

How Much Are You Losing from Extra Days Open?

By: Karmella Dolecheck and Jeffrey Bewley, Ph.D.

A common economic measure of reproductive performance is the cost of extended days open, referring to how much money is lost for every extra day a cow is not pregnant. Generally, producers and industry professionals estimate this cost at \$3.00 to \$5.00 per day open. However, this estimate may not account for variation in expenses and revenues over time or between herds, meaning cost per day open is likely overestimated in some conditions while underestimated on others.

A new decision support dashboard tool created at the University of Kentucky allows dairy producers to estimate their herd-specific cost per day open for each lactation. Knowing this information, a producer can better estimate the costs associated with their current reproductive management program and also make better decisions concerning how many times and when to breed a cow. This decision support tool is available online at <http://afsdairy.ca.uky.edu/CostOfDaysOpen>.

The decision support tool is broken into three tabs. The first tab, titled "Introduction," explains the purpose of the tool for unfamiliar users. The second tab, titled "Inputs," is where a user can enter information about their farm specific situation (rolling herd average milk production, milk price, heat detection rate, conception rate, etc.). Changes to the inputs can be made by either typing the exact number desired into the white box under each input or using the black up and down arrows beside the white input box. If a user has questions about what an input is referring to, reference can be made to a manual made for a different dashboard, but containing many of the same inputs (<http://afsdairy.ca.uky.edu/HeatDetectionTechnologiesManual>).

After all inputs have been entered, the user can click on the third tab, titled "Results." Here the average days open, total cost of days open, and average cost per day open for each lactation (1 to 5) are reported. Users can test different scenarios by going back to the "Inputs" tab to change assumptions, then viewing the "Results" tab again. For example, if we leave all inputs at the default level found on the website (and shown in the pictures below), the herd average days open would be 154 days with the cost per day open being least in first lactation (\$0.40) and most in third lactation (\$1.38). If we are considering changing management and expect the result to be an increase in heat detection rate (by spending more time watching cows, purchasing heat detection aids, or through a different method), we could adjust the heat detection rate on the "Inputs" tab from 45% to 60% and then look at the "Results" tab again. Now the herd average days open is estimated as 133 days with the cost per day open being least in the first lactation (\$0.31) and most in the third lactation (\$1.51). Changes in milk production, milk price, feed price, and other variables can be tested in a similar manner. However, it is important to keep in mind that reproductive performance is not the only factor that will be affected by the tested changes.

In addition to the interactive decision support tool, the equations used to calculate cost per day open are also available in an open-access spreadsheet at <http://afsdairy.ca.uky.edu/CostOfDaysOpenEquations>. These equations can be used by researchers and other industry professionals to estimate cost per day open in partial budgets without the costs or computing time required for stochastic simulations.

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Cost of Days Open Calculator



Reproductive performance has a large impact on dairy farm profitability. A common economic measure of reproductive performance is cost of extended days open.

This dashboard tool can help estimate herd and lactation specific costs per day open. This information can be used to evaluate costs and benefits of current and potential reproductive management programs.



Created by Karmella Dolecheck and Jeffrey Bewley University of Kentucky
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Introduction **Inputs** Results

Enter your herd specific information to see the estimated average cost per day open, average days open, and average total cost of days open for each lactation in the "Results" tab.

<p>Rolling Herd Average Milk Production (lbs) <input type="text" value="23,221"/></p> <p>Age at First Calving (months) <input type="text" value="25"/></p> <p>Mature Cow Weight (lbs) <input type="text" value="1,600"/></p> <p>Heifer Calf Value (\$) <input type="text" value="\$400"/></p> <p>Bull Calf Value (\$) <input type="text" value="\$150"/></p> <p>Semen Cost (\$/straw) <input type="text" value="\$15.00"/></p> <p>Milk Price (\$/cwt) <input type="text" value="\$18.50"/></p> <p>Veterinarian Costs (\$/cow/y) <input type="text" value="\$60"/></p>	<p>Days in Milk to Not Breed an Open Cow <input type="text" value="300"/></p> <p>Milk Production Level to Cull an Open Cow (lbs) <input type="text" value="35"/></p> <p>Cull Cow Price (\$/lb) <input type="text" value="\$0.70"/></p> <p>Voluntary Waiting Period (d) <input type="text" value="60"/></p> <p>Heat Detection Rate (%) <input type="text" value="45%"/></p> <p>Feed Price (\$/lb DM) <input type="text" value="0.09"/></p> <p>Replacement Price (\$) <input type="text" value="\$1,850"/></p> <p>Conception Rate (%) <input type="text" value="40%"/></p> <p>Discount Rate (%) <input type="text" value="8%"/></p>
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Introduction **Inputs** Results

Lactation 1	Lactation 2	Lactation 3
Average Days Open <input type="text" value="154"/>	Average days open <input type="text" value="154"/>	Average Days Open <input type="text" value="154"/>
Total Cost of Days Open* <input type="text" value="\$37.52"/>	Total Cost of Days Open* <input type="text" value="\$79.33"/>	Total Cost of Days Open* <input type="text" value="\$129.74"/>
Average Cost Per Day Open <input type="text" value="\$0.40"/>	Average Cost Per Day Open <input type="text" value="\$0.84"/>	Average Cost Per Day Open <input type="text" value="\$1.38"/>
Lactation 4	Lactation 5	
Average Days Open <input type="text" value="154"/>	Average Days Open <input type="text" value="154"/>	
Total Cost of Days Open* <input type="text" value="\$121.94"/>	Total Cost of Days Open* <input type="text" value="\$109.97"/>	
Average Cost Per Day Open <input type="text" value="\$1.30"/>	Average Cost Per Day Open <input type="text" value="\$1.17"/>	

*Total cost of days open represents additional costs associated with conception at the average day compared to conception at the end of the VWP

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