

Shrink Management in Cattle

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Management and marketing are the two factors that have the greatest influence on beef enterprise profitability. Level and quality of management are the greatest single factors in ranch profitability, but astute marketing is the area most often overlooked by cattlemen. Marketing includes the buying and the selling of cattle; management is everything in between these stages. Utilizing “shrink” to the cattlemen’s advantage in both the purchase and sale of livestock will result in several dollars per head additional profit. The best thing about shrink management is that it is free. Many cattlemen are uncomfortable with other marketing management tools (i.e., futures and options), but shrink management can be easily mastered and implemented by anyone.

Definitions

Shrink: Shrink is the term used to describe the loss of weight in livestock between two consecutive weightings. The majority of the shrink seen in our cattle marketing and transportation systems is due to the withholding of feed and water—the loss of “gut fill” through the excretion of urine and feces. Most of this shrink is regained quickly once cattle are filled up. The remaining shrink is called “tissue shrink” and may take several days to recover.

Pencil Shrink: Pencil Shrink is a term used in cattle purchasing contracts to describe the process by which the cattle are weighed and then a certain percentage of that weight is subtracted before figuring the price. This calculated weight is often called the “pay weight”: $\text{Actual weight} - \text{Pencil Shrink} = \text{Pay Weight}$.

Most cattle are bought and sold on a price per pound basis. Shrink, whether “actual” or “pencil,” results in fewer pounds sold and, therefore, fewer dollars received. Research has shown that most of the shrink seen in cattle is due to the manure (60 percent) and urine (38 percent) excreted by the animal—commonly called “gut fill.” Time off feed and water is by far the biggest influence on the amount a particular animal shrinks. However, any activity that

raises an animal’s level of excitement increases shrink via increased urination and defecation. The math is pretty simple: manure or urine on the ground does not show up on the scales. Many cattlemen will fight tooth and nail for 25 cents per hundred pounds on selling price and then handle or contract cattle in a way that costs several dollars per hundred, maybe more. This is not good marketing.

Table 1 attempts to break down and combine the research data available on shrink so one can realistically compare different marketing scenarios. By smart trading on both ends, cattlemen can often increase profits by \$20 to 40 per head or more.

Using this table will give a fairly reliable estimate of shrink for a given set of cattle and allow the economic comparison of different buying or selling contracts. Of course, other factors such as initial “fill” of the cattle, time of year and disposition of cattle will also have an effect. If dealing with freshly weaned calves, figure them to shrink just as if feed and water were withheld the first 24 hours. Sharp buyers and sellers use actual shrink, pencil shrink, and other “tricks” as a marketing edge. For example, a buyer who sorts through the cattle several times before weighing them “steals” the shrink. Conversely, if all cattle are weighed before sorting and, after sorting, the weight of the “out” cattle is subtracted—full price will be paid for the cattle plus the cattlemen pays for the shrink of the “out” cattle. Also, buyers often convince cattlemen to contract cattle in a way that results in substantial actual shrink plus a pencil shrink.

The annual cost of inefficient cattle catching, sorting and loading facilities is

Table 1: Factors affecting shrink (<24 hr period)

Factor	% Shrink	\$/100lb *	\$/head *
a Ease cattle to scales	0%	0	0
b → or 30 minute “round up”	1.0%	\$0.80	\$4.00
c Load, haul (<100miles), unload, weigh	+2.5%	\$2.00	\$10.00
d → + sort and/or wait extra hour before weighing	+1.0%	\$0.80	\$4.00
e 12 or more hours without feed or water	+2.5%	\$2.00	\$4.00
f → + Haul additional 500 or more miles	+2.0%	\$1.60	\$8.00
g Weigh on trailer (with pan) short haul	(-1.0%)	(-\$0.80)	(-\$4.00)
h Weigh on trailer (with pan) long haul	(-1.5%)	(-\$1.20)	(-\$6.00)

* Dollar values assume a 500-lb calf @ \$80/100 lb

To use the table, go down the list of factors and add together all those that pertain to the cattle in question. Using the above figures, cattle loaded at the farm and shipped 800 miles, unloaded and weighed would be expected to shrink 7% (c + e + f). The same cattle weighed on the truck would be expected to shrink 5.5% (c + e + f - g)

evident. These same inefficient facilities often cause other management problems. Interestingly, cattle bought through salebarns will often weigh more when shipped by an order-buyer three to four days later than they did when bought. This is due to poor cattle handling, resulting in large shrinkage prior to weighing. Veterinarians can use discussion of “shrink cost” with clients as an additional incentive to justify better cattle handling facilities and practices.

References:

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Bovine Leukosis Testing

The test kits that the diagnostic laboratory has been using for bovine leukosis, which uses an AGID format, will no longer be available and the laboratory has only a limited number of test components and reagents left.

Because of this, the Diagnostic Laboratory will be switching to an ELISA format test in the near future. This ELISA test kit is designed for running larger numbers of sera at a time and is not well suited for running small numbers of sera per run. Therefore, we will probably run bovine leukosis tests once or twice a week, which may delay your turnaround time depending on when the sample(s) arrive at the laboratory. We will no longer be able to routinely have results available the next day after arrival.

The cost per test will remain the same, at least temporarily, at \$5/sample. Volume discounts will be available for greater than 25 samples. Please call ahead regarding volume discounts and ask for either Dr. George Kennedy or Mrs. Sylvia Osborne.

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Human Exposure to *Brucella abortus* Strain RB51—Kansas, 1997

On May 26–27, 1997, nine persons (a farmer, four veterinary clinicians and four veterinary students) in Manhattan, Kansas, participated in an attempted vaginal delivery, a cesarean delivery and a necropsy on a stillborn calf that died because of *Brucella abortus* infection. The infection was confirmed by isolation of *B. abortus* from placental and fetal lung tissue cultures. The National Animal Disease Center, United States Department of Agriculture (USDA), identified the *B. abortus* isolate from the calf as the RB51 vaccine strain. RB51 is a live, attenuated strain that was licensed conditionally by the Veterinary Services, Animal and Plant Health Inspection Service, USDA, on February 23, 1996, for vaccination of cattle in the United States.* Before 1996, vaccine was made by using the S19 strain. This report describes occupational exposure to animals infected with the RB51 strain and emphasizes the need for surveillance of unintentional exposure of humans to RB51 to assess outcomes of such exposures.

The vaccine had caused active *B. abortus* infection because the 14-month-old heifer delivering the calf was not known to be pregnant when she was vaccinated with RB51 at approximately 8 months of age, which was within the specified age range for vaccination. The heifer was administered the RB51 vaccine dosage recommended for adult or pregnant cattle.

The heifer was euthanized after surgery because of the poor prognosis following a uterine rupture and the poor general condition of the animal. Necropsy findings included diffuse placentitis in the heifer and fetal pneumonitis. Evidence that intrauterine infection was caused by the RB51 vaccine strain, and not by field strains of *B. abortus* or by S19, included immunohistochemical staining specific for RB51 (negative for S19), RB51-specific titer of >1:10,000 on experimental dot-blot assay measuring antibody to RB51, and RB51-specific DNA sequences identified by polymerase chain reaction (PCR).

Persons at risk for infection with RB51 were those who contacted the calf, placenta, blood or amniotic fluid without wearing gloves, masks or eye protection. Six women and three men (age range: 23 to 45 years) were at risk for infection. None of the exposed persons reported having previously had brucellosis or being unintentionally inoculated with *Brucella* vaccine.

Within one week after exposure, eight of the nine persons started a prophylactic regimen of doxycycline (100 milligram twice daily for 21 to 24 days). Three of these persons also received rifampin (600 milligram once daily for 4 to 21 days). None of the exposed persons showed signs or symptoms consistent with brucellosis during the six-month follow-up period.

Since conditional licensure of the RB51 vaccine, 32 instances of unintentional inoculation or conjunctival exposure to the RB51 vaccine have been reported to the vaccine manufacturer or CDC. Three of the 32 persons, all of whom were unintentionally inoculated while vaccinating cattle, reported inflammation at the inoculation site; another person reported intermittent fever, chills, headache and myalgia and had elevated levels of serum transaminase and lactate dehydrogenase.

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*The vaccine was licensed conditionally to allow accumulation of additional data on field use under controlled conditions.