

Free online app lets you calculate the cow value

by Victor E. Cabrera

KNOWING the cow value is crucial for optimal dairy farm decision-making. It has important economic implications because it determines replacement decisions and, therefore, a herd's profitability.

A basic calculation

Simply, the cow value is the difference between the discounted future net return of the evaluated cow and the discounted future net return of her potential replacement plus the replacement transaction cost.

Net return includes milk sales, feed costs, calf revenues, nonreproductive culling costs, mortality costs and reproductive culling costs. If the cow value turns out to be positive, which means that the cow has an economic benefit over her replacement, it would be recommended to keep the cow. If this value turns out to be negative, which means that the cow's replacement has an economic benefit over the cow, it would be recommended to replace the cow. Decisions consistent to these cow values will improve the overall herd profitability.

Factors that largely influence the cow value are:

1. Cow's lactation state

2. Cow's pregnancy status
3. Cow's expected milk production
4. Replacement's expected milk production if culling occurs.
5. Economic variables such as replacement cost, salvage value, calf value, milk price and feed price.

Alright, you would like to do these evaluations for your farm but you don't want or know how to do all these calculations. No problem, we have you covered: You can do your own evaluations efficiently, permanently and consistently. Simply log in to the University of Wisconsin-Madison's Dairy Management website at DairyMGT.info, click on Tools, then The Economic Value of a Dairy Cow.

There you will find a spreadsheet application, an online application and a video demonstration. The spreadsheet is intended for those who would like to download the application to their laptops and have it ready wherever they go. The online tool works in any hardware and software system, including tablets and smartphones, and is able to calculate either the cow value for a single cow or for all cows in a herd at once.

The tool predicts the cow value responding to the user inputs and displays the overall cow value as well as the values of all major components included in the calculations.

What would you normally expect

when you do your own analyses? The cow value of a nonpregnant cow is greater early in lactation and falls consistently. This value continues to drop and likely becomes negative if the cow does not get pregnant within a reasonable time. The cow value jumps with pregnancy and remains higher than a comparable nonpregnant cow.


Overall, the cow value through gestation follows a u-shaped curve in which first it falls and then recovers. The pregnant cow value is higher for cows becoming pregnant earlier in lactation, although it would end in a similar value at completion of gestation. Whether nonpregnant or pregnant, the cow value rises from first to third or fourth lactation and then drops in later lactations.

Crucial factors impacting and determining these values are the farmer's intuitive assessment of milk productivity in present and future lactations of the evaluated cow and the expected milk productivity of her potential replacement. The cow value will be greater when the cow's expected milk productivity is higher. The cow value will be less when the replacement's expected productivity is greater.

Consistent to the cow value, the value of a new pregnancy rises to mid-late lactation, then falls, and suddenly becomes zero at the time

when the nonpregnant cow value becomes negative. The cost of a pregnancy loss will consistently go up with gestation time. The cost of a day open would vary depending on the lactation state. It is less in early lactation and it could even be negative for first-lactation cows.

Factors that measure overall herd performance and apply equally to the cow and the replacement do not have such an important impact on the cow value. The factors with less influence are the herd turnover ratio, the rolling herd average and several reproductive-related variables such as pregnancy rate or pregnancy loss. Nonetheless, these herd factors with less impact on the cow value are critical for additional and important information regarding the herd demographics and the herd average cow's net return.

We have you covered here, too. The above-highlighted tool, The Economic Value of a Dairy Cow, simultaneously estimates the cow value, herd demographics and the economics of an average cow in your herd. Therefore, you could also use the tool to study demographics and the economic impacts of several management strategies such as improving the 21-day pregnancy rate, reducing the herd turnover ratio or other related issues. 

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