



Stillbirths and dystocia . . . worse than we thought

Investigations are shedding new light on the risk factors.
Cow health and breeding affected, too.

—by A.F. Kertz—

MORE recent research indicates that problems due to stillbirths and calving problems are more extensive than previously thought. In an earlier article (Calf losses leave lots of money on the table, January 10, 2007, page 18), I used information from extensive DHI records. Here is a brief recap:

- Stillbirths averaged 11.1 percent for first-calf heifers and 5.7 percent for older cows.
- First-calf heifers had nearly three times more (28.7 percent vs. 10.7) calving problems than older cows.
- There was a progressive rise in stillbirths among first-calf heifers between 1985 and 1996. Stillbirth incidence went from 9.5 to 13.2 percent with slight or no rise in dystocia scores. This stillbirth incidence was nearly twice that of older cows.
- Odds of stillbirth were greater during summer than winter.
- Heifer calves had 7 percent lower odds of being stillborn than bull calves from first-calf heifers. However, heifers had 12 percent higher odds of being stillborn than bull calves among older cows.
- For all levels of dystocia, the probability in first-calf heifers and older cows went up between 1985 and 1996. This rise over time was greater when assistance was needed at birth and lowest with unassisted births. When assistance was needed, dystocia affected the calves of older cows more than calves of first-calf heifers.

In three California herds studied during 2005, calving difficulty was lower in cows delivering heifers and in cows delivering single calves rather than those with twins. Stillbirths ranged from 10 to 20 percent.

And in a 2006 Journal of Dairy Science study, stillbirths went up 0.25 percent and 0.20 percent, respectively, for bull and heifer calves with each 1 percent increase in inbreeding coefficient for first-calf heifers.

There was a more recent study reported in a 2007 Journal of Dairy Science. It was based on 3,544 calves born between October 1, 2001, and November 5, 2002, in three Colorado herds ranging from 1,000 to 5,000 head. Some of the key findings regarding stillbirths were:

- Nearly one-half (49 percent) of calves born to first-calf heifers were delivered unassisted, whereas 19 percent were classified as severe dystocia. Older cows averaged 71 percent delivered unassisted, and only 7 percent were classified as severe dystocia.
- Twins (majority born to older cows) accounted

for 11 percent of calves born, with 57 percent requiring assistance during birth compared to 34 percent of single births.

- Bull calves were more likely to require assistance compared to heifers (40 versus 33 percent).
- Stillborn incidence (8.2 percent overall) was higher among cows with problem calvings. Overall, stillbirth incidence was 6.3 percent for heifer calves compared with 10 percent for bull calves. And, overall, stillbirths were 12.6 percent for first-calf heifers versus 6.1 percent for older cows.
- Overall, calves born with dystocia scores 2 and 3 were 2.3 and 15.4 times more likely to be stillborn than calves born unassisted. (A score of 1 means no assistance, 2 means one person involved without a mechanical device, and 3 means hard deliveries . . . more than one person, a mechanical device or surgery.)

First-calf heifers were 1.7 times more likely to give birth to stillborns than older cows. Bull calves were 1.4 times more likely to be stillborn than heifers. Heifer calves born with dystocia scores

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of 2 or 3 were 2.0 and 20.7 times more likely to be stillborn than heifers born with no assistance. Heifer calves born with severe dystocia were at greater odds of stillbirth compared to bull calves. Calves born during winter were less likely to be stillborn than calves born in autumn.

Key findings regarding calving problems were:

- Heifer calf odds of having any kind of health problem were significantly higher for dystocia score 2 and 3. Heifer calves born in winter and spring were at greater risk for morbidity compared with those born in autumn. Summer-born calves were the healthiest of all.
- Heifer calf odds with a respiratory event were significantly higher for dystocia score 2 and 3. Heifer calves born in winter and spring were 4.2 and 1.9 times more likely to experience a respiratory event compared with those born in autumn, with summer being lowest of all.
- Heifer calf odds of having a digestive event were greater for those calves born to cows that had mild or severe dystocia. The same seasonal pattern was observed as noted above.
- Heifers born to first-calf heifers had 1.2 times greater odds of dying than those born to older

cows, again with the same seasonal pattern as noted above.

- Although only 8.2 percent of heifer calves had severe dystocia, they accounted for 30 percent of all heifer deaths up to 120 days of age.

Given this scenario, here are some further observations from the authors:

- Three general causes of calving problems are a calf size/cow size mismatch, calving complications, and maternal related causes. Dystocia occurrence has the major impact as 35 percent of calves required assistance, and they resulted in 75.5 percent of stillborns. And, although only 10.8 percent of calves were born with severe dystocia, they accounted for 49 percent of all stillbirths.

- Some 25 percent of stillbirths occurred with an unassisted delivery. This suggested the dairies studied needed to observe calving pens more often and intervene with difficult deliveries more readily.

- Because calves affected by a difficult delivery will be more susceptible to health problems, it is reasonable to attribute the majority of such deaths to dystocia, for example, in cold or wet weather. Ironically, lower occurrence of stillbirths in winter may be the result of greater attention to calves at birth or that calves adapted fairly quickly to the environment when they were not compromised by a difficult delivery.

- The effects of a difficult delivery on calves are trauma and asphyxia which can then result in postnatal metabolic and respiratory acidosis, hypoxemia, failure of passive transfer of immunoglobulins from colostrum, and hypothermia. Tough calvings have been associated with lower body temperature, reduced concentration of blood cortisol, and higher blood glucose.

- Improved calf care during and immediately after birth may not only eliminate some stillbirths but also reduce the proportion of calves that die between 1 and 120 days of age.

- Difficult calvings and subsequent health problems accounted for nearly 50 percent of all calf deaths in this study.

The authors concluded, “Education of farm personnel should be targeted at minimizing dystocia impacts with appropriate delivery methods, identifying compromised calves, administering fluids and oxygen to calves with acidosis, warming chilled calves, and delivering high-quality colostrum immediately after birth. Standard operating procedures on dairies should be to treat every calf that was exposed to dystocia as a compromised calf.”

The above studies all measured the extent of stillbirths and impact of calving problems on health of surviving calves. Another 2007 New York state study published in the Journal of Dairy Science found 6.6 percent stillbirths out of 13,608 calvings, with 10.7 percent for first-calf heifers and 4 percent for older cows. But the particular significance of this study was its emphasis on cow effects after a stillbirth.

There were no detrimental effects of stillbirth on cow survival, even if the stillbirth was unassisted. But cows with stillbirths had a 24 percent lower pregnancy rate compared to cows with a live calf, and they took 88 days more to get pregnant. We might think this was due to calving difficulties associated with stillbirths, but these detrimental effects on breeding were not affected by calving difficulty.

As of 2006, genetic evaluation for stillbirths are available as part of the list of genetic evaluations for fitness traits. This recognizes that stillborn calves are an economic loss and that sire evaluation can play a positive role.

We need to measure and record incidence of stillbirths and dystocia in order to be able to determine the magnitude of the problem in our herds. Then we need to develop a thoughtful approach to reduce incidence of these problems. It is not just a matter of lost and less healthy calves. We now know that these problems have affected how well cows milk and breed back. 