

SHMP Update

Data Revisions:

In recent weeks we reported a couple of revisions to the PED EWMA chart that reflected status changes as reported to us. Participants report status as best as they know it and in as timely a fashion as they can manage at the time. Sometimes they miss a week or even two. Sometimes, they change their mind on a status. We also do a quarterly data check and participants catch changes at this time also. The recent changes reflect this aspect of the project. And while it may be disconcerting, it's really not that critical in the long term interests of the project. We are interested in long term incidence reduction of important pathogens. If and when we break through the epidemic threshold is interesting, but doesn't change long term biosecurity recommendations and behavior.

Recent PED activity:

You are familiar with charts 1 and 4 on page 2 of the report where we report PEDv incidence. You may have noticed that the EWMA line broke through our confidence interval recently, signaling an epidemic. First, let me describe where the confidence interval comes from (the red line). We borrow this technique from the human influenza world where flu follows a very repeatable seasonal pattern. We use the data from summer months, when incidence is low to calculate the interval. We now have two summers of data and given that the incidence in summer of 2014 was lower than 2013, we will have a lower confidence interval starting in July 2015. That is, our signal of an epidemic will be more sensitive.

So, the EWMA (Exponential Weighted Moving Average) line broke through in mid-February. Although veterinarians performing the outbreak investigations have not proven the source, they report that farms that are being infected coincide with increased grow/finish circulation. Also, a few of these herds were deemed at extremely high risk of infection and were strategically exposed during a period of low farrow rate.

The USDA chart showing the number of new premises reporting PED infections since early June, 2014 has not showed a similar recent increase in cases (<https://www.aasv.org/pedv/150319.jpg>). So which is correct? There are several important considerations in answering this. First the SHMP data represent sow herds only whereas USDA includes all premises. All else being equal, one expects more breaks in growing pig sites given that they are disproportionately more frequent. However, PED is more clinically evident in sow herds and new cases of growing pig sites may be under-reported. Another consideration is that SHMP participants do not represent a random sample of herds in United States. We hope that they are reasonably representative and given the relatively large sample size, there is room to be optimistic. Given that our data are not a random sample, the most reliable comparison for participants is the historical data of participants. In other words, the recent increase in cases is more than our participants were experiencing, but not necessarily reflective of the national industry. As an aside, this is why our EWMA chart for PRRS (Chart 5) includes only the data from the original SHMP participants. We think of this chart as being the Dow Jones 30. It is a benchmark that may reflect participants' performance at reducing incidence. If the rest of the industry is making similar progress, then national incidence is decreasing – but we don't know that for sure. On July 1, our new pathogen year, we may add the data from new participants who joined the project during the year (just as members of the Dow 30 change over time – (GE is the only original member)). A final consideration is whether the reported data are accurate. Our SHMP data are voluntarily provided, current for the most part and subject to revision over time as participants verify their reported status. The USDA data on new breaks are required but timeliness might also be somewhat variable.

So which is correct? In this case, I think the USDA data more accurately reflects the trend in the United States industry – no national epidemic at this time but our data indicates a surge in cases among our participants. Bob Morrison

