

Why they use sexed semen

Nearly 350 producers and heifer growers shared thoughts on sexed semen. Follow-up research looked at its on-farm payback.

by Ryan Sterry, Denise Brusveen, Victor Cabrera, Kent Weigel, and Paul Fricke

THE technology to produce sexed semen has been around for decades. But, it was not until recently that commercial application became a reality.

We know that the sex-sorting technology can reliably raise the percentage of heifer calves to over 90 percent in many cases. But, the downside is a significant reduction in fertility. While researchers are still hashing out the best places to use sexed semen and the economics involved with the product, we wanted to get a better perspective on producers' value of the product.

Last winter, 17 Wisconsin Extension ag agents distributed a survey on the use of sexed semen. A total of 347 surveys were returned. Responses received reflected the state's distribution of herd sizes. Of the completed surveys, there were 309 dairy farmers and 38 custom heifer growers.

Who is using sexed semen, and where are they getting it?

Nearly half of those surveyed purchased sexed semen from Select Sires, while similar proportions (10 to 15 percent) buy it from Accelerated Genetics, Genex, and ABS. Semex, Alta, and other studs rounded out the group. Far more heifer growers, nearly two-thirds, are using sexed semen compared to only 39 percent of dairy farmers. Nearly half of the dairy farmers surveyed have never tried sexed semen versus 30 percent of heifer growers . . . 8 percent in each group tried it but discontinued use.

It was important for us to know which studs

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producers were purchasing sexed semen from because, at the time of our survey, Accelerated Genetics was marketing a gender-biased product which results in a smaller increase in the percentage of female calves but does not compromise fertility.

Why are people using sexed semen?

Nearly two-thirds of dairy producers surveyed plan to grow their herds over the next five years, while one-third plan to maintain herd size. Of those planning to boost cow numbers, 12 percent plan to grow their herd over 50 percent, one-third plan to add 10 to 50 percent to their current herd size, and 21 percent plan to boost cow numbers 1 to 10 percent. When asked the number one reason for using sexed semen, nearly half (48 percent) said that it was to expand the herd from within. The second most important reason was to produce more females from their best cows (24 percent).

What was the selection criteria?

Service number was the number one criteria at 30 percent. Not far behind was genetic merit of female (29 percent), followed by type of breeding — detected heat versus timed A.I. at 15 percent.

For optimum results, sperm-sorted sexed semen is best used on first-service, virgin heifers in good standing heat. A high percentage of producers are using sexed semen on both first and second service for both heifers and cows. It is important to note that, while producers are experimenting with sexed semen on their lactating cows, it is used on only a small percentage, less than 25 percent, of their cows.

What was their satisfaction level?

Farmers using sexed semen were asked to rank their satisfaction level on a scale of 1 (very dissatisfied) to 5 (very satisfied). Farmers were most satisfied (3.87) with the percentage of female calves born. Intermediate satisfaction levels were

achieved for conception rate (3.10) and sire availability (3.09). The biggest dissatisfaction with sexed semen came from the higher price (2.92).

What were reasons for discontinuing its use?

Many producers (42 percent) had reasons other than semen price, dissatisfaction with sex ratio, or poor fertility for discontinuing the use of sexed semen. Nearly one-third (31 percent), though, quit because of poor fertility.

Does it pay?

After the survey, we calculated the economic value (EV) of reproduction programs for virgin heifers. This was assessed as the difference between the net present value (NPV) of conventional, unsexed semen and various sexed semen programs.

The NPV was calculated by totaling the discounted monetary values of successive services in virgin heifers starting at 14 months of age. We also considered the discounted value of the probability a heifer could be culled and replaced if not pregnant after five consecutive services.

The cost of conventional and sexed semen, including insemination fees, was set at \$15 and \$45, respectively. Heifer calf value was considered to be \$562, and bull calves were \$48. The maintenance of nonpregnant 1,114-pound heifers 15 to 20 months of age was set to \$2.40 per day. The culling value of 20-month open heifers was 81 cents per pound, while the replacement value of an equal weight pregnant heifer was \$1,200. An annual interest rate of 12 percent was used for discounting purposes.

A baseline conception rate (CR) for heifers was set between 65 percent (high) and 55 percent (low). The CR for sexed semen was 52 percent (high) and 27.5 percent (low). CR dropped 2.5 percent for each successive service after the first service. Resulting live births were set at 46.7 percent females with conventional semen and 87 percent with sexed.

Five semen programs were studied. These programs used sexed semen in one, two, three, four, and all five services, along with simply conventional semen.

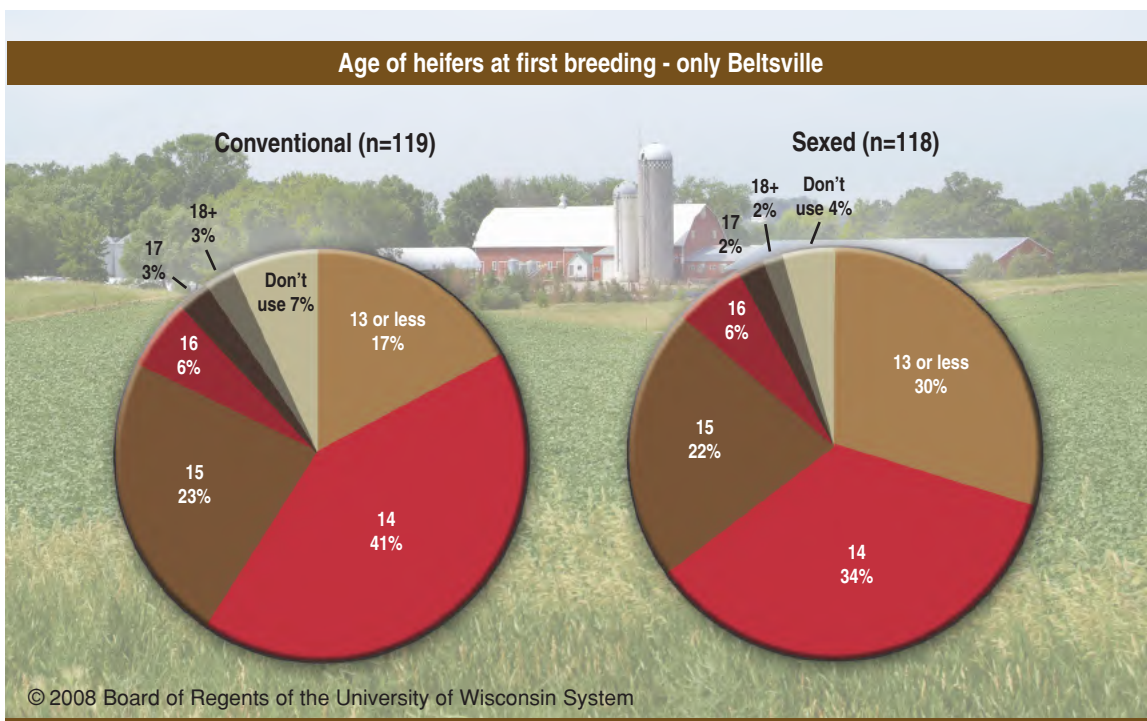
It pays, but . . .

Based on our model, sexed semen programs have an economic benefit but only if the CR of sexed semen service is high (80 percent of the conventional).

When both CR of conventional and sexed semen were high (65 percent and 52 percent, respectively), the economic value of the reproductive programs was always positive, varying between \$27 (five sexed services) and \$77 (two sexed services).

- When the conventional CR was low (55 percent), but the sexed semen was high (44 percent), the EV were again positive but lower than before, varying between \$3 and \$54. Programs with two, three, and one sexed services outperformed the four and five services programs.

- When the CR of sexed semen services was low (32.5 and 27.5 percent, respectively), the EV of sexed semen was always negative, indicating that a conventional reproductive program will be more profitable. The negative spread widened as sexed semen was used for additional services.



Run your own numbers

Sexed semen programs will greatly depend on the particular farm and market conditions. To help you out, we have created a web-based tool that allows A.I. users to estimate the returns on sexed semen. The tool is free of charge and can be used directly from a web browser at the following website: www.uwex.edu/ces/dairymgt/ under the section "Management Tools" and title "Economic Value of Sexed Semen Programs."