

## **Replacement Heifer Cleanup Bull Economics - Cost Calculator for Alternatives**

The purpose of this decision aid is to calculate the cost of alternative ways to meet the needs for cleanup bulls for replacement heifer artificial insemination (AI) breeding system after AI is completed.

Low birth weight cleanup bulls are not used to produce heifers for herd replacements and are not to use on mature cows because they have lower growth potential at weaning and yearlings. If only purchased as “cow fresheners” to minimize cost there is risk they can cause costly calving problems with first calf heifers.

It is common practice to use only yearling or two years old clean up bulls on yearlings’ heifers as they are too heavy to use on yearling heifers when they are three years old or older. Costs results are very sensitive to cleanup bulls required and the AI pregnancy used to calculate requirements.

For spring calving season replacement heifers, the cleanup bills are only used for the breeding season after AI is completed.

The three alternatives evaluated by this decision aid for cleanup bulls are:

1. Lease yearling cleanup bulls for the breeding season (See Appendix A).
2. Buy yearling cleanup bulls, use them two years and sell them.
3. Buy yearling cleanup bulls and sell them at the end of the first breeding season.

The buyer will castrate the bulls and then finish them for harvest.

Key economic measures calculated and summarized in in the first sheet of the decision aid are as follows:

1. Total annual cleanup bull costs and costs per exposed heifer.
2. Bull requirement based on expected AI pregnancy and open heifers to breed.
3. Total cleanup bull capital investment by alternative source of bulls.

Costs include the operating costs of caring for the bulls before, during and after the breeding season and ownership costs, including the depreciation costs for bulls kept more than one year.

Death loss cost is expected to be low but the decision aid does include this variable.

Lease costs and investment cost of bulls are only used for one short breeding season. Owned bulls have a year around feeding and maintenance cost.

Salvage value of the culled bull is important to determine the bull annual ownership cost.

Interest cost is calculated for the length of time bulls are owned. The days used is the same as yardage or indirect head day costs. Bull investment is calculated for each alternative.

This decision aid and user guide does not address the critical cleanup bull selection, management, health and nutrition issues. Bull to replacement heifer ratio must be addressed with those involved in defining the breeding protocol. All bulls need a breeding soundness exam (BSE) before the breeding season begins.

A rule of thumb to use on younger bulls is one bull to his age in months. For example, a 15-month-old bull should be expected to service 15 heifers.

A feed and grazing cost calculator is provided to facilitate the calculation of these costs of cleanup bulls used in replacement heifer AI programs. Based on the number of months held in inventory these costs rise.

### **Appendix A: Bull Lease Provisions**

The lease contract defines the duration of the lease, genetics of the bull provided and terms of delivery and pick up of bulls. Premature loss of service terms due to injury, infertility or death are spelled out.

Health and fertility issues must be addressed. Provisions for testing and controlling Trichomoniasis and Vibriosis are examples of health provisions to address.

It is best to review published web-based information and form a communication link with lease bull providers before choosing a provider and terms of the contract. Most bull lessors have provisions well explained. It is essential to have a written lease with provisions that address items such as contract cost spelled out in the lease terms and provide an on-site review of bulls and their genetics data before any agreement is negotiated.

### **Appendix B. Definition of Economic Terms for Replacement Heifer Cleanup Bulls**

**Depreciation** is the value that accounts for the use of a capital asset over time for assets with a productive life of more than one year. Depreciation for cleanup bulls is an ownership cost expressed per all exposed females. Leasing or selling bulls after one breeding season does not generate depreciation but only a one-year expense.

**Direct Operating Expenses** are expense items that are directly related to production activity such as grazing, feed, yardage, health, breeding and bull depreciation and death loss costs.

**Economic Cost** is, in addition to the financial or accounting cost, an opportunity cost that is charged for owned land (what it could be leased for) and owner equity capital (what it would earn in an alternative investment or by how much it would reduce interest if used to repay debt). Opportunity cost represents the return that could be received for a resource in its next best use. Economic cost represents the cost “if all resources” earned their opportunity cost of a use forgone.

**Financial Analysis** focuses on determining the accounting cost (cash and non-cash), profitability or change in equity, and repayment capacity of the enterprise or business being evaluated.

**Financial Costs** include cash costs, depreciation, and non-cash adjustments, such as accounts payable, accrued interest, etc. These costs are recorded and reported in the business accounting system. The financial cost does not include opportunity cost of resources like lease equivalent or owned land and interest on equity capital.

**Indirect Costs** include asset ownership and operating costs, depreciation and repair and maintenance of improvements. Vehicles, machinery and equipment, labor and management, and property tax are examples of indirect costs. Indirect costs continue as the number of cattle increase or decrease. **General and Administrative Costs (G&A)** are included in indirect costs to run the business such as bookkeeping, professional fees for accounting and legal services, dues, utilities, general insurance, office supplies and administrative personnel salary and payroll and benefits. There is management time spent on planning, implementation and marketing issues for the cattle custom feeding retained ownership activity. Indirect cost is also referred to as overhead cost or fixed cost. A daily yardage or indirect cost is included in this decision aid.

**Interest** is calculated on owned bull investment and operating costs. For a leased bull or a or single breeding season owned bull cost is an operating cost outstanding from the time acquired until returned or sold. Feeding and other operating costs are based on one-half of operating costs reflect an average outstanding capital cost for the period between bull delivery and sales timing or return of the leased bull in the fiscal year. Interest cost is greater for the bulls purchased and kept for two breeding seasons. Timing of bull purchase and sale is reflected in interest cost in the fiscal year.

**Ownership Costs** include the capital asset or cleanup bull cost, including depreciation, death loss and interest cost. Interest is an actual cash cost on borrowed capital or an opportunity cost. In this analysis it is necessary to include interest cost because of the wide difference in bull ownership investment by alternatives and the time bulls are owned.

**Owner Operator Labor and Management** compensation should be included in the production cost calculation at a level equivalent to the salary required to hire a non-family member to provide an equivalent service. Compensation in excess of this amount must be considered capital distributions in order to reconcile the retained earnings and statement of cash flows. Owner manager costs need to be included in production costs. Leaving it out implies the owner works for nothing.

**Source for other decision aids:**

**Department of Agricultural Economics – Agri-Life Extension – Beef Cattle Decision Aids**  
<http://agecoext.tamu.edu/resources/decisionaids/beef/>