

# THE VALUE OF VACCINATION

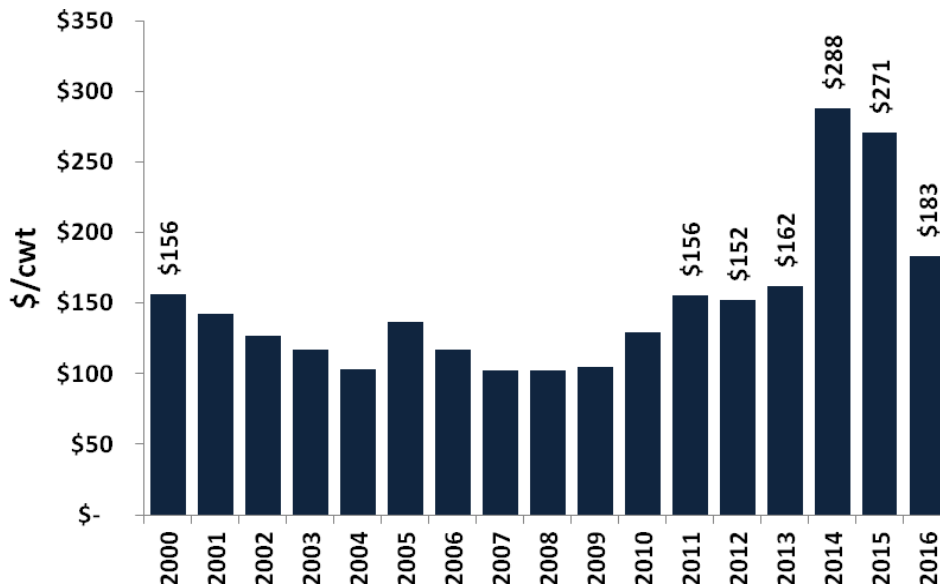
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*This fact sheet is based on a previously published fact sheet from 2010 by Kathy Larson and Leah Pearce (Cost of Herd Health – Vaccination; #2010-02).*

## Introduction

Post-BSE, weaned calf prices did not surpass the previous price highs of 2001 until 2013 (Figure 1). Stagnant calf prices forced cattle ranchers to look for ways to be low-cost. Eliminating vaccination programs is one way to cut costs to save money in the short-run, but the potential losses from disease, illness or infertility can quickly outweigh the cost of vaccination. However, it has been stated that profitable, low-cost producers do not cut corners on three management areas: pastures, bulls and herd health.

**Figure 1. Average Fall-Run SK 550 lb Steer Prices, 2000-2016**



Source: Canfax

Producers who opt to not vaccinate may go years without a disease outbreak making the choice to not vaccinate seem like a wise one because of the dollars saved, but it only takes one disease outbreak to make that insurance premium (vaccination) a wise investment.

Over time a herd’s immune resistance to disease erodes which can lead to large outbreaks. Diseases like anthrax and blackleg occur when an animal comes in contact with spores that can lie dormant in the soil for years. For example, the anthrax outbreak in summer 2006 resulted in the death of nearly 500 cattle on 150 operations

in Saskatchewan. Anthrax vaccines cost \$2 per head and blackleg (caused by *Clostridial chauvoei*) costs as low as a \$1 per head. At such a low cost, it is not surprising that 85% of producers in a 2010 survey indicated they vaccinate for *Clostridials* (Waldner et al, 2013).

Respiratory diseases, such as BVD and IBR, are more costly to vaccinate for (~\$4/head) and have been shown to have lower uptake by cow-calf producers. A survey by Waldner et al. (2013) indicated only 55.6% of producers vaccinated for IBR/BVDV. BVD control needs to start at the cow-calf level as it can be passed to a calf during gestation resulting in a PI (persistently-infected) calf. PI calves shed the virus in their feces, saliva and mucous, infecting pen mates. PI calves also cause problems in breeding pastures as the virus circulates through the herd resulting in infertility and the production of future PI calves (Brownlie et al, 2000). It has been estimated that conception rates can drop 5-15% if a PI animal is in a herd (Heurer et al, 2008; Wittum et al, 2001).

**Western Beef Development Centre (WBDC) Herd Health Program**

Western Beef follows a herd health program developed in consultation with its herd veterinarian (Table 1). In a typical year, bred cows and heifers will receive a scours vaccination prior to April calving. All animals receive vaccinations for blackleg (*Clostridial spp.*), *Haemphilus somnus*, respiratory disease (IBR, BVD, BRSV, PI3) and anthrax prior to pasture turnout each spring in late May to early June. Breeding bulls also receive a footrot vaccination prior to the start of the breeding season. The calves are re-vaccinated for blackleg, *H. somnus* and respiratory disease approximately one month before weaning. Parasite control is provided to the breeding stock in late fall.

**Table 1. Western Beef’s Typical Herd Health Program**

PRE-CALVING	SPRING TURNOUT	PRE-BREEDING	PRE-WEANING	POST WEANING
Breeding Females	All Head	Bulls	Calves	Breeding Stock
Scours	Blackleg <i>H. somnus</i> BVD/IBR/PI3/BRSV Anthrax	Footrot	Blackleg <i>H. somnus</i> BVD/IBR/PI3/BRSV	Parasites

**What are the costs of a typical herd health program?**

Table 2 below contains per dose costs for vaccines used in Western Beef’s herd health program. Producers are encouraged to work in consultation with their vet to come up with a herd health program that suits their operation. All prices are from a local vet clinic that Western Beef sources product from. The herd health program utilized by WBDC costs \$8315 per year or **\$26.20 per cow** based on Spring 2017 product pricing. This cost does not include needles, syringes, infrastructure (handling chute and corrals) or labour.

**Table 2. Pricing for Typical Animal Health Vaccinations, \$/dose**

Disease	Suggested Vaccine Protocol	\$/dose <sup>†</sup>
Blackleg	Spring – cows, bulls, calves Fall - calves	\$1.14
Blackleg with <i>H. somnus</i>	Spring – calves Fall - calves	\$1.49
IBR/BVD/PI3/BRSV	Spring – cows, bulls, calves Fall – calves	\$4.52
Anthrax	Spring - treat herds in outbreak areas and former outbreak herds	\$2.15
Footrot	Spring – breeding bulls prior to turn out	\$5.96
Parasites	Fall/Winter – breeding herd	\$0.65 <sup>b</sup>
Scours	Pre-calving – cows, heifers Booster shot – 1 <sup>st</sup> calf heifers	\$5.12

<sup>a</sup> Prices for the vaccinations have been sourced from a local veterinary clinic, and do not include price of needles and syringes. If multiple vaccine options were available, an average price is shown.

<sup>b</sup> Pricing based on 1450 lb cows receiving 1 mL per 22 lb of pour-on ivermectin.

**Cost-Benefit Comparison: Vaccinate for BVD vs Reduced Conception from PI Calf**

Table 3 below shows a comparison of alternatives for a 150 female cow-calf operation – vaccinate for BVD or face the risk of reduced conception rates should a PI animal enter the herd. The **cost to vaccinate** all breeding stock and calves each spring is approximately **\$1330** (\$4 x 182 breeding animals plus \$4 x 150 calves) which works out to **\$8.85 per cow** (\$1330/150). If a PI animal is in the herd, we assume conception rates will be reduced 5 percent. Five percent more opens, means 8 fewer calves to wean. Using the average projected price for 550 lb steer and heifers for November 2017 (\$2.05 per lb), a **5% reduction in conception rate** translates into **\$9020 in lost calf revenues** or a loss of **\$60 per cow** (Table 3).

As a producer, would you rather spend the \$8.85 per cow to protect your herd from BVD or take a chance and not vaccinate but it could end up costing you \$60 per cow in lost revenues?

If you are not already doing so, developing a vet-client relationship to determine a suitable herd health program for your operation is key to have your breeding herd performing well and producing healthy calves to market.

**Table 3. Cost-Benefit Comparison: BVD Vaccination**

Vaccinate All Animals for BVD	Never Vaccinate for BVD & Have a PI Calf
<p>\$4/dose 182 breeding stock (150 cows + 7 bulls + 25 replacements) + 150 calves = <b>~\$1330</b> to vaccinate or <b>\$8.85/cow</b></p>	<p>5% reduced conception rate 8 calves x 550 lb x \$2.05/lb<sup>†</sup> <b>\$9020</b> lost calf revenue or <b>~\$60/cow</b></p>

<sup>†</sup>Canfax App average price projection on May 25, 2017 for 550 lb steers (\$2.14/lb) and heifers (\$1.95/lb) being marketed November 15, 2017 with \$175/tonne barley.

## References

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