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WELCOME TO BENCHMARK 2018

DO ALL GILTS LEAD THE WAY?

ENSURING BIOSECURITY

TRACKING SOW MORTALITY

PROGRESS BY BENCHMARKING

DATA-DRIVEN DECISION MAKING

CANADIAN 2017 YEAREND SUMMARY

AMERICAN 2017 YEAREND SUMMARY

PLOTTING THE WAY AHEAD

POCKETING YOUR PIG PRODUCTION

THE FUTURE OF THE INDUSTRY

MITIGATING RISK WITH DISCIPLINE

DATA CAN HELP FEED THE WORLD
Every year, the PigCHAMP team collects a lot of data. Hundreds of producers send us backups of their PigCHAMP databases that we compile into personalized reports. We send these reports back to each producer, giving them individualized insights into how they line up with other farms that also share their information. We see the value of keeping precise, daily records.

When we thought about other areas of the swine industry, we knew we couldn’t be alone.

This year, we found ourselves wondering what data is most important, not only to producers, but also to packers, transporters, veterinarians and other members of the industry. What numbers are they tracking? What do they do with the stats they’re keeping? Why even bother with all of that work?

We also wanted to look ahead. Keeping good records must be important, as leaders across the industry are compiling this data, so what does that information mean for the future of pork production? We connected with some of the most influential swine professionals across North America and asked them to weigh in.

We wanted to know what our producers thought too. Where do they think the industry is heading in the next 10 to 15 years? What issues do they see as being the most important looking forward?

In this issue of Benchmark, we share these insights with our readers across North America.

We are also pleased to share feedback from two of our clients who were early adopters of the PigCHAMP Mobile App, which we launched in the spring. These clients were looking for a cost-effective way to keep track of their data in the barns, and immediately collect and share this information. You can read about our latest product and user experiences on page 24.

Pork production is constantly evolving. Many of us can look back, even just a few years, and make a list of some immense and influential changes we have witnessed in a brief period. Precision pig production might always be on the move but we think the future of the swine industry is brighter than ever.

The efforts of a broad team come together to make the publication of Benchmark possible. We offer our sincerest thanks to all of our contributors, advisors, advertisers and supporters from across the world.

The PigCHAMP Benchmarking program is open to pork producers who share their production information. Participants receive free quarterly updates on how their operations compare to the Benchmark averages. PigCHAMP also offers in-depth customized reports for a modest fee.

PigCHAMP is part of the Farms.com group of companies which strives to provide innovative information, products and services to the global agriculture and food industries.
DO ALL GILTS LEAD THE WAY?

Reviewing the data on a gilt’s performance in her first parity can help producers understand possibilities for her future performance.

By Sasha Gibson

Using gilts’ performance to gauge future health and production makes sense. The gilt and litter (parity) 1 journey become the building blocks of the parity 2, parity 3 and parity 4 sow.

Gilts are 20 percent of our herd inventory at any time and equate to our third-highest operational cost, following feed and labor. Gilt performance is often “lumped in” with that of sows when considering operations on a week-by-week basis.

Producers have many ways to raise a gilt – researchers like George Foxcroft, Kenneth J. Stalder and Robert Knox have all identified techniques to maximize a gilt’s lifetime performance. Each farm does gilt entry slightly differently, based on some of the research principles outlined by the universities.

Producers make significant investments in rearing gilts. Farmers design standard operating procedures with a variety of animal factors, such as genetics, age at purchase, health, age at breeding, and boar exposure plan, in mind. Producers generally target a 47 to 50 percent sow replacement per year.

Pig production, however, is also very dynamic. Producers often have to modify the gilt flow from the way it was intended due to PEDv, PRRS, mycoplasma elimination or other disease challenges.

As a result, the animals may experience overcrowding and deviation from the planned “gilt experience.” For example, overcrowding can lead to more aggression, or less acclimatization to the sow farms before being bred.

Producers are striving for gilts to have at least four productive litters (Hoge et al., 2011). If not carefully monitored, unplanned challenges can affect the future sow farm performance.

If not segmented by parity, weekly production reports can hide poor gilt performance – it is easy to overlook an ongoing gilt problem. Often, producers review the number of bred gilts. If those figures are on track, we consider the gilt program good – but is it?

When reviewing reports, consider the animal’s age – is the gilt flow running as designed? If the farm is making target but the average bred age has shifted – either up or down – from the planned age, long-term effects could include fewer total born, lactation failure and longevity issues.

Are the gilts cycling at the predictive days after their entry into the farm? The plan of entry (weekly or monthly) should have a predicted number of heat no service (HNS) events associated with it. What is the target for your farm? If the number of HNS events moves, why did this happen? Such shifts indicate a change to the production flow before the gilts were even bred!

Commonly, producers use parity reports to evaluate gilts. This report details the performance of each parity over a certain time period. You might, for example, want to consider how parity 1 sows cycled post-weaning compared to parity 2 sows.

A weekly performance trend analysis filtered by gilts (parity = 0) and sows (parity 1+), however, will give you the ability to address problems more quickly.

Productivity analysis is a newer report that tracks the number and percentage of gilts that entered the farm but did not get bred and so left the farm. This report also tracks the number of gilts that were bred and then left the farm. This data is important for evaluating gilt performance.

Data from over 300,000 gilts in 2017 shows the variation across operations in the percentage of gilts that entered and left the farm before they were bred. (PigCHAMP users across North America provided this data.) The reason for this gilt removal could be death or cull.

These gilts were moved,
tagged, vaccinated and fed. Ultimately, however, they were not bred. On average, producers removed about 6 percent of gilts before they were serviced. (See the table to the right.) These are the “lost-dreams” gilts.

After breeding, the farms in the database had an additional 6.7 percent of gilts leave the barn, either as a dead or cull. All of these animals incurred breeding costs prior to removal. (See the table below.) These are the “broken-dreams” gilts.

These data sets are not a cohort. Rather, they are a moment in time. Overall, however, of the about 300,000 gilts that came into the nine databases or were bred on the farms, approximately 13 percent did not farrow.

The productivity analysis can quickly and easily show how your farm’s gilts are performing. You can use this data to evaluate planned and non-planned management changes to the gilt flow.

Another area on the productivity analysis report is the first service to removal interval for gilts. This figure indicates how long the served gilts are on the farm, on average, before they are removed. The average entry to removal service is 78 days, according to the 2017 data. Of the seven databases evaluated, one operation had an entry to removal rate of just 44 days, while the highest was 102 days.

Ryosuke Iida et. al (2015) found that lifetime performance was linked to performance in parity 1 sows. Considering that all parity 1 animals should not stay with the herd but, rather, that some should be pushed out is a different way of thinking. After all, the cost to get the parity 1 in the herd is high. But the cost of their sub-par performance may be higher. Are these gilts the animals that are more likely going to cost us in other areas too?

Subsequent litter performance data should make us pause. Based off the correlation between lower total born in the first litter and born alive in all farrowings, should a parity 2 sow be culled if a new gilt can replace her in a cost effective way?

This dataset uses total born at first farrowing and examines gilts farrowed between July and Dec. 2016. On average, 14 percent of the parity 1 gilts had less than a total of 10 piglets born. (This figure ranges from 11 to 17 percent for each farm). Using the liveborn numbers over the subsequent farrowings, can we make predictions of lifetime performance? (Note: this relationship is specific to total born and liveborn, not liveborn and liveborn, or total born and total born).

The subsequent liveborn over the 18 months following the first litter (parity) shows what has happened so far over the sow’s lifetime (five litters). Litters with total born above 20 were excluded from the analysis.

Gilts that had fewer than 10 total born in their first litters had 10 or fewer liveborn pigs in their first litter farrowing, as expected. Subsequently, however, these gilts produced an average liveborn of 10.1 in their next farrowing events. Sows that had 11 or higher total born in their first farrowings had liveborns that averaged 13.8 piglets in their subsequent farrowing events. By Dec. 2017, some of the sows in the study had five litters.

The data suggests that total born in the first parity may be predictive of future farrowing liveborn events.

Focusing on the data from just the first and second litters, we see a 1.5-pig difference on born alive at their second farrowing, when using total borns less than 10 on the first litter (parity 1) as a predictive value. On average, females that had less than 10 total born in their first farrowings had 11.9 born alive in their second farrowings. Sows that had 11 to 20 piglets in their first farrowing averaged 13.4 born alive in their second parities.

Low total borns in the first

### 2017 Average Percent Removed Before Breeding

<table>
<thead>
<tr>
<th>Database</th>
<th>Percent removed before service</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.6</td>
</tr>
<tr>
<td>B</td>
<td>4.1</td>
</tr>
<tr>
<td>C</td>
<td>7.0</td>
</tr>
<tr>
<td>D</td>
<td>6.8</td>
</tr>
<tr>
<td>E</td>
<td>8.0</td>
</tr>
<tr>
<td>F</td>
<td>7.9</td>
</tr>
<tr>
<td>G</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Note: There were 303,471 gilts entered.

### 2017 Average Percent Removed After Breeding

<table>
<thead>
<tr>
<th>Databases</th>
<th>Gilts first served</th>
<th>Percent served and removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>44,213</td>
<td>4.9</td>
</tr>
<tr>
<td>B</td>
<td>55,759</td>
<td>6.3</td>
</tr>
<tr>
<td>C</td>
<td>101,643</td>
<td>9.4</td>
</tr>
<tr>
<td>D</td>
<td>5,251</td>
<td>8</td>
</tr>
<tr>
<td>E</td>
<td>27,226</td>
<td>6</td>
</tr>
<tr>
<td>F</td>
<td>33,950</td>
<td>6</td>
</tr>
<tr>
<td>G</td>
<td>24,361</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Note: 292,403 gilts are represented in the chart above.
parity seem to be a predictor of less liveborn pigs over the sow’s life. After reviewing this data, some questions arise. Are the parity 1 females that have fewer total born more likely to leave the farm sooner than their peers? Are these animals more likely to be treated, or at risk for, being returns, late weans, mortalities, etc.? Do they lead us down the wrong path in more ways than just born alive?

If your current gilt supply and source are stable, and production has been in control, analyzing subsequent litter performance information on your farm may enable you to make the sow herd more efficient. Removing poor performers may allow other key performance indicators, such as wean to service intervals, return rates and mortality rates, to be improved.

These gilts that lead with high total born and liveborn may ultimately be the “future-dream” gilts.

Sasha Gibson

Sasha Gibson, originally from Glossop, Derbyshire, England, has been passionate about swine reproduction since gaining her master’s degree in pig production from the University of Aberdeen, Scotland. She works with nine swine veterinarians at the Fairmont Veterinary Clinic in Fairmont, Minn. She focuses on training, safety and production. Gibson has presented at several national and international conferences, including the American Association of Swine Veterinarians.

The Fairmont Veterinary Clinic’s mission is to provide leadership and knowledge to swine producers. Principles include maintaining a balance between animal well-being, economics and people, without compromising integrity. Fairmont also focuses on providing customized options for health, management and production issues. Contact us at 507.238.4456, fmtvets.com, or follow us on Twitter @fvcpigs.
ENSURING BIOSECURITY
Three industry professionals weigh in on the role of biosecurity and logistics in decision making.

When it comes to decision making within the swine industry, there are a lot of factors to consider. In this mix of competing priorities, biosecurity and logistics can sometimes take a backseat to topics like genetics, markets or technology. It can be easier to focus on the more enjoyable decisions that need to be made for your farm than it is to address the issues that take more planning to address.

So this year, we reached out to some experts in fields of biosecurity and logistics, and asked them for insight into the types of decisions they make on a regular basis.

Why are these issues important today and in the future for their companies? What kinds of data are they tracking and analyzing to help them make decisions in their operations?

In this short series, you’ll learn from industry professionals with decades of combined experience in the fields of biosecurity and logistics.

First, Jer Geiger, a veterinarian with a genetic supplier, explains why high biosecurity standards are important to long-term improvements. Next, Angie Hurst, vice-president of a livestock trucking company, shares how this sector takes great care in protecting the health of the pigs that it carries, all while considering future cargo. Finally, Chet Mogler, an Iowa producer, highlights how his team successfully manages and maintains the health of their sows.

What health and biosecurity mean to a genetic supplier

The primary roles of a genetic supplier are to provide a superior genetic product for customers today and to ensure sustainable genetic progress for the future.

At the slat level, the assignment is to deliver healthy genetic improvement, load after load, year after year.

Genetic potential takes center stage, separating one provider from another, but animal health plays a powerful supporting role. It is difficult to capture genetic advantages when disease issues restrict performance.

Since genetic improvement is a long-term process, a genetic supplier’s health strategies must also be focused years into the future.

Simply stated, biosecurity is the sum of all tools, activities and processes that together sustain health and prevent the introduction of an economically significant disease.

To be effective, biosecurity must become a philosophy, a mindset and a manner of conducting business every day that prevents the entry of pathogens into the operation.

Whether people, pigs or materials enter or leave the farm, every process and activity should be considered as a potential risk to herd health.

No doubt, biosecurity requires an investment of time and resources. Some people may say biosecurity is inconvenient. But we argue that, if biosecurity is not inconvenient, it is not being done correctly. The payback to this work is sustainability and business continuity.

In that context, health and biosecurity become the responsibility of each employee, from the entry-level caretaker to the chief operating and financial officers. The full team is responsible not only for the health of its farms and contract multiplier farms, it must also ensure that no new economically significant pathogens enter a customer’s farm through the delivery of breeding stock or semen.

Transportation takes center stage in the delivery of healthy genetics.

Transport biosecurity is a key component of animal movements within the production pyramid, deliveries to genetic customers and transfer of byproduct animals. Transport biosecurity should also encompass feed deliveries, as well as the removal and disposal of effluent and dead stock.

The swine industry is not stagnant and it continues to face new challenges. The sector needs progress, innovation and change to keep pace and stay ahead of new production strategies and new or evolving health considerations. Those changes must be focused, controlled and science-based, not undertaken simply for their own sakes.

To effectively and efficiently succeed in the safe delivery of healthy genetics, companies must look both internally and to the world around for new ideas, tools and strategies. Many examples exist.
Looking internally, the industry changed the design and construction of its transport fleet. Realizing the importance of truck sanitation, engineers consulted with the people loading and washing the trailers to identify biosecurity risks and shortcomings of designs. Those observations led to the creation of new materials and designs to expedite the cleaning and disinfection processes.

Borrowing from the poultry industry, the pork sector implemented thermo-assisted drying and decontamination (TADD) to ensure the biosecure transport of live animals.

Learning from human medicine, the swine industry explored and refined the science of diagnostics using oral fluids for the accurate and early detection of a variety of pathogens, including PRRS and coronaviruses.

By sharing these tools and technologies, the swine industry has improved biosecurity to maintain and improve animal health, which enables it to flourish and compete in the global market. The industry advances through learning by trial and error, as well as by sharing experiences in producer and professional meetings and scientific literature.

Trucking companies play a key role in biosecurity

By Angie Hurst

Luckhart Transport Ltd., a family-owned livestock trucking company, always tries to stay one step ahead of the needs and demands of the industry. We offer our customers a high level of biosecurity, including dedicated equipment, specialized trailers, a full-serve mechanical shop, and wash and dry bays that run 24-hours a day.

While we do everything within our capabilities to prevent a disease outbreak, we also believe we always need to be prepared for the worst-case scenario and ensure that we have a plan in place to address any challenges.

A lot has changed between our beginnings in 1951 and today. The industry is transporting animals longer distances than they have ever been moved before and the biosecurity needs of our customers have also drastically changed. For example, 98 percent of our swine customers require some level of truck washing before transport companies enter their properties, which can create friction between logistics and heard health.

On a daily basis, we have trucks cross paths but it is imperative to put the health status of our customers before location logistics. What makes sense geographically simply will not work for biosecurity. Without proper biosecurity protocols in place, my customers would quickly be out of business … and so would my company.

We have successfully prevented disease transmission by monitoring all of our equipment, and classifying each pick and drop location as low-, medium- or high-risk areas. We handle the equipment and drivers according to these classifications. We have to consider past, present and future loads, as they are pieces to the larger puzzle.

As a livestock transporter, it is our responsibility to figure out how to move animals comfortably from point A to point B while adhering to the regulations set out by our customer, the Ministry of Transportation of Ontario, the U.S. Department of Transportation, the U.S. Department of Agriculture and the Canadian Food Inspection Agency. We rely on specialized equipment to ensure we can meet these demands.

We have extensive record keeping within our wash and dry bays. We record dates, times, length of washes, temperature readings, etc., and keep wash records for a minimum of six months. Recently, the University of Saskatchewan came to our facility to monitor our dry bay. The researchers measured surface temperatures of the livestock trailers while they were being heated and dried to ensure that we are doing what is needed to kill all pathogens.

We believe there is always room to improve. We also believe we always need to check up on our practices to ensure that we are doing what it takes to stay ahead of the game.

Our system automatically calibrates chemicals for our wash staff and a third-party chemical company monitors the system to ensure proper dilution and application rates. A lot of science shapes trailer-washing procedures and it is not as simple as one may think.

Communication between industry partners is key and I believe the future of the swine industry looks very promising.
Pig Hill, a sow operation located in Alvord, Iowa, has used PigCHAMP software for herd management for over 25 years. Now, we are working towards tighter integration of the PigCHAMP herd statistics with our building ventilation and feed systems.

We are striving for such integration to gain further insights into our biosecurity and health management, as well as our feed ordering and logistics planning.

Every day, we capture and update every animal event, such as vaccine treatments, farrowing data and location changes, through the use of PigCHAMP. We are integrating this data with real-time environment, feed consumption and operator information.

We are confident that this approach will enable us to further optimize our animal health and biosecurity protocols.

We can work with our industry partners to flush out all of the necessary information and integrate it into one database. We can create reports from all of these systems, using real-time data, to make better herd decisions.

For example, we review daily

If you would like to compare the benchmarking data from Sasha Gibson’s article (p.5-7) with your operation's, you can run the following PigCHAMP reports:

• Subsequent litter performance for 7/1/16 to 12/31/16 and for 1/1/17 to 6/31/17. The pages we compared were total born to liveborn and stillborn, liveborn to subsequent liveborn, total born and stillborn, and stillborn to subsequent stillborn.

• Productivity analysis for a total of 24 periods (182 days each) until the end of 2017. The report can reach back to 2005 but you can adjust the dates depending on your desired frame of reference.
Chet Mogler

In 2009, Chet Mogler graduated from a community college with a degree in ag business and returned to the family business. He began managing the 900-sow farm in 2010. In 2015, Mogler worked alongside his family to build a new 4,400-head sow farm. Mogler supervises daily operations at the sow farm and assists the other operations as needed. Chet and his family enjoy spending time together on their acreage near the farm.

Angie Hurst

Angie Hurst (Luckhart) started cleaning transport trailers at the age of 12 and has been active in the family business ever since. She is now the vice-president of Luckhart Transport Ltd., and manages trucking and biosecurity for the company. Hurst is very passionate about the humane transportation of animals and ensuring proper biosecurity practices.

Luckhart Transport Ltd. is a third-generation family-owned livestock trucking company based in southwestern Ontario. The family established the business in 1951 and it has constantly evolved with the industry. Luckhart Transport Ltd. specializes in high health livestock movements.

The company is dedicated to providing quality service to its customers, as well as pursuing humane transportation options.

Jer Geiger

Jer Geiger grew up on a small family farm in Illinois. He obtained his doctorate of veterinary medicine and master of science from the University of Illinois. He worked as a private veterinary practitioner for eight years and has worked for PIC for over two decades. As a health assurance veterinarian, he has consulted in more than 20 countries. Geiger considers his greatest accomplishment to be his family: his wife Becky, daughter Rachael and son Nicholas.

PIC (Pig Improvement Company) is the global leader in pig genetics. PIC provides genetically high-quality breeding stock to pig producers and supports with technical services to help them realize the genetic potential on the farm. PIC’s goals are to make our customers the most successful producers and to maximize profits for the pork chain. More information can be found at pic.com.
In our industry, sow mortality has become a primary focus for producers, their veterinarians and diagnostic labs. Only a short time ago, the mortality rates hovered around 5 percent in nearly all operations. In the past few years, however, the rates have escalated to unbelievable levels, often exceeding 10 percent for several weeks to months.

The elevated concern about sow mortality rates started three years ago, in a hallway at the annual meeting of the American Association of Swine Veterinarians, when a few veterinarians and pathologists began discussing what they saw in their practices. This humble beginning started us on the journey which led to an industry-wide study.

Originally, we focused on the unusual incidence of prolapses, often both rectal and uterine, in sows. We continue to explore this issue as a part of the overall research on sow mortality.

Drs. Bob Thompson and Kent Schwartz, along with Emily Mahan-Riggs, a student at North Carolina State University, compiled a survey and provided an “enrollment” sheet to any veterinarian willing to participate. These professionals filled out the surveys and submitted samples from problem sows.

You can quickly find several well-written papers on the subject of sow mortality. In 1991, Drs. Madeleine Chagnon, Sylvie D’Allaire and R. Drolet published the results of an extensive project which highlighted some interesting trends. They studied 24 breeding herds that submitted data on significant numbers of animals. The herds had an average of 3,755 mated sows and gilts. The producers agreed to submit information on all dead and morbid sows over a 12-month period. During this window, the average sow mortality was 3.3 percent. The figures ranged broadly between operations, though, from the lowest mortality of 0.0 percent to the highest of 9.2.

In total, participating herds had a total of 137 sow mortalities. Researchers noted a higher mortality in the months of July, August and October. Sows appeared to be most at risk during the peripartum period that is immediately before, during and immediately after farrowing. During this short time in a sow’s reproductive life, 42.0 percent of all deaths occurred.

The three main reasons for death were heart failure (31.4 percent), torsions and accidents of abdominal organs (15.3 percent), and cystitis pyelonephritis (8.0 percent). Minor causes included endometritis, uterine prolapses, pneumonia and gastric ulcers.

Judging by a review of numerous papers, it seems that death rates had risen significantly by the mid- to late 1990s. In 1999, Drs. Christina Irwin, Jer Geiger, and John Deen presented at the North Carolina Healthy Hog Seminar that “today, 12 to 15 percent (or greater) sow mortality is seen with more and more frequency.”

Interestingly, the researchers most frequently identified lameness (muscular-skeletal problems) as the cause of the animal’s demise (38.2 percent). The locations (either gestation or lactation) where the animal was housed immediately prior to euthanasia and or death varied, however.

The researchers identified gastro-intestinal problems as the second most common cause of death or euthanasia overall (12.9 percent). Again, location varied but was different than for lameness reasons.

The authors later compiled a meta-analysis of 4 million parity records between 1996 and 1998, and they found some valuable insights. The researchers noted a significant increase in sow mortality within the systems examined. No system seems to have avoided this trend and the rates were significantly higher than reported in the literature.

In addition, some seasonality was apparent. The highest numbers of mortalities occurred in summer months, although there were differences between the systems. An interaction between season and stage of the reproductive cycle demonstrated that approximately half of the mortality occurred during...
the first three weeks after farrowing. 
In the summer, this number went up to roughly 65 percent.
Nevertheless, about 27 percent all mortalities occurred in sows that never farrowed. The authors speculated that an adverse event occurred prior to the subsequent periparturient risk (farrowing). They hypothesized that the stress of farrowing, i.e. loading into the crate, changing rations, act of delivery, etc. contributes to a higher risk of mortality during this critical time for the sow.
A more recent publication by Megan Schnur, DVM, Integrated Veterinary Network, shared further insights from another large database. The changes from gestation stalls to open pens have presented with some concerning levels of sow mortality. During the transition in the production system between 2006-12 and 2013-17, overall penned sow gestation space doubled (from 13 percent to 26 percent), Dr. Schnur says. Mortality rates occurring in penned gestation farms, however, more than tripled, increasing from 7.9 percent to 27.7 percent. Euthanasia also increased as a reason of death, she noted. One can argue that, with PQA Plus standards in place throughout our industry, caretakers are being diligent in their daily activities. But Dr. Schnur’s findings raise questions about why euthanasia is needed more frequently now than in the past.
In our industry, many production systems of all sizes and individual farms are paying very close attention to this concern. In their own ways, each of these systems and producers are developing tracking methods to capture reasons of death, location, parity and much more. This documentation is the result of a significant economic need to reduce mortalities and the emotional desire to make a difference.
Eventually, all of this data could be compiled and published, which could provide added incentive to the National Sow Mortality project. Dr. Chris Rademacher, a clinical associate professor at Iowa State University, says that the study is underway with 124 farms. Each of these producers compiles a weekly internal document with the goal of publishing the information soon on the Iowa Pork Industry Center website (ipic.iastate.edu).
An analysis of PigCHAMP’s 2017 benchmarking data also demonstrates an elevated sow mortality on most farms. (PigCHAMP’s database includes information from nearly 300 farms and close to half a million sows.) Sow mortality may not be a farm's major economic concern but it is a matter that needs additional diagnostic help.
Mortality rates are rising in the late winter or early spring and peaking in April, the data shows. By losing parity 0 and parity 1 females, owners of swine units do not recover their investments. These losses are a drain on their profitability.
Taken together, the range of sources suggest that the risk factors associated with higher sow mortality are industry-wide.
To enhance our understanding of sow mortalities, researchers need to examine more sows to dive deeper into the contributing causes of death. These goals will necessitate a close working relationship between producers, diagnostic labs and pathologists – producers will need to submit more tissue samples to enable this research. The industry is tackling the problem of sow mortality, although

This chart documents the number of deaths per month by parity. Note, particularly, the spike in deaths in April.

This chart provides a breakdown of total sow mortality by month, showing a spike in late winter and early spring, using an SPC charting method.
it will take some time to fully understand and fix the issue.

References:

Tom Gillespie has a lifelong involvement in the swine industry, beginning with his 4-H participation on his family’s hog and grain farm. He graduated from Purdue University with a doctor of veterinary medicine degree in 1979. In 1981, Gillespie moved to Indiana and joined as an owner in a mixed animal practice. He soon specialized in swine medicine. Gillespie obtained diplomate status with the American Board of Veterinary Practitioners in Swine Health and Management Specialty in 1989. He recertified in 2008 and again in 2017. Gillespie consults with swine operations worldwide.

He is the past president of the American Association of Swine Veterinarians (AASV). He was selected as the AASV Swine Practitioner of the Year in 2010. He has written several papers, including ones on pathogens.

Gillespie has lectured in most hog-producing states in the United States, as well as in Canada, Europe, Southeast Asia and China.

Tom Gillespie founded Rensselaer Swine Services, PC in 1991. Rensselaer Swine Services was obtained by Pipestone Veterinary Services in 2016.
PROGRESS BY BENCHMARKING

Pork producers can analyze their operations in light of past achievements and the broader industry in order to identify and address areas of improvement.

By Joseph F. Connor

Benchmarking is the process of comparing your business processes and performance metrics to a database, allowing producers to make comparisons of the key drivers for production and profitability. This tool is extremely powerful when all participants use the same record-keeping system, which provides a basis for consistent interpretation.

When analyzing benchmarking data, each producer needs to establish his/her goals for using the information. By tracking data related to genetics, management and health, we can strive for continuous improvement.

If we are looking at the pounds of pork sold per facility space, we should look at both the numbers of pigs produced as well as the quality. When we consider breed-to-wean performance, the most important output is throughout, which includes pigs weaned and weaning weight per day of age.

We use benchmarking to compare key performance indicators to the mean, median, 90th percentile and to a lower 10th percentile. We can also compare performance to that in previous years, identifying industry trends. This benchmarking process can be motivating, as producers continue to find improvements year over year as they manage genetic improvements and their own processes.

By analyzing our operation’s key performance drivers in light of the benchmarking data, we can hopefully identify and implement improvements to our operations.

Let’s discuss the 2017 breed-to-wean PigCHAMP database, which includes 340 farms in the United States and 29 farms in Canada. (Similar comparisons for wean-to-finish and cost of production data are also critical in decision-making.)

Within the dataset, the variation within each variable is large, showing the range between operations. Overall, this variation provides a significant motivation for improvement – if one producer can improve a specific element of his/her operation, perhaps you can too.

As you analyze benchmarking data, remember that each variable may be independent of another variable. One operation could be in the upper 10th percentile for one variable but in the lower 10th percentile for a different variable. As an example, percent repeat services was 12.93 percent for the upper 10th percentile and 1.75 percent for the lower 10th percentile. With this specific variable, however, producers would strive to be in the lower percentile.

Keep in mind, too, that the percentile target can shift by variable, as this target is dependent on herds and facilities. An operation can have a 90th percentile target for total born, for example, but may have a 50th percentile for preweaning mortality because of its farrowing facilities.

In the 2017 PigCHAMP data, producers in the upper 10th percentile averaged 15.44 total pigs born/litter. If total born is low for the particular genetics, drivers include wean gilt health, days of stall acclimation before service, and percentage serviced on second or third estrus.

The average number of pigs born alive per litter was 13.89, equating to 32.27 liveborn/female/year. Stillbirths per litter averaged 1.08. In the upper 10th percentile, stillbirths averaged 1.53 and, in the lower 10th percentile, they averaged 0.67. Producers can often decrease the number of stillbirths through such tactics as extended care.

Farrowing rate in the upper 10th percentile was 90.68 percent. Other producers, however, have reported a slight downward trend with regard to this variable.

The pre-weaning mortality mean was 14.69 percent. Producers in the upper 10th percentile had a mortality of 19.42 percent, while the lower 10th percentile had a mortality of 9.61 percent.

As with the frequency of stillborns, producers can often make improvements to decrease pre-weaning mortality. Drivers in this area include birth weight, piglet viability and environment. This variable is heavily influenced by staff, highlighting the importance of consistent operating practices. Staff turnover creates an ongoing need for education to ensure new team members understand and follow best practices. Staff of highly productive herds are able to maintain consistent daily
In the 2017 dataset, average wean sow mortality was 10.73 percent, with the upper 10th percentile at 15.5 and lower 10th percentile at 6.36. Our industry is increasingly focused on wean sow mortality, as researchers have noted an upward trend in these deaths. Drivers of wean sow mortality include an increase in prolapses (uterine, rectal, vaginal), timely euthanasia and open pen housing.

Producers can derive benefits from benchmarking – both comparing their operations to the broader industry and tracking trends over time.

When using variables, it’s helpful to set a target for the percentile that you would like your team to achieve. Teams can find motivation for improvement when they have clear understandings of areas of opportunity. Understanding the “why” and the “how” helps staff achieve their targets. To derive the most benefit from benchmarking, and to help ensure your team can meet its goals, you should aim for timely comparisons to the benchmarks throughout the year.

Dr. Joseph F. Connor

Founder and president of Carthage Group. Dr. Joseph F. Connor, DVM, MS, has received numerous industry awards for outstanding lifelong service to the profession. Connor obtained his doctor of veterinary medicine from the University of Illinois in 1976 and a master’s of science in veterinary medicine from the University of Minnesota in 2006. He completed the executive veterinary program in 2009 at the University of Illinois.

The Carthage Group provides swine veterinary and management consulting services to the pork industry throughout the United States and East Asia. Carthage Group includes Carthage Veterinary Service, Ltd., Professional Swine Management, LLC, Carthage Innovative Swine Solutions, LLC, and other subsidiaries.

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DATA-DRIVEN DECISION MAKING

By following the proper steps in the benchmarking process, you can find ways to make marked improvements in your pork operation.

By Gene Noem

We have no shortage in the amount of data available today. On the farm, we can access data from such information systems as PigCHAMP, historical data in barn controllers, cost data in accounting software, purchase history data from feed vendors, and software data in your mill. An individual does not have to go far to look for data to evaluate something about his/her pig business. Data is ALWAYS available. The key challenges all leadership and staff face are:

1) How to convert data into usable information.
2) How to convert that data into meaningful action that makes a difference to my business in the future.

What is a benchmark?

Webster's Dictionary defines a benchmark as "something that serves as a standard by which others may be measured or judged."

Over 13 years of producing this publication, PigCHAMP has provided producers with a wider view of how their performance stacks up over time, whether they are comparing it to specific targets and goals, or to other, similar farms.

How to use a benchmark

You can use benchmarking data in many ways. You can use it to boast with neighbors and friends. You can use it to show a supervisor or owner how good your results are. You can even use it as a personal incentive to feel good about your hard work.

Any benchmarking exercise should be a method for influencing the future, I suggest.

Benchmarking should help us answer the question, “OK, so, what should I do about it?” An effective process includes the following steps:

- Review the data.
- Summarize your observations.
- Create a list of conclusions.
- Use the analysis to decide how to influence the operation’s future.

Let’s go a bit further into each step.

Review the data

Any good review process is built upon an understanding of your data sources. Are the data sets comparable? Or are definitions close enough that I risk misleading myself?

PigCHAMP systems do much of this work for you. Their work helps you answer such questions as: When is a gilt included in the herd? When is a gilt a sow? Weaned per sow farrowed or litter weaned?

The parameters and values in this publication’s tables have underwent painstaking review. Using this publication and a system like PigCHAMP enables you and your staff to dive right into the numbers.

In this step, ask yourself how you stack up against other producers and/or your past data. Review your numbers honestly. Stop yourself and others from discussing the “why” at this stage, as it could lead to the clouding of observations. Just look at the numbers.

In this step, you should only ask basic questions about how you stack up. Consider creating a list of key numbers you review routinely. Don't just look at the tables. Write the key data points down. Simply looking the information over might allow you to gloss over important observations. This data review should begin to bring you OUT of your comfort zone.

Example questions to ask:

- What is my farrowing rate?
- What is the average farrowing rate in this data set?
- What are the best (the upper 10th percentile) doing?

This step only tells you the “what.” Nothing else.

Summarize your observations

As you move onto this stage, you should get another piece of paper or a new page in the Word document. Now is the time to admit where your system is strong and where the opportunities for improvement are. Try your best to not explain anything away, whether it be a PRRS break or a key employee leaving.

This step is the time to simply admit reality. Tell yourself how you stack up. Don’t beat yourself up, just be honest.

Examples:

- My farrowing rate is 3 percent below the mean and 5 percent below the median of the PigCHAMP dataset. (If you do not understand the difference between mean and median, now is the time to learn.)
- My farrowing rate is 10 percent lower than the upper 10th percentile of this dataset.
- My farrowing rate is within 1 standard deviation (sd in the table = 7.1) of the mean.

Create a list of your conclusions

This is the step where you should begin to identify where your

Continued on page 20
## CANADIAN 2017 YEAREND SUMMARY

### Number of farms: 29

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MEAN</th>
<th>SD</th>
<th>MEDIAN</th>
<th>UPPER 10TH PERCENTILE</th>
<th>LOWER 10TH PERCENTILE</th>
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<tr>
<td>Total number of services</td>
<td>3183.83</td>
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<td>2215.00</td>
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### American 2017 Year-End Summary

**Number of farms: 340**

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<td>229.50</td>
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<td>41.50</td>
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<td>Percent of repeat services</td>
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<td>4.573</td>
<td>6.23</td>
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<td>1.75</td>
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<td>4026.290</td>
<td>3288.50</td>
<td>11219.00</td>
<td>1088.00</td>
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<td>Total number of services</td>
<td>5520.95</td>
<td>4751.400</td>
<td>3975.50</td>
<td>12787.50</td>
<td>1246.50</td>
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<tr>
<td>Number of repeat services</td>
<td>379.26</td>
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<td>229.50</td>
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<td>41.50</td>
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<td>6.23</td>
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<tr>
<td>Number of sows farrowed</td>
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<td>4026.290</td>
<td>3288.50</td>
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<td>5.259</td>
<td>28.58</td>
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<td>23.28</td>
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<td>Total number of stillborn pigs</td>
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<td>Average litter weaning weight (n=11)</td>
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<td>3.377</td>
<td>25.38</td>
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<td>20.55</td>
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<td>137.734</td>
<td>4.00</td>
<td>71.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
opportunities are. Remember, you are still NOT explaining why yet. No defensiveness is allowed nor is explaining away. At this stage, you are still defining reality and just beginning to lay the basis of plan for improvement.

Examples:
• My farrowing rate is below the mean and median.
• My sow herd and staff have been challenged, but that is not an excuse.
• I believe improving farrowing rate standing relative to my farm history and other producers using PigCHAMP services is a key opportunity.
• Improving farrowing rate by 5 percent will get me to the median of this group and will increase wean pig output by _____ pigs per year.
• These advancements mean _____ to me. (Are you on an incentive program? Do you own the farm? Fill in the blank with what this improvement means to you.)

Influence your future
This is the stage where the rubber meets the road. You have admitted current reality in the first two steps. The third step helped you begin imagining a future with a new level of performance. Now is the time to identify and implement actions to close the gaps between reality and your vision.

Consider the factors that have been root causes of your operation’s current performance. Ask other producers what they do. Read. Call PigCHAMP staff and discuss these factors with them. Call experts from your land grant university extension service. Talk to vendors.

The most important element in this step? Do not lose your objectivity. You have come to this point without blaming anyone and without being defensive. Don’t lose your focus now. Begin to commit to changes that will make a difference in the weaknesses you have identified. Some examples are outlined below.
• We have reviewed the factors that detract from good farrowing rate performance on our farm. Create a list of the list of factors and some actions we can influence.
  o Semen handling on the farm.
  o Using remote monitors to measure temperature averages and variation in the semen cooler.
  o Documenting who turned semen in the cooler at what times to ensure a good process.
• Engage a specialist to review critical control points that we might be missing.
  o Reviewing the quality of the insemination process on breed row.
  o Evaluating farrowing rate by technician, by day of week and by time of day.
  o Asking a specialist to visit our farms two times and to give feedback about our processes.

Summary
The process detailed above enables you to recognize where your operation currently is. Work your way through this process. If you have to do this work privately, do so. If you need help, bring in people you trust and who will not be judgmental.

Looking at benchmarking data is not new. We do it all the time. But, when I engage people about a process like this, there are often two parts that are new.

First, completing the work without judging, defending or explaining away weaknesses is not easy. Give your operation an honest look. You and your business deserve that.

The second part is the go-forward plan. Well-analyzed information does not just tell you what happened. You can also use it to decide what to change.

Have you ever been in one of those business reviews where people simply read off what happened? What a monumental waste of time. It is up to you to do something different.

I encourage you to use this PigCHAMP benchmarking publication to challenge yourself. Create a go-forward plan. Narrow down your actions to be time-bound and meaningful, something that changes your operation and your results! Most of all, be honest and do not just explain weaknesses away. Spend some quality time creating a plan which you can use to reshape your future.

Gene Noem
Gene Noem resides in Ames, Iowa and has worked in the swine industry his entire life. During his career, he has held a variety of leadership roles that involve operations management, business planning, translating data into information, and reporting. He is actively invested in the swine industry as co-owner of KD Feeders, a 10,000-head finishing complex in Wright County, Iowa.

Noem sits on the board of directors for the National Pork Board, as well as for the Iowa Pork Producers Association (IPPA). He has also served on a variety of committees for pork producers at both the state and national levels.
PLOTTING THE WAY AHEAD

Representatives from the procurement industry share how they make data-based decisions to help drive the pork sector ahead.

When we think about swine production in 2018, there’s a lot of areas of the industry to consider. The procurement sector takes great care in making purchasing and processing decisions.

For this Benchmark article, we asked two professionals in this sector to give some insights into the data they use to support choices and the ways they can use the information they collect to make future decisions.

In the first piece, Mike Porth, a senior procurement and business development manager with a processor, highlights the changes he has observed in the pork industry over the last few years. He explains how the data we viewed and collected in the past is just as important today, and what we can do with those numbers now.

“Information is powerful,” Porth stresses and he walks us through how to put this data to use in the future.

Next, you’ll hear from Jesse Sumner, production control director for Prestage Farms. He outlines some of the changes his operation has made over the last few decades. Sumner notes some of the key factors that the team took into consideration while expanding its operations.

Preparation for the future through data analysis

By Mike Porth

In 2016, PigCHAMP asked me to review the value of its benchmark data from an agri-food industry person’s perspective, as opposed to a producer standpoint. In this piece, I discussed keeping myself abreast of the key performance indicators (KPIs) that support producer productivity and profitability, as this information impacts the food processing industry. I noted how third-party unbiased data, such as that from PigCHAMP, is critical to help me stay “in the loop” about the swine industry.

This year, PigCHAMP asked me to review what data supports decision-making in the meat-processing industry, what’s collected to support these decisions, and what kind of data will influence decisions over the next three to five years.

Let’s begin by reviewing what has happened in the past couple of years since my last article. The pork processing industry in the United States has expanded its production and witnessed unprecedented capacity growth. Both domestic consumption and export markets have expanded. Changes in federal government officials could result in possible changes to trade relations and processing regulations.

Together, this range of moving parts may influence how we make decisions, especially when reviewed in light of past indicators.

Pork producers and processors will still need to review a lot of the same data we examined in the past. Important areas of focus include U.S. Department of Agriculture (USDA), Chicago Mercantile Exchange (CME), and Chicago Board of Trade (CBOT) market trends, as well as PigCHAMP productivity movements. The PigCHAMP charts on page 22, for example, allow us to review data on the top 10 percent of hogs and compare it to the mean data. The difference between the two sets of figures could mean the difference in profitability during lean times, depending on a producer’s cost of production.

We will use this type of information to support ongoing production benchmark reviews, conduct market analysis and identify trends. We will look to understand how world trade and consumer demand are changing, and where the shifts in the marketplace are happening.

Our industry will certainly have outliers like the PEDv outbreaks in 2014, in which one disease or possibly world event could move the market beyond anything historical or trending data would ever suggest. It’s tough to plan or forecast these outliers.

As the 2014 mean data shows, the pigs weaned per mated sow per year (P/W/M/S) trend dropped about half of a pig from the previous year. When looking at the larger context, however, the trend was actually improving at an approximate half pig pace per year. When we combine the lack of improvement with the drop over the 2013 figure, in reality, it can be argued we truly dropped a full pig of actual versus trend P/W/M/S in 2014.

Overall, however, we still need to be tracking this production data. Analyzing trends, whether over three, five or seven years, is key to understanding where we have been.

This information also helps
paint a picture of what is possible in the future. Such data will continue to be the basis of budgets, forecasting, and profit and loss targets, while industry representatives also track the political influencers to trade and keep their eyes open for the next outlier.

So, how will the collection of data change in the future? How will the analysis of trends and databases shift? Likely, we will continue to monitor the same data but how we evaluate it could evolve.

Increasingly, we are hearing more about analytics in our everyday lives, whether in the form of sports teams’ reviews of draftees, or business reviews of patterns and statistical differences in data. Ultimately, this type of analysis can impact a business’s productivity and profitability.

Large money funds analyze the probability of a range of variables, such as weather, health and exports, to position trade for a bull or bear market scenario. They review everything they know to help them understand which direction the market could go.

Pork producers also are working with commodity market analysts to make production and marketing decisions, based on an understanding of demands and market trends.

The old saying “information is powerful” will take on new meaning as we move forward.

The fundamentals of supply and demand will form the basis of what we do. The industry, for example, has concerns about adding about 10 percent more harvest capacity and keeping the product moving off the shelves. The question becomes: can we move the additional pork at competitive prices, even as the production of other proteins continues to expand as well?

Data, markets and consumer purchasing habits will play a key role in the ongoing success of the industry. Those individuals and companies that use this information as a resource for decision-making will have a competitive advantage over those who do not. Consumers will have more choices for protein than in the past, so we will need to consider if price point, quality or other factors will sway consumer’s purchase habits. How we get to the bottom line will be a game changer for those who adopt and implement this new technology.

Frequently, we see the disclaimer “past performance is not indicative of future results.” I believe, however, that we must understand where we have been and why in order to understand what could be possible. The collection and analysis of data allows us to understand the past while providing some insight into the future.

In closing, grab some popcorn and your favorite beverage as the next few years will be exciting and exhausting. How we react to the changes in our industry could be both rewarding and head scratching at the same time. Super-size my order!

Editor’s note: the views in this piece are presented by Mike Porth, based on his 35 years of experience in the pork industry, and do not represent the viewpoint of Smithfield Foods, Inc.

Mike Porth

Mike Porth is director of pork procurement with a focus of business development in the Midwest with Smithfield Foods. He has 35 years of experience with several Fortune 500 companies, working in the genetics, production, nutrition and procurement areas of the businesses.
Making decisions: from producer to processor

By Jesse Sumner

Family-owned and -operated Prestage Farms is based in North Carolina where we began growing turkeys and hogs in 1983. Since then, we have expanded our protein production into South Carolina, Mississippi, Oklahoma, Texas and Iowa.

Initially, Prestage Farms focused on live production. In 2006, however, we expanded into protein processing. We purchased an existing turkey processing plant in St. Pauls, North Carolina as a chance to evolve with the industry.

We recently embarked on a similar journey in the pork industry. Since we were already producing hogs in Iowa, we looked for an opportunity to support our investment in live production in Iowa.

Now, we are on the cusp of opening a pork processing facility near Eagle Grove in Wright County, Iowa.

This new plant will mirror the actions Prestage Farms took in the turkey industry more than a decade ago. It will enable us to expand our business into new territory and allow us to change along with the market.

A key factor in driving our decision to enter the pork processing industry was the spread between the pork cutout price and the live hog price. Since 2014, the gap between cash hog and the pork cutout prices has widened to historic levels, which is negative for live hog producers. The percentage of hogs traded daily for market discovery has also diminished to record-low levels.

Prestage will provide about half of the hogs for a single shift while still providing room for our neighbors who find themselves at a similar crossroads. Prestage will also provide room for spot negotiated hogs to be slaughtered daily at Eagle Grove. We hope this shackle space will provide more options for producers in Iowa.

We see a tremendous growth opportunity at Eagle Grove but our ability to connect with a customer base will be essential to the success of the new facility. We aim to find customers who will appreciate our desire to deliver an excellent product.

Bill Prestage, our founder, instilled in us the concept that a satisfied customer is essential to our business. This philosophy has proven to be the true driver of our success in our turkey processing operations. We intend to carry this philosophy into our new Eagle Grove plant – we will strive to serve our customers while maintaining a focus on the future.

Will it be easy? Turbulent? Profitable? All we can say is that we have rolled up our sleeves and we are excited to find out.

As production control director for Prestage Farms, Jesse Sumner leads the strategic and tactical direction for production planning, sales and logistics. A graduate of Campbell University with a degree in business administration, he has worked with Prestage for 31 years.

Started in 1983, Prestage Farms is a multi-generational family-owned and -operated agribusiness producing quality pork and turkey. Prestage Farms and its affiliated companies employ about 2,000 people and contract with 450 farm families with operations in North Carolina, Mississippi, South Carolina, Iowa and Oklahoma. A pork processing plant, currently under construction in Iowa, is the company’s newest venture.

Prestage Foods of Iowa is scheduled to open in late 2018.
POCKETING YOUR PIG PRODUCTION
The power of PigCHAMP’s real-time data is available in the palm of your hand.

By Schae Geiter

Time means everything for producers. Sometimes, it feels like your farm to-do lists are constantly growing. The PigCHAMP team is always looking for ways to help you be more productive in the barn so that you can keep accurate records, make informed decisions and, ultimately, move onto the next item on your list.

In 2010, our team launched the PigCHAMP Mobile Stand-Alone line of products. Participating clients, while in their barns, can enter their information into a heavy-duty mobile device. Producers appreciated this option and independent trials found that the PigCHAMP Mobile Stand-Alone device decreased a user’s time for data entry by between 15 and 30 percent.

Overall, this time savings equated to an average cost savings of US$1.45/sow/year. Producers no longer needed to record data by hand and then transcribe it into the PigCHAMP software.

While the Mobile Stand-Alone is still helpful for many producers, other clients wanted to be able to use the same technology on their cellphones. These conversations led to the creation of the PigCHAMP Mobile App.

In the fall, a handful of beta testers began using a mobile version of the PigCHAMP Reproductive application on their Apple or Android devices. This group used the Mobile App on a daily basis and provided feedback about the functionality and efficiency of the product.

Users of the app can interact directly with PigCHAMP Online via an Internet connection. They can enter their reproductive information...
We’d love to help you find the best options for your farm. If you are interested in learning more about this product, or any of the other PigCHAMP services, visit us at PigCHAMP.com, email us at sales@PigCHAMP.com or call us toll-free at 866.774.4242.

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PigCHAMP Online brings you all the features of PigCHAMP without the need for software installation or updates. Your entire database is securely stored and remains accessible via remote connection, allowing you the flexibility to manage your operation from anywhere you can connect to the internet.
If you could look into a crystal ball to learn about the future of the swine industry, would you? While the PigCHAMP team does not have any magical powers, we do have a lot of great assets – and one of them is you!

This winter, we reached out to our PigCHAMP customers and partners in the swine industry. We received responses from producers, veterinarians and professors located in the United States, Canada and even Spain. We asked them where they thought the industry would head in the next 10 to 15 years.

We started with the basics. Thinking about consumer demand, their individual operations, the future of trade, and a range of other factors, this group
came to a pretty strong consensus that the pork industry is here to stay. Indeed, the majority of respondents forecasted that the number of pigs marketed per year will likely increase over the next decade or so.

Focusing on the topic of consumer demand, those PigCHAMP customers and partners we polled overwhelmingly believed that consumers will likely continue to be interested in the sources of their food. When it comes to specialized technology, several of our producers agreed that, as costs come down, they would be more willing to adopt precision feeding equipment. Many individuals mentioned the benefits of reduced feed costs and specialized nutrition, while other producers noted potential difficulties, such as adding this technology to older facilities.

Overall, though, about two-thirds of respondents believed that, while specialized feeding for each pig will become more common, this technology will not become standard.

The value of genetic selection is not something our producers and partners take lightly, the survey showed. In total, 65 percent of respondents said genetic selection will become more important than it is today, while another 31 percent said genetic selection will continue to be as important as it is now. In explaining their responses, producers and partners noted such factors as meat quality, consumer demands, disease prevention, economic advancement and efficiency.

For the chart above, we asked respondents which areas of the industry they thought would be the most important in the future. They could each select up to three options from the list.

We also asked producers for more specific insights into three of the areas from the broader list: biosecurity, legislation and technology.

In the realm of biosecurity, producers shared predictions about expanded research projects and increased precautions undertaken by packers and truckers. Many producers and partners noted better identification techniques for those individuals entering the farm, as well as stricter rules and regulations for those people who are allowed on-site.

In terms of legislative changes, respondents predicted the biggest transformations in terms of animal welfare, food safety and environmental regulations. Many producers also foresaw changes with international trade opportunities.

When it comes to technology, survey respondents noted everything from DNA mapping to advanced animal tracking and group housing to barns run without any human staff.

It’s clear that the industry is in good hands, judging by the survey responses. Producers, veterinarians and industry professionals alike are focused on such issues as better record keeping, improved working conditions, disease prevention, advanced genetic selection and overall efficiency.

In our world, change is inevitable. We are bound to see a number of transformations in the swine industry over the next decade and a half!
The National Pork Producers Council has identified over 100 risks that a hog producer can face in any given year.

Among the major issues are feed costs and futures (market) risk. Managing these two risks is easier said than done but, with market know-how and a plan that is executed with precision and discipline, producers can be successful.

Since the start of the year, American hog price prospects have increased but so have feed cost expectations. For hog producers, the increase in soybean meal prices has had a bigger impact on feed costs than the rise in corn prices.

As of early March, May 2018 soybean meal futures had increased from their late June 2017 low of US$300/ton to almost US$400/ton. This jump is associated with a drought in Argentina, the worst the country has experienced in 70 years. As a result of these weather challenges, Argentina – which accounts for 40 percent of world’s exports of soybean meal – has reduced its 2017-18 soybean and corn production estimates.

A US$60/ton jump in meal prices increases the cost of production per live hog by US$1.85/hundredweight (cwt). As of early March, 2018 corn futures had risen by about 32 cents per bushel (bu) since their low in mid-January, which raised hog producer costs by US$1.40/cwt. For every US$0.10 rise in corn prices, hog feed cost jumps by US$1.00/head.

Combining the estimated US$3.08/cwt cost increase from higher meal prices and the US$1.40/cwt increase for corn results in a total jump in feed costs of about US$4.48/cwt.

Knowing seasonality trends can help producers plan to book feed costs in advance of weather problems significantly affecting crops in South or North America. Typically, the price of corn and soybeans tends to bottom in the fall (around Oct. 1) each year.

Let’s look at an example of how this understanding of market trends can impact producers’ bottom lines.

In the fall of 2017, producers could have booked soybean meal and corn prices a year ahead at an average of US$320/ton or lower (+/- local basis) and corn at US$3.50/bu (+/- local basis) to protect themselves against higher feed costs. When compared to prices at the start of March, that would have

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MITIGATING RISK WITH DISCIPLINE

A solid plan, grounded in an understanding of cost of production and market seasonality, can ensure success.

By Moe Agostino & Abhinesh Gopal

Seasonally, feed prices tend to bottom around Oct. 1 each year as supplies are generally at their highest during harvest.

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Source: Moore Research Center Inc., http://www.mrci.com, 541-933-5340

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yielded savings of US$70 to $75/ton on soybean meal feed and US$0.30 to $0.35/bu on corn feed.

Farmers could have “locked in” these prices in the physical market with local feed mills by pre-booking their feed needs.

Alternatively, producers could have worked with commodities brokers to implement one of two strategies. First, they could have placed a cap with long (buying futures/going long caps a rising cost in the future) corn and/or meal futures. Buying (or going long on) a commodity futures contract helps to lock in the price of that commodity at the level on a specified day. Any rise in prices from then on would be offset with the long futures position.

Second, producers could have bought a call option with a July or September 2018 expiry. A commodity call option is a financial instrument “derived” from the commodity futures that gives the investor the right, but not the obligation, to buy (or go long on) the commodity futures contract at a specified price within a specific period.

In the first two months of the year, hog prices were higher than expected thanks to higher American pork processing capacity and stronger than expected demand. The prices rose despite expectations that 2018 pork supplies will be up as much as 4 to 5 percent over 2017 supplies.

Summer 2018 hog futures, as of early March, peaked near US$86/cwt and provided producers with an opportunity to lock in some early profits, equating to as much as US$10/head when combined with the lower feed costs outlined above.

Having a plan (which includes an understanding of your cost of production) and employing marketing strategies (such as hanging orders, sell futures orders and put options) is always prudent. Such strategies can help to trigger additional profits and add value to your marketing plan.

Being aware of seasonality (hog prices normally rise to their highest by mid-year and fall to their lowest in December or January), and knowing the highs and lows in cutout values can arm producers with an understanding of when and how much of their annual hog production to price each year.

As the old saying goes, “Bulls make money, bears make money and pigs get slaughtered.” Producers have no need to risk their entire hog operations on a gamble, waiting on higher pork prices. You never go broke taking a profit!

The marketing plan is never perfect. In some years, the prices are much higher than expected.
For example, the industry faced significant challenges with Porcine Epidemic Diarrhea virus (PEDv) in 2013 and June hog futures traded above US $130/cwt. In 2012, a drought in the U.S. sent meal prices soaring to record highs of US $550/ton and corn to US $8.00/bu.

In other years, in contrast, prices might be lower as the peak happens sooner than expected. Such a situation occurred in 2015, for example, when hog futures peaked in mid-May.

In either case, winning consistently for eight or nine times out of 10 means success. The plan is simple: buy low and sell high. It can also be repetitive, since we are doing the same thing every year: buying feed at a low and selling hogs at a high.

Executing the plan with discipline, meaning ignoring the “noise” around the markets, is the key to success!

Seasonally, hog futures tend to bottom towards the end of November or early December as supplies are at their highest. Futures can seasonally drop again by the end of March and carve out a bottom just before the demand for the spring and summer grilling season.

**Maurizio "Moe" Agostino**

Maurizio "Moe" Agostino is chief commodity strategist with Farms.com Risk Management. He has over 30 years of experience in commodity risk management.

**Abhinesh Gopal**

Abhinesh Gopal is a commodity research analyst with Farms.com Risk Management. He is an agricultural commodities specialist with over 12 years of international agribusiness experience in banking, derivatives trading and consulting.

Farms.com Risk Management Inc. is an agricultural commodity marketing and price risk management provider for North American farmers, producers and agribusiness. The goal for the Farms.com Risk Management team is to maximize producer profitability while reducing risk. Farms.com Risk Management Inc. works with producers as advisors in the marketing of crops and/or livestock, such as market hogs, as well as during the purchase of feed inputs for livestock. Visit RiskManagement.Farms.com for more information.
DATA CAN HELP FEED THE WORLD

Human resources data, gleaned from surveys of employers and employees, can help the agricultural industry evolve.

By Bonnie Johnson

The United Nations indicated that we’ll need to feed 9.7 billion people by the year 2050. To account for the growing global population, agricultural production will need to increase by 60 per cent, according to World Agriculture Towards 2030/2050.

By encouraging careers in agriculture, our industry will make great strides in accomplishing these important goals.

The recent Careers in Agriculture E-book by AgCareers.com highlights many of these challenges, as well as the resources we can use to meet this demand. (This publication can be accessed at: agcareers.com/career-profiles/ag-careers-e-book.)

The agri-food industry will need an influx of qualified employees to meet the hefty load of feeding and nourishing a growing world.

AgCareers.com strives to “Feed the World with Talent” to address these needs.

Collecting, analyzing and presenting data from our industry helps employers recruit and retain the best talent, and assists candidates in their career searches. As a result, AgCareers.com actively engages in this work and releases several reports annually.

AgCareers.com also conducts at least one targeted market research project per year and collects specialized data based on location, career type or industry sector. One such study is the Employee Compensation in Pork Production project for the National Pork Board.

The following article provides a breakdown of the data we analyze and the resulting types of information that can be used to benefit the agricultural industry.

Job outlook

Every year, AgCareers.com analyzes website trends in our Job Outlook Report. By examining jobs posted, we investigate trends in agricultural careers and recruitment. We compile region-specific or global data, such as the top industry types or top career types. In 2017, employers posted the highest number of positions in the sales/retail career type, followed by farm and ranch operations/herdperson/on farm.

For those positions in which the educational level was specified, half required a bachelor’s degree or higher.

From the applicant perspective, 63 per cent of individuals had a bachelor’s degree or higher. More than half of applicants were currently in an agricultural occupation and nearly 60 per cent had an ag-related degree.

What are candidates looking for? In 2017, the top three searched words on AgCareers.com were sales, agronomy and internship.

HR REVIEW

Agribusinesses want and need to know what their fellow ag employers are experiencing and doing related to human capital. The AgCareers.com Agribusiness HR Review is an annual questionnaire that documents human resource trends and practices of agricultural companies.

Employers felt competing for talent and difficulties with recruitment were their most concerning human resource matters, according to data from the latest 2017-2018 U.S. and Canadian HR Reviews.

American participants agreed that technical and hourly roles were most difficult to fill, while Canadian participants said sales roles were most challenging to fill. Employers’ challenges in recruitment were related to the fact that applicants did not have the required skills, respondents said.

Employers can leverage data from the HR Review to remain competitive both inside and outside the industry.

Overall, 88 percent of companies experienced an increase in salaries during the past year, according to data from the latest HR review conducted in the summer of 2017. A larger group of respondents (97 percent) said some or all staff would see salary increases in the next year.

TOP 10 CAREER TYPES ON AGCAREERS.COM IN 2017

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<th>Rank</th>
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<tr>
<td>1</td>
<td>Sales/retail</td>
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<tr>
<td>2</td>
<td>Farm and ranch operations/herdperson/on farm</td>
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<td>3</td>
<td>Accounting/finance/asset management</td>
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<td>Operations</td>
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<td>Maintenance/repair</td>
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<td>Business development/strategic management</td>
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<td>Operator/general laborer</td>
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<td>Manufacturing/production</td>
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<td>Custom applicator/pest control</td>
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<td>10</td>
<td>Agronomist</td>
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By Bonnie Johnson
AgCareers.com also examined employee attrition, bonus schemes, benefits and flexible staffing.

**Compensation**

Competitive compensation systems are a top way in which employers compete with other employers for candidates. Fair and competitive compensation systems are also a common HR concern among ag employers. Agribusinesses are increasingly aware that, if they fall behind in compensation rates, this issue could have serious consequences for their abilities to compete against other employers.

Around half of the agribusinesses we surveyed performed compensation studies in the past year. AgCareers.com also conducts the Compensation Benchmark Review (CBR), which is one such industry-specific study. The CBR is the leading online agribusiness salary survey in North America. The survey provides validated data specific to the agribusiness industry in a comprehensive format.

CBR data is available in multiple reporting formats so participants can easily benchmark and compare their compensation data to like companies. Each year, companies report the salaries of about 100,000 North American employees to AgCareers.com for benchmarking. Employers can access figures for over 230 positions in the database. They can see how their base salaries, performance pay and benefits stack up against competitors in the same location, position, sector and company size.

For instance, based on American CBR data from March, a farm swine worker has an average base salary of US$27,816.

**Internships**

As noted in our earlier discussion of keywords, AgCareers.com visitors are strongly interested in internships. Employers also use formal internship programs as one of their primary methods of attracting new graduates.

To improve the experience for both interns and employers, AgCareers.com conducts the Internship Benchmark Survey every summer. The survey allows interns to provide positive and constructive anonymous feedback, and provides participating companies with student evaluations of their programs in an industry benchmarking format.

Analyzing 2017 internship data, we discovered that employers formally reviewed 77 percent of interns, the most common benefit offered to interns was overtime pay,
and 99 percent of interns would recommend their employers to friends. Employers can benchmark their results against other ag companies and also receive very candid, pointed suggestions from interns on what to improve upon.

**Employer surveys**

AgCareers.com surveys and collects additional data from agricultural employers to assist candidates in the job search process and to help employers understand what their counterparts are experiencing.

We are currently conducting the Diversity in the Workplace survey. We have also surveyed employers about the hiring of military veterans, interns and new graduates, as well as total rewards.

**Candidate surveys**

We survey job seekers and collect candidate data to provide feedback and information to agricultural employers, but also to help candidates understand their fellow job seekers. AgCareers.com will be launching a candidate experience survey soon, but has already surveyed job seekers about their motivations, behaviors, gender roles and equality, as well as their perceptions of the industry and the job search process.

Bonnie Johnson has twenty years of professional marketing experience, including nearly eight years with AgCareers.com. As a marketing associate, she supports the team and brand through marketing and communications efforts. This includes internal and external communications, email marketing, company branding, market research and data analysis. Bonnie was raised on a farm in northeast Iowa, and has a master’s degree from Iowa State University.

AgCareers.com continues to evolve its research to target human resource trends in the agricultural industry. The company is committed to its role as a leading market research provider for the agri-food industry. Much of AgCareers.com’s research data is available to the public and may be downloaded at agcareers.com/reports.cfm. If you would like additional market data to assist in building the talent pipeline or have suggestions for market research, please contact us at agcareers@agcareers.com.
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Producers demanded stainless steel, low cost per sow, high throughput and a design rugged enough to service commercial scale Canadian farms, built here in Canada. SowChoice delivers! Its modular construction frees producers from the “one design fits all” trap. Industrial rated controls that do not fail and the best warranty in the business to back it all up.

“Fully integrated software takes up to 40% less time to do our data management. I only realized after a year of operating with SowChoice, Powered by PigCHAMP, how much of a pain it was to always keep the European ESF synchronized between the production and feeding software.”

Keith Sensenig
Owner of 950 head sow barn - Memphis, Missouri

Visit www.sowchoicesystems.com or call 1-800-260-5314 for more information.

Visit us at World Pork Expo - Booth V305
"We raise them for us; that means we owe them some respect. Nature is cruel but we don’t have to be."¹
- Dr. Temple Grandin


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