

Pelvic Area No Longer Considered a Useful Tool

Research data summarized at the 1995 meeting of the Beef Improvement Federation (BIF) concluded that the size of the pelvis in yearling heifers was not a good predictor of calving ease. This conclusion eliminates the need for an expensive, time-consuming and stressful trip through the chute for yearling heifers, both purebred and commercial.

Animal scientists and serious cattle breeders are continually searching for additional indicators of trouble-free and efficient beef production. Therefore, when the introduction of certain exotic breeds and the emphasis on increased growth and mature size resulted in calving ease problems in the beef industry researchers looked for a solution.



Bob Long

Calving difficulties mostly occur as the calf is passed through the birth canal or pelvis so workers concluded that the answer to difficult birth was to simply identify those cattle with a larger pelvic opening. This simplistic solution seemed so

logical that many breeders began to measure the pelvic area in both yearling heifers and bulls without a careful look at research data. Now, an analysis of that data shows that selection for larger pelvic area is not an aid in eliminating difficult birth.

The author cannot resist repeating a discussion of this situation which was published in 1993 as a 'Beef Logic' column:

Obviously, most calving difficulty occurs when the calf is larger than the birth canal or pelvic opening. This has led to recent attention to pelvic size as a criterion for selection and/or culling in both seedstock and commercial herds. Research in this area has universally found that the pelvic size of a heifer is more highly correlated with the size of the heifer than with any other factor. That a big heifer has a big pelvic opening should be no surprise in view of the fact that skeletons grow proportionately and the pelvis is a part of the skeleton. Further, the fact that a big heifer has a big pelvic area is no guarantee she will have a calf without difficulty.

As both heifers and cows approach calving, the body undergoes profound changes. A major change is in the pelvic region. The pelvis or pelvic girdle, which forms the birth canal, partially surrounds the sacral region of the spinal column. However, there is no bone-to-bone connection. The pelvis is attached to the sacrum by ligaments (lacro-iliac and sacrosciatic).

During the 3 or 4 weeks before calving, extensive changes in hormone secretion occur and a hormone called relaxin is produced. This hormone causes the ligaments to relax, resulting in an increase in the vertical dimension of the pelvis. The amount of relaxin produced (as in the case of other hormones such as growth hormone) is genetically controlled and so some females produce more relaxin than others. This results in a greater increase in size of the birth canal in some cattle.

In view of these facts, it's easy to understand why the size of the pelvis in a 12-month-old heifer is not a good measure of her

pelvic size when she calves a year later.

Bulls have a somewhat smaller and differently shaped pelvis than do females. However, recent research has shown a positive correlation between pelvic size in bulls and that of their daughters. This has led to a recommendation to use the pelvic size of yearling bulls to indicate easy calving in their daughters.

Keep in mind that skeletons grow proportionately. Large yearling bulls have larger pelvic areas than smaller bulls. Further, large yearlings grow faster than small yearlings and growth rate is highly heritable. So the daughters of big bulls are bigger than the daughters of smaller bulls and also have a larger pelvis. No surprise—but not a guarantee of easy calving.

The production of a live, healthy calf by a heifer on her second birthday without assistance is a complex event. Calving ease is affected by many factors, including size and shape of the calf, sire of calf, plane of nutrition of the mother, physiological preparation of the mother, the degree of effort the heifer exerts, and many others.

Perhaps the best measure of calving ease is simply whether or not a heifer calved on or about her second birthday without assistance. Further, did she or did she not claim the calf clean the calf, get it up, nurse it and take care of it.

This elimination of pelvic area as a selection criterion is an example of the tremendous service the Beef Improvement Federation has rendered to the beef industry. A breeder can certainly profit from attendance at the BIF annual meeting. If that is not possible, a copy of the annual proceedings of that meeting are available by writing the office of Ronald Bolze at the Northwest Kansas Research Center, RR 2, Box 830, Colby, KS 67701, or call him at (913) 462-7575.

WE WELCOME YOUR INPUT!

Our Beef Improvement section has been expanded to include more information for today's performance-minded breeder. Both "Beef Logic" by Bob Long and the "What?" columns serve as a forum for Angus breeders and industry experts to express their opinions on current issues and topics of breed improvement.

If you have a topic or question you'd like to suggest for either column, please contact the editorial office at (800) 821-5478 or fax (816) 233-6575.

