Haskell County Animal Hospital
Animal Health Update

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ANSWERING THE BVD QUESTION

"You may be on the right track, but you will still get run over if you just sit there." Will Rogers

Research scientists and veterinarians are slowly revealing the impact that Bovine Viral Diarrhea (BVD) has on the beef industry. Current estimates place the costs incurred from BVD somewhere between $35-$56 per calf born in the U.S. The scientific community has made great strides, in just the last few years, to understand this complex disease.

Before continuing on with this newsletter I suggest you review three BVD newsletters I previously sent out. BVD 1, BVD II and BVD III can be found on the Cattle Empire website at www.cattle-empire.net. If you do not have internet access give Cattle Empire a call and we will send you copies of these newsletters. Those three BVD newsletters were written in 2003 and some of the information is already incorrect. A lot of research is focusing on BVD and the huge volume of information we are getting is re-writing the books and what we thought we knew about BVD. An example is in one of the previous newsletters I state that most persistently infected (PI) animals die before they reach a year of age. Recent trials, including one completed at Cattle Empire, shows that only about 40% of these PI animals die before slaughter.

Most of the recent trials have focused on the prevalence of the PI animal in the feed yard and its affects on morbidity (sickness) and mortality. Although these trials have been very valuable, I am not aware of any trials that look at the complete affects of the PI animal during the feeding period and the total costs associated with the PI animal.

The management at Cattle Empire has been actively involved in determining the affects of the PI animal in the feedyard setting. After completing a trial on the prevalence of PI animals at placement and their affects on morbidity and mortality we know the PI animal has substantial costs to the whole population in the yard. What we are not sure of is just how much cost and is it economical to identify the PI animal at placement and remove him from the population?

Recent trials have found the PI animal prevalence rate at placement into the feedyard from .11% up to .62%. Cattle Empire's trial had a prevalence rate of PI animals of .33%. This figure is consistent with the majority of the trials completed so far.

The ultimate question is what affect can 3 PI animals have on the 1,000 animals placed into the feed yard? With a prevalence rate this low one would assume the impact these 3 animals have would be minimal. That assumption appears to be incorrect. If you look at the studies completed so far it looks like the PI animal will increase the morbidity or sickness rate around 30-40% in the PI pens and in pens exposed to the PI pen. Exposed pens are those pens adjacent to the PI pen. Mortality rates in the PI or PI exposed pens are also increased. The mortality rate

increase in the PI or PI exposed pens will be somewhere around 30% greater according to the studies completed to date.

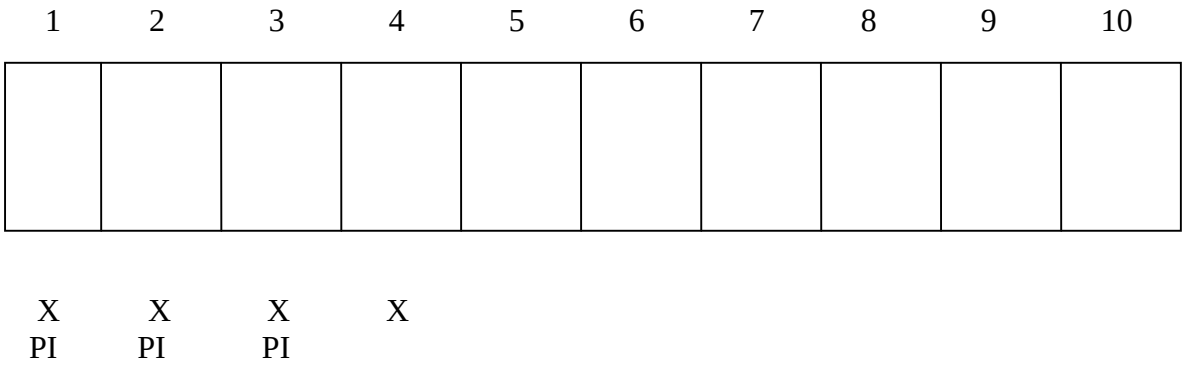
In the trial we ran at Cattle Empire the mortality was 30% greater in the PI pens but the morbidity rate was the same between PI and non-PI pens. There is one other reported trial that also showed no difference in morbidity. Because of the way we ran the trial at Cattle Empire the mortality and morbidity differences seen were conservative figures and most likely had greater differences than we reported.

When we ran the previous trial we tested all animals for persistent infection to BVD. We found 7 PI animals in 5 pens of the 24 pens or 2283 head in the trial. That gives us a .31% prevalence rate of all placements or 21% of the pens that had at least 1 PI animal. It is therefore safe to assume that this is our average prevalence rate and pen incidence rate at Cattle Empire in our high-risk cattle. These pens were then placed randomly throughout the yard. The non- PI pens served as our controls. With this in mind we found PI pens had a 30% greater mortality and the morbidity was similar between the treatment and control groups. But when we placed the controls (non-PI) pens in the yard there is a 42% chance they were detrimentally affected by an adjacent PI pen therefore increasing the morbidity and mortality in the control groups. Drawing a conclusion from this trial is erroneous because of the unknown potential adverse affects in our controls or non-PI pens. Therefore, any difference seen was the very minimum affect. The actual mortality difference was greater than the 30% reported and the morbidity was likely greater in the PI pens, but we cannot say how much greater.

We also calculated the cost incurred from the “out” cattle, deads and railers, in the PI pens as compared to the non-PI pens. The “out” cattle constituted a $5.72 cost to all cattle in the trial.

Studies completed by Dr. Guy Loneragan, where he knew the status of every pen, showed that the affects in the PI pen also occurred to the same degree to the adjacent or exposed pens. Knowing this we can estimate, with Cattle Empires prevalence rate of 3 PI animals per 1,000 placements the potential population that could be affected by the PI animal. The total population affected depends on how the PI pens are placed in the feedyard. If you assume each pen holds 100 head, figure 1 shows how our prevalence rate would have an affect on a minimum of 40% of the population.

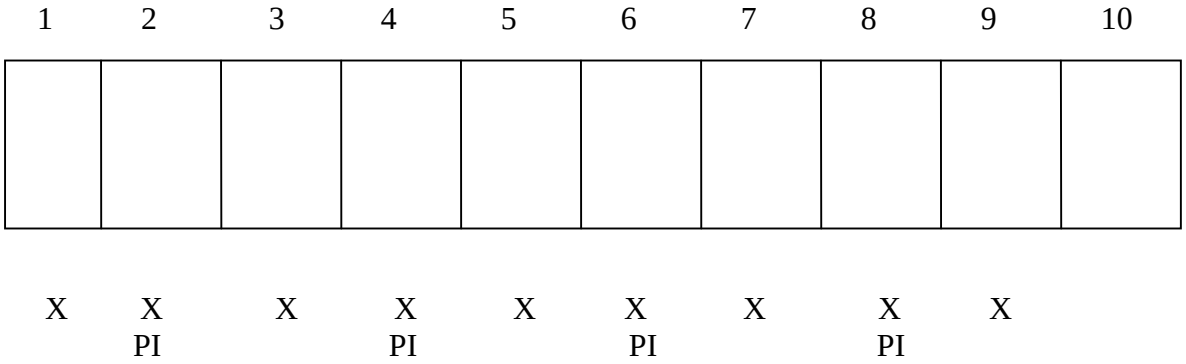
Figure 1



X = affected pens
PI = Persistantly infected pens

In the worst case scenario we could impact the outcome of 90% of the population. See figure 2.

Figure 2



X = Affected pens
PI = Persistently infected pens

In you play the numbers game we likely have an affect on 65% of the population of the feedyard with the prevalence rate we have found.

As I stated earlier, I am not aware of any trials that have looked at the total cost of the PI animal. In an attempt to get a general estimate of those costs, I sought the help of Dr. Dee Griffin of the Great Plains Veterinary Education Center in Clay Center, Neb. For years now Dr. Griffin has been researching the affects of morbidity or sickness on performance. With the information he has found in conjunction with the data from the Texas Ranch to Rail program we know that any illness will reduce the performance of an animal. Dr. Griffin has produced a health calculator to predict the loss in performance from illness in cattle populations. If we take the average increases in morbidity and mortality caused by the PI animal in the studies completed so far, Dr. Griffin estimates the total cost of the PI animal to be about $26 per animal on feed assuming average exposure across the yard.

By identifying the PI animal and removing him, can we expect to bring the morbidity and mortality of that load back to a normal level? The answer is no, we cannot because that load has been exposed for as much as 3-4 days prior to us receiving that load. But it is very possible that we can reduce the affect of that PI animal on that load. The greatest affect would be in those pens we would have placed adjacent to the PI pen. In these pens we can reduce the morbidity and mortality back to a normal level by removing the PI animals. It is these adjacent pens that constitute the majority of the affected pens.

The question that remains unanswered is what is the total cost of the PI animal and can we economically identify these animals on arrival, remove them from the population and return dollars to the client?

We are initiating a trial at Cattle Empire in an attempt to answer these questions. We have a rare and unique opportunity to design a trial at Cattle Empire's new starter yard to answer the question of the total affects of the PI animal in the feedyard. As we fill the yard we will be

able to know the status of every pen placed into the yard by testing all placements. We are also utilizing a new test that will give us results within 4 hours of sample collection as compared to the IHC test used in the past that takes an average of 9 days to get results. The cost of BVD Antigen Capture test will be around $5.00 per head. The testing will be done at my clinic to expedite the results and minimize exposure to the cattle. We will be able to evaluate the performance of those pens with a PI animal to those pens just exposed to PI pens, as well as to those pens with no exposure.

We plan on testing two turns through the starter yard which will total 20,000 head. This volume of test animals should be able to generate some very sound conclusions to many of the questions we have, including the cost-effectiveness of identifying and removing PI animals at arrival in the feedyard. In all I plan to collect and evaluate close to 1 million data points. As you can see this is no small undertaking but the information gained from this trial will be extremely valuable.

As a organization, Cattle Empire understands the potential costs incurred by BVD in the feeding industry. I appreciate their willingness to sacrifice their time, energy and funds in the short term to help answer many questions about health and performance in the feeding industry that may reap great benefits to Cattle Empire and their clients in the long run.

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