08 per cwt. sold. Totaling the fixed costs together with labor costs and the D24 has a cost of \$3.06 and the C24 has a cost of \$4.91 per cwt. of milk sold annually. Realize there may be some variable cost differences that tend to be minor, but could be significant enough to warrant inclusion, too. And again, the labor efficiency can be as highly variable within each system as they are between the two systems.

So, the bottom line is that the cost of milking goats can vary both between and among systems. Labor and investment costs tend to be significant trade-offs that need discernment in the decision-making process. Using the fixed cost process of the DIRTI 5, then adding in labor costs and dividing by cwts. of milk sold annually tends to give a fair comparison between milking systems.

For more information on dairy goats, please visit our dairy team website: <https://www.extension.iastate.edu/dairyteam/dairy-goats-and-sheep> ■

