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### Media contacts:

Eileen Leahy

Elsevier

+1 732 238 3628

[jdsmedia@elsevier.com](mailto:jdsmedia@elsevier.com)

Ken Olson, PhD, PAS

American Dairy Science Association®

+1 630 237 4961

[keolson@prodigy.net](mailto:keolson@prodigy.net)

## Crossbreeding of Holstein cows improves fertility without detriment to milk production

*Research in the Journal of Dairy Science® examines generational effects of crossbreeding*

**Philadelphia, August 24, 2020** – Since 1960, Holstein dairy cows have exhibited a substantial decline in fertility, with serious economic consequences for farmers. Genetic selection programs in the United States and elsewhere have emphasized milk production at the expense of other traits. Attention has turned to improving these neglected traits for better overall well-being of cows and to ameliorate dairy producers' profitability. In a recent [article](#) appearing in the [Journal of Dairy Science](#), scientists from the University of Minnesota examined the effects of crossbreeding on fertility and milk production across three generations in a large sample of Holstein and crossbred cows.

Although in recent years Holstein breeding programs have made strides toward remedying the problem of diminished fertility, crossbreeding is often seen as a possible means to achieve greater and more rapid gains, while eliminating concerns about inbreeding.

"A larger response in phenotypic fertility will be experienced over a shorter period of time from crossbreeding than from selection within a pure Holstein population," explained lead author Amy Hazel, PhD, University of Minnesota, St. Paul, MN, USA. Whether this is true, and whether crossbred cows can compete with Holsteins in a high-producing commercial dairy setting, were questions that the team investigated.

Purebred Holsteins were compared with cows from a three-breed rotation of Holstein with Viking Red and Montbéliarde in this 10-year study with initial enrollment of 3,550 Holstein cows from Minnesota

commercial dairies. The team found that each combination of two- and three-breed crossbred cows demonstrated significant advantages over pure Holsteins for all fertility traits at each studied lactation. This confirmed expectations, but what about the possibility that milk production might be negatively affected by crossbreeding?

“Because of the global predominance of high-producing Holsteins, some dairy producers have been concerned that crossbred cows will have poorer milk production traits,” observed Prof. Hazel. “But our study found little, if any, loss of fat and protein production for crossbred cows compared with their Holstein herdmates.”



Caption: This study establishes the Viking Red and Montbéliarde breeds as highly complementary for crossbreeding with Holsteins and well suited for milk production in high-performance dairy herds. Credit: A.R. Hazel, B.J. Heins, and L.B. Hansen.

As dairy producers place increased emphasis on minimizing the major expenses for cows—including feed intake, repeated inseminations, health treatments, and premature replacement—this large and carefully designed study confirms that strategic crossbreeding can improve fertility of dairy herds, reduce costs of insemination, and result in more efficient milk production, without significant losses in milk composition.

Additionally, a larger effect should be the longer herd life of crossbred cows compared with pure Holsteins. Although further research remains to be performed, this study establishes the Viking Red and Montbéliarde breeds as highly complementary for crossbreeding with Holsteins and well suited for milk production in high-performance dairy herds.

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### **Notes for editors**

The article is “Fertility and 305-day production of Viking Red-, Montbéliarde-, and Holstein-sired crossbred cows compared with Holstein cows during their first 3 lactations in Minnesota dairy herds,” by A.R. Hazel, B.J. Heins, and L.B. Hansen (<https://doi.org/10.3168/jds.2020-18196>). It appears in the *Journal of Dairy Science*, volume 103, issue 9 (September 2020), published by FASS Inc. and [Elsevier](#). It is available at [https://www.journalofdairyscience.org/article/S0022-0302\(20\)30505-1/fulltext](https://www.journalofdairyscience.org/article/S0022-0302(20)30505-1/fulltext).

Full text of the article is available to credentialed journalists upon request. Contact Eileen Leahy at +1 732 238 3628 or [jdsmedia@elsevier.com](mailto:jdsmedia@elsevier.com) to obtain copies. Journalists wishing to interview the authors should contact the corresponding author, Amy R. Hazel, University of Minnesota, at [haze0025@umn.edu](mailto:haze0025@umn.edu).

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