

Sire Selection Impacts Early Lactation Losses

The reasons for cows leaving a herd are many. According to the National Animal Health Monitoring System's Dairy 2007 study, dairy farmers most often removed cows for reproductive problems (26.3%) followed closely by mastitis or udder problems (23%), and lameness or injury (16%).

Poor milk production and other challenges like aggressiveness, other diseases or as replacements to other farms were cited far less frequently as reasons for cows leaving a herd, but still account for a significant portion of culling decisions.

The study also reports that the single largest cause of cow deaths was lameness or injury (20%) followed by mastitis (16.5%), calving problems (15.2%) and unknown reasons (15%).

Copious research has been and continues to be devoted to learn how to improve dairy management and husbandry practices for each of these challenges. In addition, extensive economic analyses show the sizeable financial impact of culling cows (or deaths) for any of these reasons during the first 60 days of lactation.

But far less is known about the extent of the effect that genetic selection has on any of these factors.

DIGGING THROUGH DATA

New data sheds some light on just how much of an impact sire selection can have on dairy cow mortality and early lactation culling. The research suggests that selecting for traits like productive life is one way to help reduce early lactation culling and death loss.

This conclusion was reached after Dr. Chad Dechow, Penn State University associate professor of dairy cattle genetics, and his colleagues evaluated 100,911 mortality and 171,178 60-day culling records for 1,467 herds in Pennsylvania. (60-day culling was defined as cows that left the herd either through culling or death from 21 days before their due date to 60 days in milk.)

The results were published in the February 2012 issue of *Preventive Veterinary Medicine*.

ENVIRONMENTAL FACTORS

Herds were classified as either adverse or favorable for cow survival.

Adverse cow survival environments were defined as those with:

- 4.4% or greater mortality rate.
- 7.1% 60-day cull rate.

Conversely, favorable cow survival environments featured:

- Mortality rates lower than 4.4%.
- 60-day cull rates below 7.1%.

RESULTS AND CONCLUSIONS

Once the researchers finished crunching the numbers, they found there was a definite relationship between sire selection and early lactation cow mortality or culling. As you might expect, the effect was also significantly impacted by cow environment.

For example, the estimated proportion of lactations that ended in death dropped from 9% to 6.8% as sire productive life predicted transmitting ability (PTA) went from the lowest to the highest quartile in adverse cow environments. For cows in favorable environments, the estimated death risk decreased from 2.8% to 2.1% in the lowest and highest quartiles for sire productive life PTA.

Also, daughters of bulls with high somatic cell score PTA and low daughter pregnancy rate PTA had higher incidences of death and 60-day culling rates. In fact, data show that daughters of bulls in the highest PTA for daughter pregnancy rate had a 1% lower estimated death rate and a 1.5% lower estimated risk of culling before 60 days in milk than daughters of bulls in the lowest quartile for this trait.

Lastly, sire selection to reduce stillbirths and calving difficulty was associated with lower death and 60-day culling rates.

While maybe not completely surprising, these results put some real numbers to the impact of genetics on essential management parameters. “The study provides evidence that sire selection can play an important role in reducing the incidence of death and culling in early lactation, particularly in herds with adverse cow survival environments,” says Dr. Dechow.

Therefore, it’s time to put genetic tools like productive life and other functional traits to good use on dairies, especially those that struggle with adverse environments. Incorporating these factors into your sire selection criteria can go a long way toward cutting down on costly cow losses in early lactation.

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