



© Ryan Ebert

BETWEEN TREATMENT COSTS, extra labor, lost milk production, and premature culling or death, each case of disease in the herd is costing more than you know.

Sick cows cost money

Some common dairy cow diseases may be more financially draining than you realize.

by Di Liang and Jeffrey Bewley

DAIRY diseases can have a tremendous impact on the cost of milk production. Understanding costs associated with compromised health is critical for making decisions in preventive plans, treatment, and culling.

Disease costs are actually closely related to market prices and herd conditions. In addition to the absolute value, the relationship between disease costs and farm or market factors should be adjusted under different situations.

We recently published results in the *Journal of Dairy Science* from a computer simulation model that estimated the costs of common clinical dairy diseases. Costs for seven health impediments were calculated: mastitis, lameness, metritis, retained placenta, left displaced abomasum (LDA), ketosis, and milk fever.

The total disease cost was broken into seven categories, including veterinary and treatment, producer labor, milk loss, discarded milk, culling cost, extended days open, and on-farm death. The value of a cow in the herd was calculated through a technique that considers the future net revenues of cows in the

herd and their potential replacements.

The effects of market conditions (milk price, feed price, beef price, and replacement heifer price) and herd performance (rolling herd average, pregnancy rate, and age at first calving) on each disease were tested. Disease costs in first-lactation cows and later lactation cows were estimated separately, except milk fever which was only calculated in later lactation cows.

Dollars spent on disease

Mastitis is the most common health issue of dairy cows. We found the cost of mastitis to be \$326 per case for first-lactation cows and \$427 per case for later lactation cows. Milk production loss, veterinarian and treatment cost, and discarded milk were the largest three cost categories. Later lactation cows had higher disease costs because of greater milk production losses.

Lameness is another major health issue. We estimated lameness cost was \$185 per case for first-lactation cows and \$333 per case for older cows. Costs for veterinary and treatment were \$104 per case and the greatest contributor to the total cost. Culling costs for lameness was higher than the other six diseases.

The five other diseases analyzed most commonly affect fresh cows. Metritis expenses

were \$172 per case for first-lactation cows and \$263 per case for later lactation cows. Metritis had relatively high discarded milk cost due to antibiotic treatment.

The cost per case of retained placenta was \$150 for first-lactation cows and \$313 per case for older cows.

Left displaced abomasum expenses were \$432 per case for first-lactation cows and \$639 per case for later lactation cows. Veterinarian and treatment charges (\$197 per case) were the greatest portion in the total cost. Milk production loss was also high for LDAs.

We found that ketosis cost \$77 per case for first-lactation cows and \$181 per case for second or greater lactation cows. Veterinarian and treatment cost made up the majority of total cost.

The final disease we looked at, milk fever, cost \$246 per case. Across all health issues, death cost in milk fever was highest as a result of a greater associated mortality rate.

Outside factors matter

The financial impact disease has on a farm will fluctuate due to outside factors. When milk price and replacement heifer prices are up, disease costs more. Meanwhile, higher feed and cull cow prices lower disease costs. The effects are larger in later lactation cows due to higher milk production loss and more discarded milk.

Higher feed price offsets part of reduced milk production resulting from lower feed intake. Diseases that have adverse impacts on milk production, like mastitis and LDA, were more sensitive to milk price and feed price. Meanwhile, replacement price and cull cow price have a larger influence on diseases with a higher risk of culling or death, such as milk fever and lameness.

When cull cow values are high and replacement price is low, the cow's value shifts from making milk to meat production. Thus, disease costs will go down during these market conditions. Pregnancy rate determines calving interval length, total lactation milk production, and dry matter intake. The effect of pregnancy rate on disease cost interacted with optimal culling time.

Disease cost varies from farm to farm and is sensitive to market conditions. In general, disease was costlier in higher producing herds. As a result, herds with higher milk production would benefit even more from preventative measures. All herds, though, should have an idea of what disease is costing them. Understanding the relationships between different factors and associated disease financial outlays may help producers make more informed treatment and culling decisions. 🐄

Liang is a former University of Kentucky graduate research assistant and a current Ph.D. candidate at the University of Wisconsin-Madison. Bewley is an associate professor and extension dairy specialist at the University of Kentucky.

Total disease cost and breakdown on first-lactation (P1) and later lactation cows (P2)									
		Veterinary and treatment	Labor	Discarded milk	Lost milk production	Culling	Extended days open	Death	Total costs
Mastitis	P1	\$77.74 ± 33.15	\$11.53 ± 6.00	\$53.55 ± 35.43	\$162.17 ± 44.26	\$10.26 ± 3.95	-\$1.54 ± 2.24	\$12.05 ± 1.83	\$325.76 ± 71.12
	P2			\$65.44 ± 41.90	\$165.17 ± 39.86	\$10.32 ± 10.85	\$86.16 ± 22.24	\$12.82 ± 1.88	\$426.50 ± 80.27
Lameness	P1	\$104.20 ± 54.76	\$13.12 ± 6.12	\$2.01 ± 9.24	\$23.83 ± 19.05	\$24.98 ± 7.80	\$5.86 ± 10.39	\$11.10 ± 1.67	\$185.10 ± 64.46
	P2			\$2.24 ± 11.18	\$37.81 ± 17.74	\$54.41 ± 17.18	\$83.33 ± 20.69	\$11.56 ± 1.70	\$333.17 ± 68.76
Metritis	P1	\$90.03 ± 39.59	\$9.77 ± 4.52	\$33.58 ± 21.85	\$3.29 ± 1.54	\$7.25 ± 1.49	\$11.41 ± 16.85	\$16.26 ± 2.50	\$171.69 ± 47.88
	P2			\$41.12 ± 26.10	\$9.23 ± 3.09	\$9.49 ± 10.01	\$84.67 ± 22.34	\$17.39 ± 2.55	\$262.65 ± 56.15
Retained placenta	P1	\$84.69 ± 44.40	\$11.94 ± 5.96	N/A	\$48.37 ± 22.70	N/A	\$5.41 ± 9.59	N/A	\$150.41 ± 51.43
	P2			N/A	\$134.93 ± 36.59	N/A	\$84.79 ± 22.11	N/A	\$313.49 ± 64.66
Left displaced abomasum	P1	\$197.22 ± 70.28	\$15.50 ± 8.48	N/A	\$169.80 ± 72.36	\$25.73 ± 8.20	\$2.54 ± 8.11	\$21.69 ± 3.33	\$432.48 ± 101.94
	P2			N/A	\$280.84 ± 77.49	\$37.71 ± 40.02	\$85.28 ± 22.16	\$23.46 ± 3.45	\$639.51 ± 114.10
Ketosis	P1	\$52.44 ± 21.29	\$11.76 ± 5.59	N/A	\$1.00 ± 0.65	\$4.72 ± 1.06	\$1.67 ± 5.38	\$5.42 ± 0.84	\$77.00 ± 24.00
	P2			N/A	\$6.67 ± 1.69	\$6.87 ± 7.30	\$85.29 ± 22.12	\$5.80 ± 0.85	\$180.91 ± 63.74
Hypocalcemia (milk fever)	P1	\$85.25 ± 42.58	\$12.59 ± 5.98	N/A	\$6.01 ± 2.02	\$8.46 ± 9.28	\$85.28 ± 22.17	\$46.79 ± 6.87	\$246.23 ± 52.25
	P2			N/A					