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Dairy Pipeline

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Replacement management: Are you doing it effectively?

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A long time ago, a banker told me that his most profitable dairy farms always raise their own heifers. That has stuck with me and caused me to ask why that is. There are many factors that go into raising heifers and some farms do it very well while others struggle to raise heifers effectively. In a perfect world, it makes sense that raising your replacements would be the most profitable long-term for your farm. You will have **your** genetics, raised in **your** environment, and under **your** management. If done well, there is less stress in the heifer's life that can negatively affect her future production. Heifers need to be a priority for nutrition and housing, not an afterthought.

In 2018, I wrote an article for the Pipeline on managing heifer inventory. At the time, the focus was on culling lower genetic or poor doing calves before the expense of raising them was realized. Raising the appropriate number of heifers to replace herd culls, but not an excessive amount. Then, bull calf prices were just over $100, and springing heifers were around $1200 each. This with the cost of raising a heifer around $1600 made it unwise to raise extra heifers to sell. The chart below shows the number of replacement heifers needed at different cull rates and age at first calving per 100 cow herd. If you look at an easily achievable goal of 24 months calving and 30% cull rate, only 66% of the herd is needed as replacements.

Table 1. Heifer herd size for a 100-cow herd and a 10% heifer cull rate.

Cull Rate (%)	Age at First Calving 22 months	Age at First Calving 24 months	Age at First Calving 26 months	Age at First Calving 28 months	Age at First Calving 30 months
26	53	58	63	67	72
30	61	66	72	78	83
34	69	76	82	88	94
38	77	84	92	99	106
42	86	93	101	109	117

Managing heifer inventory on today's dairy farms requires a comprehensive look at the entire operation to maximize production and profitability. What it costs you to raise a heifer, how much feed

and space you have, and the available labor force are all important factors to take into consideration.

It wasn't long after I wrote the heifer inventory article in 2018 that I talked with a colleague in California. He spoke of dairy farms breeding 50% or more of their herds to beef bulls. At the time, I found it intriguing. Many farms here in Virginia were starting to use some beef bulls, but not at a rate close to that. Those crossbred calves at the time also had a value of only around $250. More than a Holstein calf, but not a significant income stream. Many things have changed in the last 7 years. The cost to raise replacements has gone up significantly to around $2600 (Tranel, L.; Iowa State, Raising Heifers in 2025), including all costs. The value of calves and replacements has also increased significantly. Bull calves are worth around $850 with a $200-$300 premium for black calves. Springing heifer values have also nearly tripled, bringing $3,000-$4,000 in many places around the county.

It is important to recognize that in the time it takes to raise a heifer (2 years) these economic trends will likely be different. They may be better or worse, but they are sure to change. Being able to evaluate what works best for your farm is important.

First, look at your resources

- Do you have enough facility space?
- Do you have enough feed?
- Do you have enough labor?

If the answer to any of these is no, then you may be best served by simply breeding all your animals to beef bulls, selling the calves, and buying replacements. Remember to budget for buying replacements. Today, buying 33 animals/100 cows at $3000 a piece is around $100,000. This should be offset by the sale of calves and savings on feed and labor.

Next, think about how long you will be in the dairy business? Are you going to retire in the next few years? Are you going to stay in the dairy business for a long time. If you are retiring soon, breeding to beef might be best for you.

Consider the genetic base in your herd. Have you been breeding the type of cow that works best for your environment? Have you kept your best maternal lines on the farm to improve performance? If this is the case, using beef on the bottom end to manage inventory is a wise decision, but still keeps the best genetics raised on your farm. This may be the best option for farms that intend to milk cows for a long time.

Every farm needs to look at their individual situation and evaluate what is best. Raising replacement heifers in-house is still a great long-term solution to profitability. But there are options to manage your resources and meet the goals of your dairy. Take advantage of high prices for beef-cross calves, but also look at long-term sustainability for your farm business and what works best for you. There are advantages to not raising your own heifers, but that decision brings challenges as well.

Avian Influenza A (H5N1): The outbreak of Bird Flu in U.S. Dairy Cattle

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Over the past years, there has been significant media coverage regarding the Highly Pathogenic Avian Influenza (HPAI) virus of the H5N1 subtype, commonly known as "H5N1 bird flu". In 2024, H5N1 was detected in lactating dairy cattle on a farm in Texas, marking it the first reported case of the virus affecting dairy herds. Since then, the virus has spread to other states. According to the latest USDA report from May 2025, there were 1,053 confirmed cases in livestock herds in 17 states, with the highest incidence being in California, with 766 confirmed cases. This article explores the emergence of H5N1 virus, its impact on milk production, and prevention strategies to limit its spread and ensure food safety.

This virus was first found in 1996 in wild bird populations, causing severe mortality in these animals. In 2022, H5N1 severely impacted domestic poultry across the United States, leading

to substantial economic losses due to increased death, culling rates and reduced poultry product availability. The H5N1 virus has not only impacted poultry but has also begun to affect cattle across North America.

The H5N1 bird flu is a highly contagious virus primarily transmitted between birds. However, recent cases indicate the transmission from birds to cows, cows to cows, and cattle to other species. USDA reports suggest that the spread among cattle may be linked to the interstate movement of livestock, raising concerns about farm biosecurity measures. Another plausible route of contamination is the shedding of H5N1 in milk from affected cows, which may contribute to transmission between animals. Although there are no documented cases of humans contracting the virus through the consumption of raw dairy products, there have been reports of domestic cats dying after consuming raw milk from affected cows, which adds to the apprehension surrounding this issue.

Studies have observed that infection with the H5N1 bird flu virus in lactating dairy cows has a detrimental impact on their health and productivity. Infected cows often experience a decrease in feed intake and rumination time, significantly reducing milk production. A study from Cornell University analyzed samples from nine farms that tested positive for HPAI in 2024, across Texas (5), New Mexico (2), Kansas (1), and Ohio (1). The researchers reported a drastic drop in milk production, with reductions ranging from 20% to 100%. Even after recovering from the clinical disease, affected cows continued producing less milk for at least four weeks. Additionally, there have been reports of milk appearing abnormal, becoming thicker and more concentrated, similar to colostrum. Affected animals may develop fever, lethargy, dehydration, mild respiratory signs, and clear nasal discharge. While H5N1 is known to cause many illnesses and deaths in birds, dairy cows have shown good recovery after treatment, resulting in an average mortality/culling rate of less than 2%.

The main issue with HPAI H5N1 infection in dairy cows is how the virus targets and replicates in milk-producing cells of the mammary gland. In a study from Cornell, mentioned earlier, researchers tested several types of samples including nasal swabs, whole blood, serum, and milk from infected animals. The virus was more frequently detected in milk compared to other samples. The viral load in raw milk is a public health concern. While the Food and Drug Administration (FDA) and other health authorities recommend not drinking raw milk because it can be contaminated with dangerous bacteria, H5N1 provides another reason not to consume raw milk.

Fortunately, research from Canada and China has demonstrated that the standard pasteurization effectively inactivates the H5N1 virus in raw milk. Specifically, heating milk to 63°C (145°F) for 30 minutes or 72°C (161.6°F) for 15 seconds has been shown to eliminate the virus. In March 2025, the FDA reported that 464 pasteurized dairy products, including milk, cheese, butter, and ice cream, were tested for H5N1, and all samples tested negative. This further confirms the effectiveness and importance of the pasteurization process in ensuring food safety for the population. Also, in December 2024, the USDA announced a new Federal Order, called the National Milk Testing Strategy (NMTS), requiring that all raw milk samples from dairy processing facilities be analyzed for HPAI. This is an important strategy to protect farms, staff, and the population from the bird flu.

While pasteurization makes milk safe to drink, scientists are also working to stop the virus from spreading. We actually don’t really know how it is spread among cows. We lean into biosecurity practices as general best recommendations but we aren’t exactly sure. And we absolutely don’t know how it’s passed so quickly from cow to cow with the primary signs in the milk. This is the first ever documented viral mastitis!

In summary, H5N1 is a growing concern for dairy farms, however, effective pasteurization, strong biosecurity, and new testing protocols provide a solid foundation for limiting its impact and keeping the food supply safe.

Upcoming Events

June 14, 2025
Franklin County Open Livestock Show

June 18, 2025
DEADLINE - June Dairy Month Poster Contest

June 20, 2025
Virginia Dairy Expo
Dayton, VA

July 2025
Southeast Dairy Business Innovation Initiative - Grants opening:

- Dairy Business Planning Grant
- Specialty Processing Equipment Grant

Summer TBA
BQA Training & Certification
Open to all dairy and beef producers

BQA Training & Certification via
Southside Women in Ag

If you are a person with a disability and require any auxiliary aids, services, or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.

Additional Notes:

▪ The dairy extension group is working with VDH to assist in distributing PPE to dairy farms. Request a kit online at https://shorturl.at/ethov or contact your local extension agent. Requests will be filled as supplies allow.

▪ Your input could guide future programming! Please complete the short survey at https://tinyurl.com/dairy-extension.

For more information on Dairy Extension or to learn more about our current programs, visit us at VTDairy—Home of the Dairy Extension Program online at www.sas.vt.edu/extension/vtdairy.html

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