

# Overview of the North American beef cattle industry and the incidence of bovine respiratory disease (BRD)

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## Abstract

The North American beef cattle industry has endured many changes throughout the years but is encountering some of the most dramatic challenges in history during the first decade of the 21st century. The US beef cattle inventory increased from 1990 to a high of 103.5 million in 1996 and since has declined to a low of 94.5 million on 1 January 2009. Even though economic signals have encouraged the cow herd to increase over the last 5 years, a significant decrease occurred during 2008. It is difficult to determine the precise cost of bovine respiratory disease (BRD) to the industry but it is reported to be greater than US\$500 million per year. Data from our practice indicate that losses from BRD over the last 18 years have been characterized by 5-year cycles of decreases and increases. Perhaps it is time for the industry to look for ways to reduce death loss by methods that focus on the animal's response to the pathogens instead of continuing to focus on the pathogens.

**Keywords:** US cattle inventory, treatment costs, deaths from BRD

## Introduction

The first decade of the 21st century is presenting a number of severe challenges to the North American beef cattle industry. Not only do we still have to contend with the numerous diseases, insects and parasites of the past, but also we must now deal with environmental pressure, government intervention, animal rights activists and vegetarian movements. The US cattle inventory reached a peak of 103.5 million in 1996 and has since declined to a low of 94.5 million as of 1 January 2009 (Fig. 1). Over the last 5 years economic signals have been in place to encourage the cow herd to increase but a significant decrease occurred during 2008. To date there are no indications the cow herd is building back. Reasons for the continued decline include environmental conditions (notably droughts), political issues, availability of labor, age of the owners and operating costs.

## Overview of the cattle industry

Carcass weights have increased by about 100 lbs in the last 20 years primarily due to improved genetics but also from production tools such as implants, beta agonists, feed additives and feeding practices (Fig. 2). This increase has obviously reduced the number of cattle needed to produce the same number of pounds of beef for consumption. The decline in number of fed cattle harvested is depicted in Fig. 3.

It is difficult to accurately determine the cost to the industry of bovine respiratory disease (BRD) but it is estimated to be greater than US\$500 million per year (NASS Cattle, 2007). Information gathered from our practice indicates that the losses from BRD have fluctuated over the last 18 years with a pattern of 5-year cycles of decreases and increases (Fig. 4). This has occurred despite indications that viral vaccine efficacy has improved during this period. In addition, antimicrobials have been developed for metaphylactic use and have been used aggressively during this same time frame. Seasonality of BRD losses has remained unchanged over the years (Fig. 5), with the fall/winter seasons continuing to be the months with the highest death loss.

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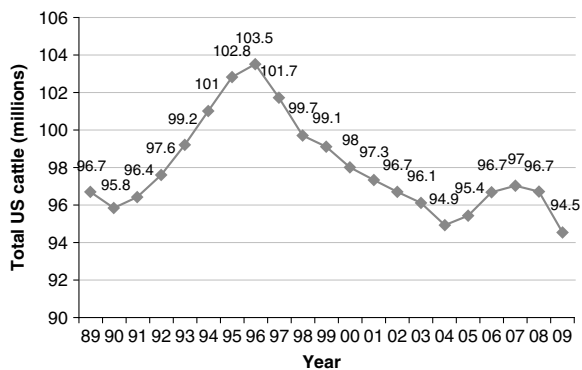


Fig. 1. US cattle inventory during the period 1 January 1989 to 2009. Source: USDA.

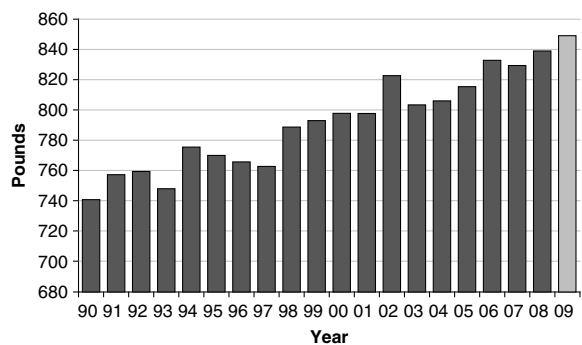


Fig. 2. Steer carcass weights over time. The data for 2009 are projected to the end of the year.

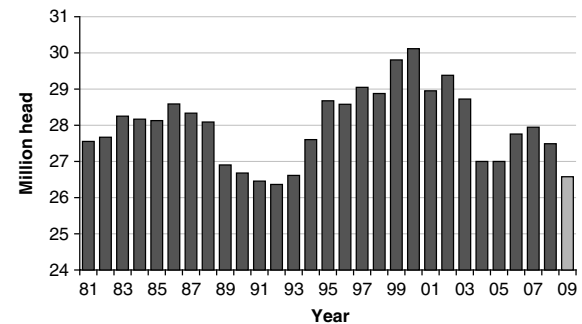


Fig. 3. US steer and heifer slaughter (commercial). The data for 2009 are projected to the end of the year. Source: USDA.

For lightweight cattle, treatment costs have remained virtually unchanged even though drug costs have increased. For heavier cattle, treatment costs have increased during the last 18 years (Fig. 6). We believe that one reason the costs have increased in the heavier weight category is that these cattle are heavier per day of age. Even though the weight for day of age is greater, the immune system is still immature requiring more intervention. Total death loss has been erratic in light cattle but has shown a gradual increase in heavier cattle (Fig. 7).

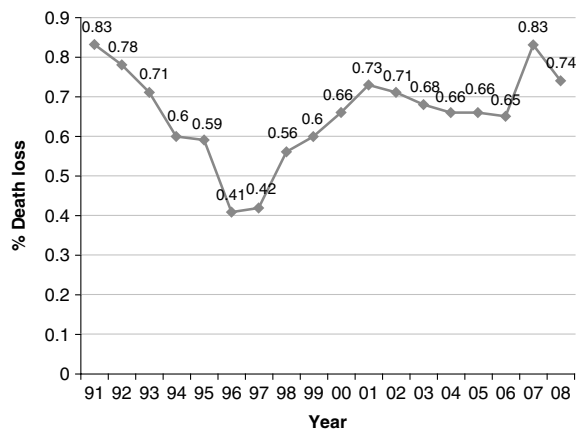


Fig. 4. Percent of cattle placed dying from BRD (1991–2008). Source: VRCS, LLC Accounts.

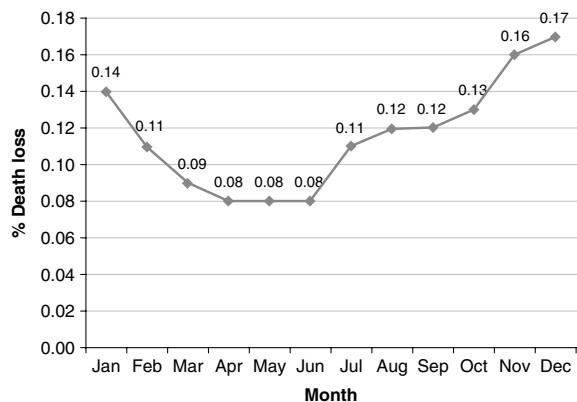


Fig. 5. Average percent of population dying from BRD by month (1990–2008). Source: VRCS, LLC Accounts.

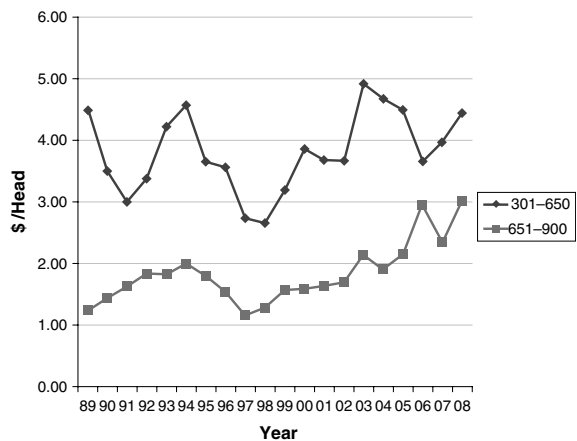
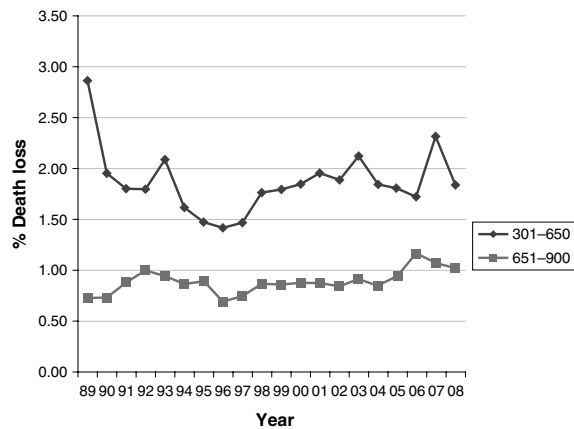


Fig. 6. Average treatment cost in feeder cattle (1989–2008) in relation to two weight categories (301–650 and 651–900 lbs). Source: VRCS, LLC Accounts.

We need to ask the question whether it is time for the cattle industry to look for alternative ways to reduce death loss instead of continuing to focus on the pathogens? It



**Fig. 7.** Death loss in feeder cattle (1989–2008) in relation to two weight categories (301–650 and 651–900 lbs). Source: VRCS, LLC Accounts.

may be time to focus on the animal's response to the pathogens instead of on the organisms themselves. Work conducted by Aich *et al.* (2009) demonstrated the effects of stress on cattle, showing that mortality doubled under stress even though the pathogen load was kept constant.

An issue I would like to see elucidated is whether or not pathogens such as *Mannheimia haemolytica* are contagious. If it is not highly contagious then increased focus should be on the immune system and the animal's response to the pathogen. Of certainty is if we continue to do the same thing today and tomorrow as we did yesterday we can expect the same results.

### Acknowledgment

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### References

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