

Breeding Soundness Exam (BSE) Economics and Herd Bull Investment Cost

This decision aid addresses two topics: 1. The economics of the breeding soundness exam (BSE) and 2. Herd bull investment and annual costs.

BSE Economics

The BSE exam is one of the cost-effective practices that a cow-calf operation can employ. Reproduction rate, weaning percentage based on exposed females, is the most important measure of the cow-calf enterprise performance. High reproduction rates cannot be achieved without breeding sound herd bulls.

The **herd veterinarian** is the key professional that should be involved in deciding on the necessity for doing the BSE and when timing would be most effective. During the BSE, the veterinarian will also identify physical or health problems that would warrant the culling and purchase of bull replacements. Recall the BSE costs include the veterinarian, lab fees, equipment and supplies involved, plus the owners added costs.

Potential Costly Problems With Sub-Fertile Bulls

1. In small herds a calf crop can be lost with one herd bull that is sub-fertile.
2. In larger herds the number of bulls can be inadequate if there are sub-fertile bulls causing the overall pregnancy to be lower.
3. If bulls are sub-fertile, females can go through breeding cycles without getting bred. Anything that delays the conception of females means the calves will be born later resulting in lower weaning weights and income even when bulls are left with females for a long breeding season. Delayed breeding is very costly as income is reduced for the light weaned calves.

An annual BSE can identify bulls to cull and decrease the risk of decreased pregnancy rates. If a BSE can reduce the number of bulls needed this would be a large annual cost saving. The bull investment cost spreadsheet calculates this annual cost.

The economic methodology employed is the revenue benefit versus cost summarized using a benefit-cost ratio or the dollar return for the dollar invested in the practice. The BSE is a small cost when expressed per female exposed. If BSE results in elimination of sub-fertile or unsound bulls and the overall herd weaning percent increases, the benefit-cost ratio is high. The spreadsheet allows the employment of “what if” analysis by changing key variables. The most change is weaning percent based on the number of exposed females per bull.

Delayed calving date is evaluated by comparing the value of the weaned calf by breeding cycle. If bred in the first cycle, the calf will have a higher weaning weight than in a later cycle. It is an age of calf reality. A price slide is used to recognize the lighter calves have a higher price per Cwt. This can be compared to the cost of the BSE per exposed female.

Herd Bull Investment Analysis

Purchasing herd bulls as an investment is expected to pay out over 3 to 5 years. The ownership costs (depreciation, death loss and interest cost) are an annual cost spread over females serviced and calves produced during the bull's productive life. Depreciation is the purchased cost minus salvage value. Salvage value or cull bull net sales value is a portion of bull initial purchase cost and reduces annual bull depreciation cost.

The investment in a higher priced bull that can contribute to improved production of more market acceptable calves and better weaning weight for the cow-calf producer is **not that costly** when numbers are put into perspective for calves sired and as a percent of the breeding cows' total annual cost. The bull is an investment with a long-term pay out. Operating expenses like feed and grazing are annual costs. The number of calves required to pay for the bull is a good indicator to monitor the investment requirement.

This decision aid helps put the "bull investment" into proper cost perspective. Annual cost is calculated in terms of the number of cows serviced and what change would be required in weaning weight to pay for the higher priced bull. Calculated cost per calf and per cwt. of calf weaned per cow exposed are good indicators to compare bull investments. This provides information on what the market would have to pay to justify paying more for a herd bull that could produce a more market acceptable higher valued calf. The impact on the saved replacement heifers and bull selection is not addressed in this decision aid that focuses on weaning weight and percent weaned.

Input Data

The key data for this decision aid is the bull investment or purchase cost, estimated salvage value, and economic life. When combined with an interest cost on capital these are the "ownership costs" of the bull investment. Once the bull is purchased these are fixed costs and only vary with the salvage value of the bull and, of course, the productive life. Annual operating costs include the health-related expenses and annual BSE.

To calculate cost per cow, the number of cows serviced per year needs to be inputted. In order to evaluate the impact of number of cows and production cost per cow, a sensitivity table is included. Cost level is quite sensitive to the number of cows serviced and reinforces the importance of the breeding soundness exam, good bull nutrition, and management. To calculate change in weaned calf weight needed to pay for added costs, the weaned calf crop and weaning weight must be inputted. Weaned calf weight per female exposed is calculated. The final data item is the projected average market price of the weaned calves.

The usefulness of this tool is in its capability to quickly evaluate different variables. Or "what if analysis". Change the values in the **blue cells**.