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Impact of bovine respiratory disease (BRD) from the perspective of the Canadian beef producer

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Abstract

The costs of bovine respiratory disease (BRD) to the beef producer can be estimated by identifying and summing the direct and indirect costs associated with the disease. The major direct costs are attributable to the cost of the feeder, production costs and carcass disposal. The indirect costs are mainly associated with infrastructure and labour.

Keywords: costs of BRD, direct costs, indirect costs

Introduction

The impact of bovine respiratory disease (BRD) can be measured as the sum of the direct costs (mortality, morbidity, reduced animal performance and carcass quality) and the indirect costs (labor, infrastructure and intangibles).

Direct costs

Mortality

Mortality cost is determined by the cost of the feeder animal, the production cost up to the time of death, interest, 'opportunity' cost of not marketing the animal, loss of feeding margin to the feedlot and cost of carcass removal/disposal. The cost of the feeder is the feeder price per kg multiplied by the weight of the feeder in kg. The production cost up to the time of death is determined by adding the cost of feed, processing, treatment, yardage and bedding. Interest is the carrying cost of the feeder purchase and accumulated costs. Opportunity cost is expressed as dollars per animal. The loss of margin to the feedlot is based on the cost of a decline in pen occupancy. Carcass removal/disposal varies but may amount to up to $75.00 per head.

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Morbidity

Morbidity cost is determined by the cost of pharmaceuticals used to prevent, treat and control BRD. Costs incurred in prevention include the cost of vaccines and antimicrobials. Individual animal treatment typically involves antimicrobials and ancillary therapy to animals that are ill. Control may require group level intervention consisting of mass treatment by parenteral injection, in feed or in water administration of antimicrobials.

Reduction in animal performance

BRD typically adversely affects average daily gain (ADG), dry matter to gain (DM:G), and days on feed (DOF). The effects on DM:G are often estimated without measuring intake. The extent to which these parameters are affected depends on the severity of BRD. Highly variable results have been reported in the literature.

Impact on the carcass

Morbidity tends to reduce marbling and improve yield grade. Again the effects are related to the severity of BRD and highly variable results are reported in the literature. The effects are often confounded by carcass weight.

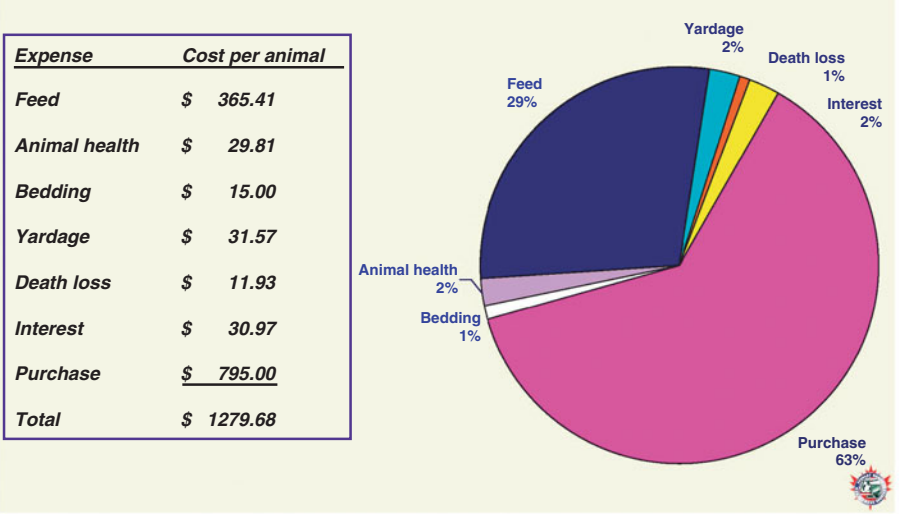

Fig. 1. Production costs for a 750 lb feeder steer including purchase cost (March 2009).

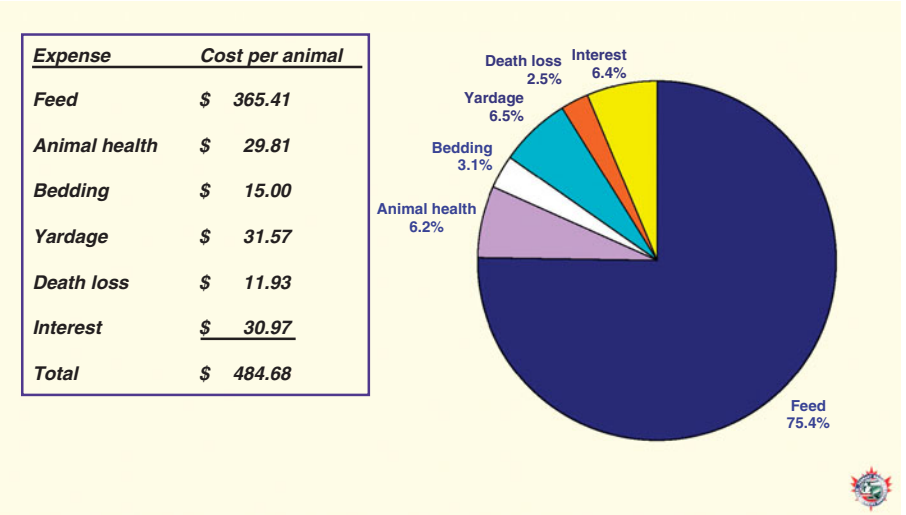

Fig. 2. Production costs for a 750 lb feeder steer (March 2009).

Indirect costs

Infrastructure costs

Buildings constitute a significant part of the infrastructure costs. Equipment for animal handling is another item that is a part of the indirect costs, as are facilities to house cattle affected with BRD.

Labor costs

The personnel who are paid to respond to BRD include pen riders, hospital and processing crew and additional support staff. The cost of horses that are used to round up the cattle also needs to be added.

Intangibles

Items that are considered in this category include the negative effect of BRD on staff morale, the chaos effect and aggravation factor. Logistical constraints also feature in this category.

The overall impact of BRD must be taken within the context of total costs of production, most notably the purchase price of the feeder (Figs 1 and 2). The simple math for a 500 lb animal costing $1.00/lb is that for every cent reduction in purchase price, the feedlot can 'afford' an additional 1% death loss. Thus, assuming that the objective of the feedlot is to maximize net profitability, the highest potential rate of return is often associated with 'high risk' BRD scenarios where the initial purchase price of the feeder is steeply discounted. In general, feeder cattle with low BRD risk are priced higher than those with a high risk.

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