

Four cattle did what? Exposure-Incidence-Prevalence

Dustin Hessman for Progressive Cattleman

“Wow, I finally understand the problem a few persistently infected (PI) calves can have on my cattle. More than 60% of the cattle in all my pens/pastures were exposed to BVD because 30% of the loads I received had one or more BVD-PI calves on them.” This is a typical statement a cattleman makes after experiencing a BVD-PI herd health problem.

“Perhaps we have been explaining this backwards to producers,” say Dr. Bill Hessman of Central States Testing (CST) in Sublette, Kansas. “To reframe the understanding let’s say it this way; 60% of your cattle in a stocker/background/feedyard setting are exposed to BVD by 30% of the pens, which have one or two BVD-PI positive calves. The reality of this often comes as an epiphany to cattlemen when they experience above average cattle health issues at their location.”

Understanding Exposure Rate, Incidence Rate and Prevalence Rate is key to wrapping your mind around the silent robber that BVD truly is.

Exposure Rate – The percentage of cattle that come into contact with the BVD virus at your location. Dr. Hessman conducted a study that was published in 2009 where they tracked all BVD-PI’s coming into a feeding operation and how many cattle they exposed. A PI will expose not only its entire pen, but all adjacent pens. Dr. Hessman identified that with a 0.4% Prevalence Rate, 62% of the feedyard was exposed to BVD! This is because at four PI’s per 1,000 head and 100-115 head per pen, every third pen will have a PI.

Incidence Rate - The frequency of group populations that have a PI animal. In the feedyard/background/stocker setting, this is normally broken down by lots or pens. The CST data shows an average Incidence Rate in the range of 26-32%. In other terms, 26-32% of the incoming lots will have a PI on them. This data came from 28,500 lots of 4, 5 and 6 weight cattle.

Prevalence Rate – The number of BVD-PI cattle within a total population of cattle. The CST data shows this number varies by weight but the average we have found over the past 10 years for 4, 5 and 6 weight cattle is 0.4%. This means that 0.4% of total populations of cattle are PI, which is four PI’s per 1,000 head of cattle. This data comes from over 5.7 million head tested through CST.

“We have seen 0.3-0.5% prevalence rates in BVD-PI calves upon feedlot entry,” says Dr. Dan Thomson, Jones Professor of Production Medicine and Epidemiology at Kansas State University and host of DocTalk. “The lighter weight the calves, generally the higher the prevalence rates. We estimate that one out of four pens in the feedlot industry have a BVD-PI calf in the population. Our research has shown that BVD-PI calves infect cattle in their home pen and in the pens adjacent to their home pen.”

Dr. Thomson went on to say, “One thing about BVD-PI testing, if you decide to test one pen, you need to test all cattle. With the movement of cattle in yards and the commingling in hospitals, we need to test and remove BVD-PIs from all cattle entering the feeding facility to be effective. It is impossible to predict which pen will have BVD-PI calves without testing.”

What do you think knowing that 60% of your operation could be exposed to BVD? One thing to make

clear, you won't see 60% of your operation in a chronic condition. Usually the signs of BVD are very subtle, 70–90% of the time it is subclinical, meaning the animal has the virus but isn't showing signs of sickness.

More often than not you will see decreased gain, higher cost of gain, decreased performance and higher pull rate, so subtle that you don't realize you are getting robbed anywhere from \$25 to \$66 per animal that is exposed. Occasionally you will see scenarios where you have an elevated sickness rate and maybe a few chronics. Rarely you can have widespread, train wreck scenarios where no amount of medicine will save you and 25% of the herd dies.

“One of the few problems I think we need to clear up in the cattle industry if we are to move forward with controlling the BVD-PI issue is the fact that while there is not very many of them, the small number that we do deal with cause detrimental effects to the health and performance of our cattle and you don't even notice it,” added Dr. Hessman. “Ultimately, testing and removing PI cattle is necessary to mitigate exposure of BVD.”

Bottom line understanding of BVD-PI's:

Exposure Rate - The frequency of exposure to incidence groups. [62.0% or almost two thirds of a stocker/backgrounder/feedyard]

Incidence Rate - The frequency of prevalence in groups (i.e. loads). [32.0% or three loads out of ten]

Prevalence Rate - The frequency of one in the total population. [0.4% or four per 1,000]

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