

Use records to evaluate sow prolapse mortality

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THE swine industry is witnessing an unfortunate trend of increasing sow mortality. As more industry experts — including producers and veterinarians — have analyzed the causes of this mortality trend, it has become apparent that prolapses have been a principal contributor.

It's important to utilize production records when working to understand mortality trends. In collaboration with MetaFarms Inc. and its Enterprise Livestock Management platform, we analyzed data records to show the effect prolapses have on sow mortality in order to stimulate discussion on possible risk factors that have led to an increase in the number of prolapses in the industry.

Over the eight-and-a-half-year study period, 55,442 total animals that had a prolapse event were removed from the herds represented in the MetaFarms platform.

As shown in Figure 1, there was a noteworthy increase in the number of sows that died naturally or were euthanized due to a prolapse event from 2013 to 2014. Death due to prolapse consistently comprised around 8% of the total natural deaths until 2013 but is projected to increase to 9.25% of natural deaths for 2017. The trend of increased prolapses continued in 2015 through 2016 compared to years past, with 2017 also showing a continued increase in mortality caused by prolapse.

A similar assessment can be made from the number of animals euthanized each year due to a prolapse event. After 2013, the number of sows euthanized from a prolapse increased to 2,660. This means that in 2016, producers in the database euthanized almost as many sows that would have died naturally due to a prolapse event in 2013.

Figure 1 also shows that the number of animals culled due to a prolapse has held constant throughout the eight-and-a-half-year period. This would suggest that there has been an overall increase in the type or severity of prolapses that are occurring.

The week-to-week variation in prolapse occurrence has been very frustrating. One thing we've come to understand through the data analysis is that sow

prolapse events tend to follow a seasonal pattern, being more frequent in the winter months and dropping off in the summer (Figure 2).

From the beginning of 2014 to the end of 2016, the production data show 315 more deaths during the months of January, February and March compared to July, August and September. It is interesting to note that the lowest rate of prolapse events occurs during the summer months, which are typically when mycotoxins, such as zearalenone, are most concerning.

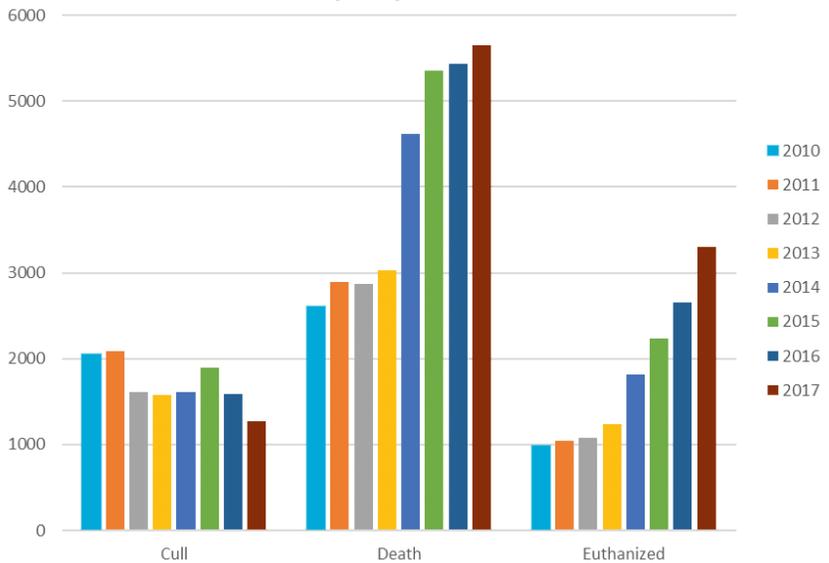
This seasonal influence on prolapse occurrence has also been shown by Dr. Jeremy Pittman and Swine Management Systems.

One theory as to why sow prolapses are on the rise is that the industry is asking more of sows while managing them the same as always. Genetic improvements have given the industry highly productive sows that have higher total born rates (Figure 3).

Does this increase in total born lead to increased hormonal changes, i.e., estrogen produced by the fetus *in utero*? This increased estrogen level might play a role in the rise of prolapse events by mimicking the effects seen with zearalenone.

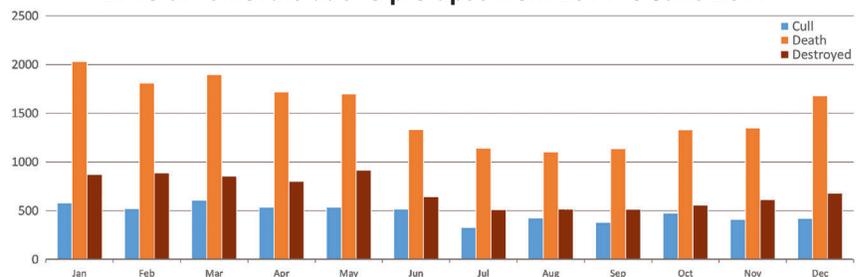
A larger litter size could result in the sow developing a larger uterus. This could present a couple of challenges to a sow by increasing abdominal pressure around the

1. Total removals due to prolapse event from 2010 to June 2017



Note: Total removals include culls, natural deaths and sows euthanized due to prolapse, from MetaFarms Inc. database. Due to the variety of removal reasons used by production systems within MetaFarms Sow platform database, all rectal, vaginal and uterine prolapses were categorized as a similar prolapse event.

2. Total removals due to prolapse from 2014 to June 2017



Note: Data from MetaFarms Inc. database.

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time of farrowing and increased muscle development of the uterus leading to stronger uterine contractions.

One area that has started to show some effect on prolapses in sow herds is the adjustment of diets. Are current calcium and phosphorus levels meeting the demands of a gestating or lactating sow? Have these levels increased to meet the higher-productivity female of today?

These questions are difficult to answer because a strong reference range is lacking for what is normal in the commercial sow. Some producers describe a reduction in the frequency of sow prolapse when calcium is added to the sows' diets, along with other adjustments.

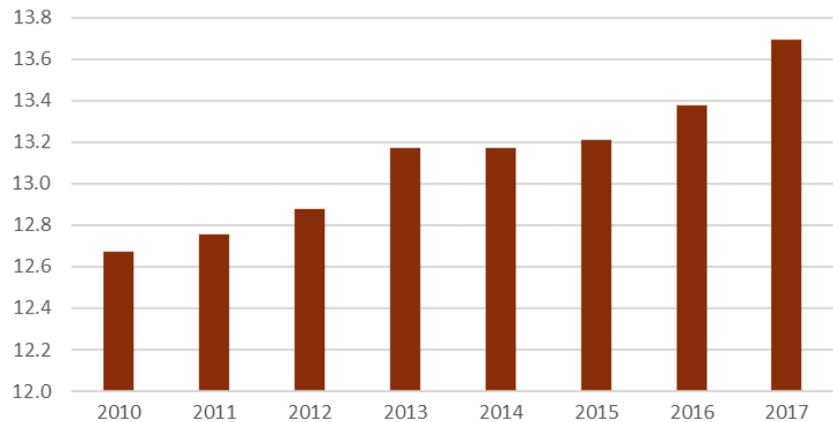
We've also observed benefit from the addition of a laxative and ensuring adequate water availability for sows, especially during the pre- and post-farrowing period.

While alterations to what goes into the diet can benefit individual farms in the short term, it does little to identify what variables contribute to the problem and to what extent each variable is involved.

Postmortem examinations of sows that have died or been euthanized due to prolapse are often unrewarding. Although not definitive, some findings include signs of increased abdominal pressure due to uterine and fetal development and the presence of firm, dry fecal balls within the rectum, which indicates dehydration.

To summarize, prolapses in sows are on the rise. The majority of prolapses occur around the time of farrowing, with

3. Average total born of every prolapse removal from 2014 to June 2017



Note: Data from MetaFarms Inc. database.

week-to-week variation and no effect of parity. There is a seasonal increase in the number of prolapses during the winter and a noticeable decrease during the summer and early fall, which are traditionally thought to be peak times of mycotoxin challenges. To date, no infectious cause has been associated with prolapse events, and postmortem examinations reveal no gross or histopathologic lesions.

Use of a recordkeeping system, such as MetaFarms, will prove to be an invaluable tool to help producers and veterinarians identify how a problem like prolapses af-

fects a herd. An evaluation of the production records provided by MetaFarms also allows producers to form a list of risk factors associated with prolapse events.

Currently, when working a case of sow prolapse, there are more questions than answers, unfortunately, and it would greatly benefit the industry to work together towards finding solutions to this frustrating concern.

The Swine Vet Center and MetaFarms look forward to participating with other members of the industry in more in-depth research on this topic. ■