

# Beef on dairy: Fad or sustainable future?

Focus on decent reproductive performance before pursuing beef on dairy.

by Victor Cabrera and Wen Li

**B**EEF semen usage on dairy cattle has gained notoriety during the past decade, growing continuously each year since 2009. Today, it represents 20% of all semen used in dairy cows in Wisconsin, based on survey data. Perhaps this seismic shift is an unavoidable response to dramatic changes in both the dairy and beef industries.

Meanwhile, dairy profit margins have been depressed for some time. On the flip side, better fertility and gender accuracy of sexed semen, combined with improved reproductive performance, have caused a significant heifer bulge. These surplus replacements usually end up for either herd expansion or faster herd turnover, which, however, does not guarantee higher economic returns.

Voluntary culling of calves is one way to manage extra calves, which has proven to improve farm net returns. Furthermore, rather than stifling dairy calves in the cradle, producers could prevent them from even being created when using beef semen.

Meanwhile, historically high grain prices in 2010 forced beef cattle feeders to convert to pasture raising, imposing higher risk of weather-related impacts. Then, a severe drought in the southern U.S. during 2013 affected approximately 25% of the nation's beef herd. Thus, prices in the whole beef production chain climbed, leading to an attractive niche market for dairy beef crosses.

Under such a situation, critical questions were being asked: How long will the thriving beef market last? What traits of beef bulls should we look for? Which group of animals and what percent of those females should be bred with beef semen?

## Two time horizons

Since there are two primary biological time lags, such as gestation length (dairy) and fattening length (beef), it is critical to guarantee that the investments and opportunity costs would pay off at the time crossbred calves are being produced, sold, or crossbred steers are being slaughtered. Data from the Food and Agricultural Policy Research Institute at the University of Missouri show the last beef cattle cycle had record low numbers in 2014 and recovery peaked in 2019.

The current projection indicates beef cow inventory will now continuously and smoothly decline until 2028. Accordingly, beef cattle prices and beef retail prices are anticipated to rise or at least maintain until at least 2028.

Beef sire selection is important to improve the marketability of dairy beef crossbred cattle without com-



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promising cows' performance in the next lactation. Hence, tailored beef sires for dairy need to be considered. Dairy farmers could have a discount due to spotted hair coat, female gender, and low growth rate for crossbreds. Therefore, comprehensive market criteria should be established toward long-term economic sustainability. Considerations include, but are not limited to, beef sexed semen, calving ease, and hair color on the dairy selection. As for beef selection, carcass value, ribeye area, moderate frame size, and feed efficiency all play critical roles.

## Make the best decision

Determining the optimal percentage of beef semen to use on dairy herds, and its inherent relationship with the optimal amount of sexed and conventional semen, could be complicated. Generally, farmers would find a combination of sexed semen, conventional semen, and beef semen that provides enough replacements and extra net return, which, however, may not be optimal.

The decision-making tool "Premium Beef on Dairy Program," available on the University of Wisconsin Dairy Management website ([www.dairymgt.info](http://www.dairymgt.info)), could help farmers and consultants make sound decisions. By selecting "Tools" and "Reproduction" from drop-down menus, web users can determine the percentage of beef semen use and combinations of sexed semen, conventional semen, and conventional or male-sorted beef semen. At the same time, farmers and consultants can monitor the economic outcome such as "income from calves over semen cost" and the number of replacement heifers needed and produced for a specific farm.

Under current Wisconsin market conditions with calf prices of \$61 per Holstein female, \$84 per Holstein

bull, and \$175 per beef crossbred, and semen prices per straw of \$15 per Holstein conventional, \$30 per Holstein sexed, and \$15 per conventional beef, the optimal semen combination to maximize "income from calves over semen cost" and produce enough replacements in a herd with 35% culling rate is:

**For medium reproductive performance farms** with a 22% 21-day pregnancy rate and 55% conception rate at first service for heifers: Use sexed semen for all heifers at first service, beef semen for 50% bottom cows, and conventional semen for all other animals, resulting in \$13.70 per cow per year of additional net return.

**For high reproductive performance farms** with a 30% 21-day pregnancy rate and 60% conception rate at first service for heifers: Use sexed semen for all heifers at first service, conventional semen for all other heifers, and beef semen for all adult cows, resulting in \$53.30 per cow per year of additional net return.

**For low reproductive performance farms** with a 15% 21-day pregnancy rate and 50% conception rate at first service for heifers: Do not use either beef or sexed semen as the "income from calves over semen cost" would be negative. Poor reproductive performance is a limiting factor for beef semen use, even when overall market conditions are favorable.

## Additional perspective

If culling rate is very low, such as 25%, medium reproductive performance farms could use sexed semen for heifers at first and second services, conventional semen for all other heifers, and beef semen for all adult cows to obtain the maximum "income from calves over semen cost" of \$37.90 per cow per year. Reducing the culling rate is

**REDUCED REARING COSTS** is one of the main objectives when considering beef on dairy mating decisions.

like "icing on the cake" only when farm reproduction is decent, which increases farm capacity of taking advantage of using more beef semen.

The minimum crossbred calf prices to reach a positive "income from calves over semen cost" while having enough replacements for low, medium, and high reproductive performance farms are: \$556, \$84, and \$74 per head, respectively, which re-emphasizes the importance of having a decent reproductive performance for taking advantage of the opportunity. The price of crossbred calves has remained above \$100 per head since 2010, with a consistent opportunity for medium and high reproductive performance farms.

Nonetheless, optimal semen combination is farm-specific and market-driven, which can be easily assessed using the Premium Beef on Dairy Program tool. On this tool, it is also possible to explore semen combinations according to genetically different groups of eligible animals.

Market projections indicate that a favorable economic climate available for dairy farmers to capitalize on beef semen strategies will last at least until 2028. A growing population and beef export opportunities might even enlarge beef demand and favorable prices. Tailored beef semen selection also could reduce penalties on sale prices.

The Premium Beef on Dairy Program tool could help producers leverage beef semen use without affecting dairy herd performance. Such a tool could also help reduce replacement rearing costs by raising only the required replacements. In all, it seems that beef on dairy is here to stay, at least in the foreseeable future. 🐄

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