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Benchmark Resources Online
These articles, along with articles from past Benchmark magazines and additional information from the experts can be found at the Benchmark website: www.benchmark.farms.com. We invite you to visit the site and add your comments on the Benchmark blog. If you have any additional information and/or relevant articles, tell us about them and we will post them at the site. You can also access the Benchmark site from the swine page at: www.swine.farms.com.
Farms.com Ltd and PigCHAMP are pleased to bring you the 2009 edition of **Benchmark – Setting Higher Standards in Pork Production**. With the present economic situation, it is more important than ever to look for ways to gain advantages in efficiency and productivity. The more you know about your operation, the better equipped you are to make improvements in key areas. This is the objective of **Benchmark**.

Benchmarks are identified as stable points to provide reference for further measures. As such, they help you identify areas of – and opportunities for – improvement as well as areas in which you are doing well compared to the “average.”

While there are many important production traits, increased emphasis is being placed on maximizing the value of the sows in your herd. As such, this issue focuses on **Sow Longevity and Lifetime Performance**. The topics were selected and developed by recognized leaders in this field at Iowa State University and the University of Minnesota. The authors have provided thought-provoking, challenging articles that address this important area.

The benchmark information is complemented by other articles to help you set higher standards for your operation, including market research and analysis, human resource development, and new advances in recordkeeping software and disease management.

If you are not already participating in the PigCHAMP Benchmarking program, we strongly encourage you to do so. Producers in this program receive quarterly updates of how their operations compare to benchmark averages, all at no additional charge. PigCHAMP also offers in-depth, customized reports for a small fee.

A special thank you goes to John Deen and Sukumaran S Anil at the University of Minnesota for compiling the benchmark data; and to Ken Stalder and John Mabry at Iowa State University for their help in coordinating the articles. Thanks also to Susan Olson, Benchmarking Manager at PigCHAMP, who makes sure the information in the magazine is as accurate and timely as possible; and to JoAnn Alumbaugh, **Benchmark** editor. Finally, a sincere thank you to our advertisers – your support is appreciated.

We hope you find this year’s **Benchmark** publication helpful in your operation, and we look forward to meeting your needs in the future.

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DISCIPLINED BENCHMARKING
Knowing the common mistakes may help you avoid them.

By John Deen and Sukumaran S Anil

In the literature, benchmarking is viewed as a valuable but often abused business practice. It also takes more work and discipline than we sometimes plan to invest. To review the opportunities and threats of benchmarking, we have enlisted the guidance of the author Anne Evans, whose article, Avoid These Ten Benchmarking Mistakes, can be found at www.swine.farms.com.

These 10 mistakes are common across different industries, and it is good to apply these guidelines to our exercises as well.

Mistake #1: Confusing benchmarking with participating in a survey
Surveys have many different biases. The most common survey deficiency is that it is not based upon common calculated methodologies and, in many cases, is based upon a biased recollection of past events. This bias is often compromised by commonly held expectations in the industry. In this issue of Benchmark, we have used actual PigCHAMP production records and not a survey to provide estimates for benchmarking.

Mistake #2: Thinking there are pre-existing “benchmarks” to be found
Off-the-shelf benchmarks are often historic in nature and may not reflect technological trends. Benchmarks must consistently be updated and contextualized within their areas.

Mistake #3: Forgetting about service delivery and customer satisfaction
Not all production and economic parameters can be benchmarked. Some qualities — particularly those of concern to customers of the product — need to be considered in benchmarking also. Though not always true, a common syndrome is that benchmarks are overemphasized to the detriment of other issues. Many in business circumstances speak of a “balanced scorecard,” to allow monitoring of all concerns of the firm.

Mistake #4: The process is too large and complex to be manageable
The summary numbers of the system are often the “most attractive” to benchmark. Reporting and providing comparison is simple, but this does not allow one to get down to the basics of the opportunities in the production system. Breaking down benchmarks to the level of tasks or management areas is very useful.

Mistake #5: Confusing benchmarking with research
Benchmarking looks at the process that is already in place. Innovation in any area, including the utility of genetics, nutrition, or treatment protocols should be assessed through a more formal method than benchmarking.

Mistake #6: Misalignment
Misalignment occurs when the benchmarking focus is something that is not within the overall strategy of the unit. This is less common in pig production, as returns are a function of some common resources. However, consider that maximization of output may not always be needed. We have recently seen a great deal more emphasis on the quality of the pigs produced rather than the absolute number of pigs.

Mistake #7: Picking a topic that is too intangible and difficult to measure
Many concerns, such as customer satisfaction, can just be too difficult to measure for comparative purposes. The records reported here are based on tangible outcomes that can be repeatedly measured.

Mistake #8: Not establishing the baseline
The baseline production measures in your own herd also need to be defined correctly. The use of common record keeping rules and formulas need to be the basis for comparison. When and then formulas differ, those differences must be thoroughly understood and then compensated in the comparisons.

Mistake #9: Not researching benchmarking partners thoroughly
There is a general rule in benchmarking that you should not ask a question that can be answered through other methods. Benchmarking should be used in concert with other information on the characteristics of the industry. In addition, the context of these benchmarks should be understood. Times of financial stress may result in differences in performance and optimal activities.

Mistake #10: Not having a code of ethics and contract agreed upon with partners
Direct arrangements with partners can often be limited by different expectations. A common agency for collection and interpretation is often useful. Such a list as this highlights the opportunities and constraints of benchmarking reproductive output on North American swine farms. The farms represented in the summaries on the following pages cooperate in the PigCHAMP Benchmark program to define further opportunities for themselves and the industry. We hope the information created is of use to you.

Editor’s Note: John Deen, DVM PhD, is an Associate Professor at the University of Minnesota, and Sukumaran S Anil, DVM PhD, is a Research Associate at the University of Minnesota. To contact them, e-mail: deenj006@umn.edu or sukum001@umn.edu
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SUMMARY OF THE 2008 DATA
The results are only as good as the data.

By Susan Olson

Yearly benchmarks serve as "state-of-the-industry" reports that provide both motivation for change and recognition for how far the industry has come. The PigCHAMP annual year-end benchmark, for example, reports average production values as well as the upper and lower 10th percentile values for participating sow farms.

But what does it all mean? For pork producers, the annual PigCHAMP benchmark data and analysis offer points for herd comparisons. In many ways, the annual benchmarks are like new technology—their value lies less in the possession and more in the implementation. And that leads into benchmarking—the active use of benchmarks to improve productivity.

Although the content of quarterly and year-end benchmarks may be limited to an extent, they provide relevant information. And as with other technologies, the value of the benchmarks lies within the implementation of benchmarking and the steps taken toward herd improvement as a result of the findings.

The first step in creating benchmarks is the

<table>
<thead>
<tr>
<th>USA 2008 - Annual summary</th>
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</thead>
<tbody>
<tr>
<td><strong>Care3000 variables</strong></td>
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<tr>
<td>Repeat services</td>
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<tr>
<td>% Repeat services</td>
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<tr>
<td>Total services</td>
</tr>
<tr>
<td>Farrowings</td>
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<tr>
<td>Farrowing rate</td>
</tr>
<tr>
<td>Total born</td>
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<tr>
<td>Total born per litter</td>
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<tr>
<td>Total liveborn</td>
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<tr>
<td>Liveborn per litter</td>
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<tr>
<td>Liveborn/female/year</td>
</tr>
<tr>
<td>Stillborn</td>
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<tr>
<td>Stillborn per litter</td>
</tr>
<tr>
<td>Total unmummified</td>
</tr>
<tr>
<td>Mummified per litter</td>
</tr>
<tr>
<td>Sows weaned</td>
</tr>
<tr>
<td>Piglets weaned</td>
</tr>
<tr>
<td>Piglets weaned per litter</td>
</tr>
<tr>
<td>% Total losses of liveborn</td>
</tr>
<tr>
<td>Average weaned weight</td>
</tr>
<tr>
<td>Piglets age at weaning</td>
</tr>
<tr>
<td>Piglets weaned/sow/year</td>
</tr>
<tr>
<td>Piglets weaned/female/year</td>
</tr>
<tr>
<td>Total boars</td>
</tr>
<tr>
<td>Sows added</td>
</tr>
<tr>
<td>Sows culled or sold</td>
</tr>
<tr>
<td>% Cull per year</td>
</tr>
<tr>
<td>Sows died</td>
</tr>
<tr>
<td>% sow deaths per year</td>
</tr>
<tr>
<td>Total sows</td>
</tr>
</tbody>
</table>
establishment of a database that includes the records of the farms that share in the benchmarking project. To allow comparison, farms with stable herds that have reported production throughout the calendar year are included.

To benchmark breeding herd performance, farms to be included for analysis are selected. This is a two-stage selection process, based on completeness of the data for the benchmarking period (quarter or year) and stability of the sow inventory.

A performance trend report is run and only those farms with complete data for the entire period are considered for benchmarking. This is followed by generation of data integrity checks for each of the farms selected. The last day of the report is the last day of the benchmarking period in both the performance trend report and data integrity check. The value of the percentage change in inventory for the final year is checked to determine the eligibility of the farm to be included for benchmarking. If the percentage change in inventory is more than 40%, the farm is excluded.

These criteria are essential to ensure the quality of benchmarking. Inclusion of farms with incomplete data may adversely affect the ability to generalize the benchmarks for one or more variables. Similarly, farms with excessively unstable female inventories may be indicative of rapid expansion or termination of operations. These variables can have extreme values that may not represent the production performance or sustainable achievement of the herd.

Of course, other measures should be considered in validity, including biologic consistency. Most of these validity steps are included within PigCHAMP Care 3000 during data entry. Together, they create the opportunity to increase the confidence and repeatability of reported productivity levels in participating farms.

Editor's Note: Susan Olson is the Knowledge Center Manager for PigCHAMP, Inc.

### Canada 2008 - Annual summary

<table>
<thead>
<tr>
<th>Care3000 variables</th>
<th>DOS variables used</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Upper 10 percentile</th>
<th>Lower 10 percentile</th>
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</thead>
<tbody>
<tr>
<td>Repeat services</td>
<td>Number repeat services</td>
<td>277.41</td>
<td>350.956</td>
<td>108.00</td>
<td>671.00</td>
<td>30.00</td>
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<tr>
<td>% Repeat services</td>
<td>Percent repeat services</td>
<td>8.75</td>
<td>3.909</td>
<td>7.70</td>
<td>15.00</td>
<td>4.80</td>
</tr>
<tr>
<td>Total services</td>
<td>Total number of services</td>
<td>2601.82</td>
<td>2468.253</td>
<td>1687.00</td>
<td>6252.00</td>
<td>450.00</td>
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<tr>
<td>Farrowings</td>
<td>Number of sows farrowed</td>
<td>2358.84</td>
<td>1999.981</td>
<td>1483.00</td>
<td>5264.00</td>
<td>340.00</td>
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<tr>
<td>Farrowing rate</td>
<td>Farrowing rate</td>
<td>85.02</td>
<td>4.790</td>
<td>83.50</td>
<td>89.55</td>
<td>77.40</td>
</tr>
<tr>
<td>Total born</td>
<td>Total pigs born</td>
<td>29954.71</td>
<td>25404.50</td>
<td>20126.00</td>
<td>66871.00</td>
<td>4300.00</td>
</tr>
<tr>
<td>Total born per litter</td>
<td>Average total pigs per litter</td>
<td>12.71</td>
<td>0.591</td>
<td>12.55</td>
<td>15.57</td>
<td>11.93</td>
</tr>
<tr>
<td>Total liveborn</td>
<td>Total pigs born alive</td>
<td>26901.06</td>
<td>22997.36</td>
<td>18087.00</td>
<td>61220.00</td>
<td>3685.00</td>
</tr>
<tr>
<td>Liveborn per litter</td>
<td>Average pigs born alive/ litter</td>
<td>11.55</td>
<td>0.544</td>
<td>11.30</td>
<td>12.20</td>
<td>10.84</td>
</tr>
<tr>
<td>Liveborn/female/year</td>
<td>Litters/Fem/yr * Ave pigs born alive/ litter</td>
<td>25.67</td>
<td>2.073</td>
<td>25.45</td>
<td>27.81</td>
<td>24.20</td>
</tr>
<tr>
<td>Total stillborn</td>
<td>Total stillborn pigs</td>
<td>1964.71</td>
<td>1715.703</td>
<td>1217.00</td>
<td>5967.00</td>
<td>367.00</td>
</tr>
<tr>
<td>Stillborn per litter</td>
<td>Average stillborn pigs</td>
<td>0.89</td>
<td>0.259</td>
<td>1.00</td>
<td>1.00</td>
<td>0.60</td>
</tr>
<tr>
<td>Total weaned</td>
<td>Total weaned pigs</td>
<td>674.24</td>
<td>591.929</td>
<td>475.00</td>
<td>1664.00</td>
<td>46.00</td>
</tr>
<tr>
<td>Average weight</td>
<td>Average weaned weight (N=14)</td>
<td>94.29</td>
<td>55.206</td>
<td>61.90</td>
<td>140.00</td>
<td>53.28</td>
</tr>
<tr>
<td>Average age at weaning</td>
<td>Average age at weaning</td>
<td>20.24</td>
<td>1.940</td>
<td>20.22</td>
<td>22.16</td>
<td>17.90</td>
</tr>
<tr>
<td>Piglets weaned/sow/year</td>
<td>Pigs weaned / mated female / year</td>
<td>23.36</td>
<td>2.538</td>
<td>23.40</td>
<td>25.80</td>
<td>21.12</td>
</tr>
<tr>
<td>Piglets weaned/female/year</td>
<td>Pigs weaned / female / year</td>
<td>22.42</td>
<td>2.133</td>
<td>22.69</td>
<td>24.52</td>
<td>21.06</td>
</tr>
<tr>
<td>Total boars</td>
<td>Ending boar inventory</td>
<td>8.46</td>
<td>0.309</td>
<td>9.00</td>
<td>21.00</td>
<td>0.00</td>
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<tr>
<td>Sows added</td>
<td>Females entered</td>
<td>245.12</td>
<td>415.836</td>
<td>0.00</td>
<td>882.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Sows culled or sold</td>
<td>Sows and gilt culled</td>
<td>420.12</td>
<td>327.042</td>
<td>329.00</td>
<td>968.00</td>
<td>45.00</td>
</tr>
<tr>
<td>% Cull per year</td>
<td>Culling rate</td>
<td>43.68</td>
<td>14.504</td>
<td>44.10</td>
<td>65.11</td>
<td>24.20</td>
</tr>
<tr>
<td>Sows died</td>
<td>Sow and gilt deaths</td>
<td>94.82</td>
<td>97.807</td>
<td>50.00</td>
<td>254.00</td>
<td>17.00</td>
</tr>
<tr>
<td>% sow deaths per year</td>
<td>Death rate</td>
<td>9.12</td>
<td>4.552</td>
<td>7.80</td>
<td>17.98</td>
<td>4.56</td>
</tr>
<tr>
<td>Total sows</td>
<td>Ave female inv - Ave gilt pop inv</td>
<td>984.54</td>
<td>857.000</td>
<td>592.00</td>
<td>2291.10</td>
<td>186.00</td>
</tr>
</tbody>
</table>

Total farms used for summary = 17
The pork industry is becoming more interested in the length of time that sows remain productive within commercial operations. The interest in this trait is largely the result of the very tight economic situation that virtually all pork producers are currently experiencing throughout the world. Furthermore, the general public is becoming more concerned with the activities associated with the production of the meat they consume and animal well-being on the operations that produce this food. Furthermore, producers benefit when sows remain productive for a longer period of time in their breeding herds.

Because the costs can be spread across a greater number of piglets, producers are financially rewarded for having sows with an improved productive lifetime. The contrary is also true. If a particular producer is struggling with high replacement rate and he/she has a very high percentage of sows that do not remain in the herd long enough to pay for themselves, the producer is losing money. This type of situation slowly eats away at an operation's equity until it is in financial trouble.

Typically, pork producers have used average parity at culling as an indicator of how their herd was doing from a sow longevity viewpoint. Of course, sow longevity is the length of time that a sow remains in the breeding herd. Examining the average parity at culling as a benchmark to see how we are doing as a commercial pork industry is informative. Table 1 shows the average removal parity from 1996 through 2004. These results are based on 515,194 sows removed from 132 farms during the period 1996 to 2007. To give the sows a possibility to show their real lifespan, only sows with their first farrowing between 1996 and 2004 were included. The average removal parity peaked at just over 5 parities in 1998 and has been on a slow, steady decline to just over 4 parities through the end of the reported data in 2004.

Not only should producers examine removal parity as a measure of sow longevity, but length of productive life or sow productive lifetime more accurately describes the ultimate goal for producers, so long as non-productive days do not increase above acceptable levels. Length of productive life more accurately describes the trait that pork producers are concerned with. This is the indication of how long individual sows remain productive (farrow a litter of pigs, lactate for ~ 21 days, return to estrus, successfully conceive, complete gestation, and finally farrow again).

How long sows remain productive can be measured in days of age from birth to culling, herd-life from entry into the herd through culling, number of successful parities completed, etc. The entire goal of this period is to produce as many pigs born alive and then as many standard pigs (i.e. full value pigs) at weaning as possible. This allows the initial cost of the replacement gilt and associated development expenses to be spread across a greater number of piglets produced during the sow’s lifetime.

MEASURING EFFICIENCY

There are numerous ways to measure the efficiency of the breeding herd. Many operations focus on litters per sow per year and pigs per sow per year. These values tell producers nothing about the lifetime productivity of an individual sow or on a herd-level basis. When all is said and done, the number of full-value lifetime pigs born alive, and lifetime number of full-value pigs weaned, combined with the price received for the pigs, determines whether the purchase of individual sows is a profitable decision.

TABLE 1. Average sow productive lifetime calculated on herd level (N=132) from U.S. pork producers participating in the Datashare program with PigCHAMP.1

<table>
<thead>
<tr>
<th>Study</th>
<th>Average</th>
<th>Min</th>
<th>Max</th>
<th>25% superior</th>
<th>10% superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd life, days</td>
<td>579</td>
<td>279</td>
<td>982</td>
<td>641</td>
<td>727</td>
</tr>
<tr>
<td>Removal parity</td>
<td>4.5</td>
<td>2.7</td>
<td>7.1</td>
<td>5.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Total piglets born</td>
<td>51.8</td>
<td>28.5</td>
<td>79.0</td>
<td>57.1</td>
<td>62.6</td>
</tr>
<tr>
<td>Total piglets born alive</td>
<td>46.4</td>
<td>25.4</td>
<td>71.4</td>
<td>51.6</td>
<td>56.4</td>
</tr>
<tr>
<td>Number of piglets weaned</td>
<td>40.6</td>
<td>22.3</td>
<td>64.1</td>
<td>45.2</td>
<td>49.3</td>
</tr>
</tbody>
</table>

ACROSS-THE-BOARD

The different measures for productive lifetime can differ substantially within and across pork operations. Table 1 shows the variability for a number of sow productive lifetime traits. Because the actual age of the replacement gilt is often not known or recorded, the number of herd days is defined as the number of days from first farrowing to the removal event. The average herd life was 579 days and ranged from a low of 279 to a high of 982.

Assuming that gilts farrow at a year of age, you could add 365 days to these numbers to estimate the true age at culling. The average removal parity within this same data set was 4.5 and ranged between a low of 2.7 and a high of 7.1. When looking at how the top herds perform, the top 25% of herds average 641 days from first farrowing to removal and have an average parity at removal of 5. Similarly, the top 10% of herds average 727 days from first
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parity to removal and have a 5.5 average parity at removal. A closer examination of the average removal parity from Figure 1 shows that the most recent year (2004) where complete records were obtained, the average removal parity was just over 4 and is lower than the overall average. This suggests that on average, U.S. commercial pork operations are not doing as well from a herd-life standpoint as we were just a few years ago.

**SIGNIFICANT INVESTMENT**

Producers incur costs when deciding to replace an old sow with a new replacement gilt. First, the replacement gilt has an initial cost; second, there are numerous development costs (vaccination, housing, etc.); third there are breeding costs associated with getting the gilt mated and included in the breeding herd. Finally, not all gilts selected enter the breeding herd and hence, these gilts incur all of the developmental and other costs that a gilt entering the breeding herd does. Those sows that do enter the breeding herd have to cover the expenses of the non-breeding gilts. These costs add to the initial cost of the breeding gilt. It is easy to see how a significant amount of money is invested in a replacement gilt by the time they enter the breeding herd. These costs are the same whether a gilt stays in the herd for only 2 parities or remains for 15 parities. At the end of the day, pork producers should think of their sows as investments; you should want to get as much of a return ($) as possible with each investment.

Since we expect sows to return as much income as possible in order for a pork operation to remain profitable over the long term, it is important to understand how producers can increase the returns for each sow. The number of pigs produced is the item that has value in a pork production operation. Therefore, the number of pigs born alive and subsequently the number of pigs weaned over the lifetime of the sow is what generates the economic value. As you might expect, the lifetime number of pigs born, pigs born alive, and pigs weaned vary substantially as shown in Table 1. It is important to examine both the number of lifetime number of piglets born and lifetime piglets born alive. The number of lifetime piglets born includes still born piglets or what is commonly referred to as fully formed piglets (excludes mummified piglets). The stillborn piglets may represent opportunity for number born live improvement if a producer can determine the cause and alter management practices to save more piglets at birth. Likewise, it is obvious that a piglet must be born alive before it can be weaned. Finally, examining the number of piglets weaned per lifetime is useful because the market has established a value for the piglet at that point. Furthermore, management can drastically impact the percentage of piglets weaned that are sold as full-value market hogs, which has little, if anything, to do with the sow that produced it. The herd average for lifetime piglets born, born alive and weaned were 51.8, 46.4, and 40.6, respectively. The range in the herd average for number of piglets weaned was from a low of 22.3 and a high of 64.1. The top 25% of herds averaged 45.2 lifetime pigs weaned while the top 10% of herds averaged 49.3 lifetime pigs weaned.

**BOTTOM LINE**

At the time of writing this article, the price for full-value weaned pigs on the spot market was approximately $36 per head. Using this number, combined with the average sow producing 40.6 pigs weaned, results in a gross revenue of $1,462. The range in gross revenue was from a low of $803 (22.3 pigs x $36 per pig) to a high of $2,308 (64.1 pigs x $36 per pig). Similarly, the top 25% of herds averaged 45.2 resulting in a gross value of $1,627 (45.2 pigs x $36 per piglet) and the top 10% of herds averaged 49.3 lifetime piglets produced resulting in a gross revenue value of $1,775. In a 2,500-sow operation, the difference between being an average producer with sows producing 40.6 pigs per lifetime and a top 10% producer who gets 49.3 pigs per lifetime means a difference of $782,500 gross revenue for the operation, or over $300 per sow ($4,437,500-$3,655,000 = $782,500, (2,500 sows x $1,775 = $4,437,500 per sow gross revenue from a top 10% herd) - (2,500 sows x $1,462 = $3,655,000 per sow gross revenue from an average herd). This clearly demonstrates that the management to attain the greater productivity has significant economic benefit.

Examining the data from a sow level rather than from a herd level, the range in parity at culling is from 1 to 20 (data not shown) and the maximum lifetime number born alive and weaned were 224 and 173, respectively. As shown, occasionally you might even find the individual sow that can remain in the herd for 20 parities and produce as many pigs as 170 pigs weaned or even more in a productive lifetime.

We should not expect every sow or even the majority of sows to produce 20 litters and/or 170 pigs during their productive lifetime. However, these data demonstrate the management potential that exists within some herds and the genetic potential that exists within some sows to produce at such high levels.

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Editor's Note: Dr. Ken Stalder, PhD, Dr. John Mabry, PhD, and Dr. Linda Engblom, PhD are in the Department of Animal Science at Iowa State University, Ames, IA.
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VARIATION IN SOW FARM OUTPUT

The problem is with pigs per sow space.

By John Deen and Sukumaran S Anil, University of Minnesota

Here is a simple question: What is the difference between pigs per sow per year and pigs per sow space per year? This is a more complicated question than you might think, but it is an important question, particularly as we look at sow longevity.

Sows are removed from the herd due to death, or due to culling under three scenarios:
- The sow is immediately replaced with a cycling gilt that comes into estrus as the sow is removed. This may be the case when a sow is removed at weaning and a prepared gilt is ready to replace the sow. In some ways, this is the perfect pass within the sow space, and the only thing we have to worry about is that the performance of the replacement gilt equals or exceeds that of the sow. The gilt inventory is synchronized with the culling behavior.
- The sow is immediately replaced with a cycling gilt whose estrus is not synchronized with removal. Therefore, there is, on average, half of 21 days to breed the animal. This can be considered a pretty good pass, as the makeup time is easily identified.
- The sow is not immediately replaced. This may be due to the fact that the breeding group has already been established and no further sows can enter the herd at that time, or it may simply be that there are no gilts available. This can be considered the dropped pass, where the sow space remains empty for some time.

These scenarios are closely linked with the type of culling seen in the herd. More often than not, sows culled at weaning have ready replacements. However, sows culled at later times are often not readily replaced, and this type of culling has a discreet effect upon the functional capacity of the sow herd.

There is, in our opinion, a big problem in emphasizing pigs per sow year instead of pigs per sow space per year when we examine culling strategies. Here is the simple question: If a sow was removed due to low expected performance, should we differentiate that decision based on whether or not there is a replacement ready and available?

There are many cases where a sow was removed and the space was left empty for extended times. Such behavior improves pigs per sow per year but decreases pigs per sow space per year.

In economic terms, the basic question is whether sows should be retained if there is no replacement. We believe they should be, if there is not a welfare concern. In these cases, the sow can easily cover her feed costs, even with low productivity.

Figure 1 shows the relationship of pigs per mated female per year and pigs per sow space per year across 14 herds for 2008. There is a generalized relationship between pigs per mated female per year and pigs per sow space per year, but it is far from a simple relationship. It also looks as if once the farm reaches a plateau, there seems to be a lessened capability to produce pigs per sow space.

This review shows there is real variation in sow farm productivity that may not be explained simply by pigs per sow per year. In the future, producers should look more closely at the capability to use the facilities they have. There is real variation in facility utilization over the seasons as well, and these factors should be examined in further detail.

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There are many cases where a sow was removed and the space was left empty for extended times. Such behavior improves pigs per sow per year but decreases pigs per sow space per year. – John Deen and Sukumaran S Anil
KNOW WHEN TO CULL AND REPLACE

Refine your practices to maximize production and profits.

By Stephanie Rutten-Ramos

Sow culling and subsequent replacement rates represent economic opportunities for producers. According to PigCHAMP Annual Summaries, sow culling rates have increased over the last 10 years from median values of 43.6% to 48.7% and averages of 45.5% to 47.0%. Sow culling serves two general purposes. First, it is a tool to remove sows with problems related to their health or welfare (i.e., lameness, discharges, etc.). Second, it is a tool to replace minimally productive (i.e., failure to conceive, small litter size) and aging females.

While the ability to cull for sow health and welfare is a critical component of good husbandry, the need for such removals may also reflect an opportunity to improve gilt selection, acclimation, sow nutrition and other herd practices.

Culling for performance reasons presents both production and economic opportunities. However, effective production-based culling requires an ability to reliably predict the future performance of a given animal. While production-based culls account for the majority of older-parity removal reasons, in many herds, they also account for approximately half of the removal reasons in the early and middle parities.

Despite perceptions, aggressive production-based culling may not be an economically effective strategy to improve performance. In fact, several studies have identified financial advantages, but not necessarily productivity differences, when herds employ lower culling rates and older parity structures (Kroes and Van Male, 1979; Jalvingh et al., 1992; Lucia et al., 2000; Koketsu, 2007).

The challenge with production-based culling lies in our ability—or inability—to predict the future performance of individual animals. While retrospective record analyses suggest that removals related to small litter size may be advantageous, the benefits of removals related to conception are less consistent (Rutten-Ramos and Deen, 2009).

Although this is an area for additional research, there may be a few factors contributing to the unreliability of fertility predictions. First, several factors contribute to sow fertility. These include season of the year, sow nutrition, mating timing, frequency of insemination, insemination technique and semen quality, just to name a few. If a decision to cull considers only the number of services and does not account for other influences, sows may actually be culled for factors not related to their ability to conceive. Second, because of the nature of how gilts are introduced to sow herds, aggressive sow culling may be used as a method to make room for incoming gilts. In such circumstances, liberal culling criteria may be employed, thereby weakening the removal/replacement outcome. And third, when a herd is experiencing a general challenge with conception, gilts do not tend to fare better than sows with respect to overall fertility and longevity.

Another important consideration with respect to sow culling is its impact on herd parity distribution. And while it may be conceptually simple to compare the single-parity performance of a sow to the expected first-litter performance of an “average” replacement gilt, the true productivity (and economic) comparisons are not that simple. If the determination of when to keep and when to cull a sow seeks to optimize the economic value of the sow space, then sow survival must also be considered. For example, fourth parity sows have a higher probability of achieving five parities than do the parity one sows which have yet to survive through parities two, three and four. And the incorporation of sow survival into removal decisions may warrant different culling standards as sows age.

Furthermore, parity structure evolves over time according to removal rates within parities (Figure 1.). If a herd employed a consistent within-parity removal rate over time, it would find that the natural changes in parity distribution generate periods of greater and lesser productivity, especially in the first few years.

By understanding the factors that contribute to sow culling, as well as the consequences of sow culling decisions, herds can refine their practices to generate both economic and production advantages.

![Editor’s Note: Stephanie Rutten-Ramos received her DVM and PhD from the University of Minnesota and is an independent consultant. To contact her, e-mail: rut0011@umn.edu](image)
WHO SAYS
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What a difference a year makes! In 2008, the livestock and grain complexes experienced new contract highs for many futures contracts. See the June 2008 CME Lean hog chart (Figure 1) closing at U.S. $100.20/cwt on July 3, 2008. We also experienced the July 2008 Chicago corn futures contract closing at U.S. $8.1575/bu on June 26, 2008.

One word, AMAZING! In the first half of 2008, we were all living in a very different world with global economic growth, global consumption of meats and grains on the rise and speculative money at all-time highs chasing the new vogue commodities. This year we are experiencing a global financial meltdown and recession. Markets are in turmoil, causing global economies to contract, demand and prices to fall, and investors and speculators to look for clarity from all the uncertainty. They hope for clarity from the daily economic indicators, the headlines or directly from U.S. President Obama and his dream team.

The volatility is unprecedented. Where is the Obama rally? The rally has fizzled and led to a 2100-point decline on the DJIA (Dow Jones Industrial Average) since the beginning of the year. Unfortunately, the outside markets, which are the equity markets, rule the day and have a major influence on all markets globally.

The negative bearish sentiment or psychology is being applied to all asset classes with the same brush. Supply fundamentals are actually somewhat supportive of livestock and grain prices but not in the face of all this bad economic news. No one seems to care.

Remember, markets will bottom-out a lot earlier than when the headlines turn positive. No one rings the bell at the top or at the bottom. Greed took us into extreme highs in 2008 and fear is taking us to extreme lows in 2009 vs. 2008. Based on history and cycles, a retracement should point us back to a mean or an average and that would be somewhere between the highs of last year and the lows of this year. For example, the June 2009 futures contract could retrace back to U.S. $85/cwt. Likewise, the July 2009 corn futures contract could come back to U.S. $5.74/bu.

The question is: When will the global economy recover and is there enough time left for the two contracts shown here to move higher? It may not happen in 2009, but if economies do recover in 2010, a V-shape recovery could signal a recovery by the end of the year, a U-shape would be sometime in 2010 and an L-shape would put the recovery beyond 2011. Economists disagree when recovery will take place, and only time will tell.

Greed took us into extreme highs in 2008 and fear is taking us to extreme lows in 2009 vs. 2008.

— Moe Agostino,
Farms.com Senior Risk Analyst
What we do know is that we are experiencing a very severe recession and the only difference from the 1930's depression and today are the global bailouts of the banks. The markets will recover with time and no one makes money panicking. Fear will eventually drive toward panic rallies, so expect a continuation to the wild ride.

Prices have already factored in the most pessimistic of scenarios, so be patient as there will be better pricing and selling opportunities in the future. A lesson learned from 2008 is to have a plan. As Boone Pickens likes to say, "A fool with a plan will always beat a genius with no plan." If producers had executed a plan in 2008 with less emotion, and sold hogs or crops at the highs when greed and speculators were your friends, you could have profited handsomely. However, no one has perfect 20/20 hindsight. We can not change the past, but we can plan for the future.

Editor's Note: Moe Agostino is a Senior Risk Analyst for Farms.com Risk Management. For more information on managing risk in your crop and/or livestock operation, contact Moe at: moe.agostino@farms.com. For more information, go to: www.riskmanagement.farms.com

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We continue to see significant differences between Canadian and American herds as well as differences in performance by season. As in previous years, Canadian herds are consistently higher in nearly all of the production parameters measured by PigCHAMP, as exhibited in the graphs shown here.

It is, however, important to consider seasonality. The differences charted show that we still do have seasonal infertility. Surprisingly, this has not decreased with intensification of agriculture, nor has it shown up as a decreased rate in Canada. Still, seasonality differences and sow mortality are both muted in comparison to performance differences.

Editor's Note: John Deen, DVM PhD, is an Associate Professor at the University of Minnesota, and Sukumaran S Anil, DVM PhD, is a Research Associate at the University of Minnesota. To contact them, e-mail: deen003@umn.edu or sukum001@umn.edu
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HIRE RIGHT!
Here's how to conduct an effective interview.

By Erika Brandt and Melinda Mullenix

Hiring the ‘right’ candidate isn’t as easy as advertising a position, reviewing a few resumes, or asking a few questions during an interview. A lot of work, preparation and practice are needed to perfect the art of finding the ‘right’ candidate. The cost of a ‘bad’ hire is said to be around $50,000 - $60,000/a hire on average. A much larger sum can be attributed to manager and executive level positions. This cost figures in advertising rates, time of recruiting staff, training, etc. But, it should be noted that this figure does not include some of the less tangible figures such as loss of productivity, customer satisfaction and employee morale, which can all be impacted by the void of an employee in a particular role.

“Conducting an effective interview continues to be of the utmost importance, particularly in a job market filled with qualified applicants,” says Melinda Mullenix, HR Services Manager for AgCareers.com. "Your impact during the interview process may make the difference when a top candidate is considering your organization’s offer versus your competitor’s. Remember that top candidates will continue to have options regardless of the marketplace ups and downs. The more prepared you are for the interview, the more respect you will earn from these top candidates.”

Eric Spell, President of AgCareers.com adds, “In an employer’s market like we have now, an employer may take the position that they are going to use this economic climate as an opportunity to “hire higher”—meaning replace subpar performers with ‘A’ players. While this is a good idea, such employers need to be careful that they do not offend existing ‘A’ players in the process. This strategy needs to be carefully executed and not jeopardize existing strong employer brand.”

Here’s a look at the overall interview process and tips to conducting an effective interview.

EFFECTIVE SELECTION
Obviously the ultimate goal of the hiring process is to locate a person that when hired will succeed in the position. Effective selection begins with a targeted group of candidates. To narrow down your applicant pool, begin with a detailed job description of the position for which you are hiring. Create a list of the qualifications and character traits necessary for the candidate to possess that are critical for success in the role. Perform pre-screening interviews with candidates that meet these qualifications.

Prior to pre-screening or phone interviews, be sure to review each resume carefully and look for ‘red flags,’ like gaps in employment. During pre-screening, be sure to address these issues and seek clarification from the candidate. This process also helps further narrow down your applicant pool. Throughout the process, stay organized and track communication and interview notes in one location. This will help with legal liability, but just as important, it helps you maintain consistency and keep your thoughts organized. After conducting several interviews, conversations can begin to run together.

PREPARATION
Mullenix suggests that preparation consists of answers to the following six questions:

- Who will be on the interview team?
- What type of interview will be conducted – formal, informal or a combination?
- Where will the interviews take place?
- How will you use the interview time?
- What questions will be asked in the interview?
- How will you summarize and report the evaluations?

When selecting those that will assist you with the interviewing process, a human resources representative and either a supervisor or a co-worker with similar responsibilities is the best option. Be sure that all interviewers are properly trained. Conduct interviews in a location that is private and without distractions. You want the candidate to be comfortable. Also, be sure your receptionist is aware that interviews are taking place so he/she can greet guests accordingly. Schedule ample time for each interview and allow time after each candidate to make notes.

SET THE STAGE
Most interviews are scheduled for 30 to 60 minutes, however longer interviews can also be conducted. When setting up the interview, be up front with the candidate on the length of the interview as well as how the candidate will be interviewed. For example, if you plan to have the candidate meet individually with three people, let him/her know that and provide the candidate with the names and titles of these people.

Make the candidate as comfortable as possible, and this is important. Trying to intimidate a candidate will not get you where you need to go. Begin by introducing yourself and ask “break the ice” questions, such as, “How did you find out about this job opportunity?” or “Did you have any problems finding our office?” Then move into general work-related questions, like, “Tell me about your job experience as it relates to this position,” or “Tell me about your current (last) position and your role there.” This will provide a natural progression into behavioral-based questions, which you will have developed beforehand.

ASKING QUESTIONS
The most common questions for interviews are behavioral-based. The principle behind this type of question is that past performance predicts future behavior or performance. Therefore, questions are centered on asking about a situation,
what was done, and the outcome. Behavior-based questions might begin with phrases like, "Tell me about a time when..." or "Give me an example of...". The remaining part of the question can be derived from using core competencies or those critical qualifications for success. For example, maybe you are looking for a farm manager that will have 10 to 15 employees reporting to them. An excellent behavioral-based question to better understand their management ability might be, "Give me an example of a time that you had to confront a difficult employee. What did you do? And, how did the situation turn out?"

The key to developing questions that will result in a good understanding of the candidate's ability is to focus on knowledge related to job expectations. Use the questioning period to reflect on whether or not the candidate will be a good job fit as well as a good organizational fit. Don't be afraid to ask probing or follow-up questions like "Can you expand on that?" or "Give me a similar situation and what you have done differently since this learning experience?"

Avoid questions that can be answered with a simple yes or no; leading questions; interrogating questions; and illegal questions. Illegal questions can typically be avoided if you stick to questions that are directly related to the job. Illegal questions include topics like age, gender, race, nationality, disabilities, sexual orientation, religion, or marital status.

At the end of the interview, invite the candidate to ask questions. The types of questions the candidate asks or if they ask any at all will give you even further insight into their priorities and interest level in the job and organization. To close the interview, thank the candidate and remind them of the selection process and time frame. Take this opportunity to 'sell' the candidate on the company and job, particularly if you were impressed. You want all candidates to leave with a positive impression and respect for your organization.

**EVALUATION**

Review your notes for each candidate and ensure that you have complete responses to determine core competencies or if a follow-up conversation is needed. Have each interviewer use a standard scale to measure the candidate's strength in each core competency. Hold a discussion among the interviewers to review the applicants and ratings. If you have more than one top candidate following this discussion, a second interview or follow-up discussion may be necessary. Finally, conduct reference checks for your top candidates. Review the offer process and on-boarding steps with your human resource staff to devise a plan and offer the most qualified candidate the position. The last step following acceptance of the job by your top candidate is to notify all other candidates that the position has been filled.

Following this protocol will help lead you, your organization and the new employee to a favorable outcome.

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**Editor's Note:** Erika Brandt (pictured) is the Marketing and Communications Manager for AgCareers.com and Melinda Multinius is Human Resource Services Manager for AgCareers.com. For more information on how to better conduct an effective interview, contact AgCareers.com at agcareers@agcareers.com. AgCareers.com is the leading online job board and human resource service provider for agribusiness.
SAVE MONEY BY KEEPING SOWS LONGER
You may be further ahead by giving sows a second chance as opposed to culling them right away.

By Linda Engblom, Ken Stalder and John Mabry

Sow removal is receiving more attention due to its impact on economic and animal well being considerations. High removal rate of breeding herd females is associated with poor longevity. When the average longevity is low, improvements can be highly profitable (Sehested, 1996). A decreased removal rate of sows reduces the costs for replacement gilts and thereby increases net income. Studies have shown that it takes at least three litters before a sow provides a positive cash flow for the producer (Lucía et al., 2000; Stalder et al., 2003). Reducing high replacement costs due to high removal is especially important today when the pig production industry is operating on very slim profit margins. The input cost for a gilt is the same, no matter how many parities she produces. Gilts should therefore be considered an investment that should be used as effectively as possible.

TOO MANY EARLY REMOVALS
Breeding stock suppliers recommend removal of old sows to allow genetic progress to be implemented on the farm. However, that is not the problem in the present environment. In 2007, the average culling rate in the United States was 49%, and average death rate was 9% (2007 summary of PigCHAMP database). This means that more than 50% of the sows, on average, were replaced. Removal of sows from 132 farms during a period from 1996 to 2007 was evaluated. Sows farrowing for the first time from 1996 to 2004 were included, resulting in 515, 194 removed sows. Results presented in Table 1 are averages from these 132 herds.

The average parity at removal was 4.5. Figure 1 shows that 18% of the sows are removed after parity 1 and that only 15% are productive through eight litters. So today, the problem is not too many old sows on the farms but too few sows that reach the higher parities. Typically, litter size increases up to parity five, but today fewer than 50% of the sows produce five litters.

**DIFFERENT KINDS OF REMOVALS**
Sow removal includes both culling and mortality. Removal of old sows is a natural component of piglet production and is called "planned removal." Planned removal also includes removal of sows with low productivity. Planned removals are not the challenging part of pork production, but unfortunately, more than 20% of sows are removed due to old age (see Table 1.) In addition, 11% are removed due to poor performance, mainly due to small litters at birth and weaning (7%). "Unplanned removal" includes removal of sows due to reasons such as reproductive failure, lameness and mortality. It is this unplanned removal that presents the greatest challenge for commercial pork producers since it accounts for almost 70% of the removals on American breeding farms. The most common unplanned reason is reproductive failure, which accounts for 32% of the removals. Most of these are culled due to return to estrus (17%) but lack of heat also is a commonly reported reason (8%). Locomotor disorders were another common unplanned removal reason, which accounted for 14% of the removals. This includes lameness (10%) and "downer" sows (4%).

The proportion of different removal reasons varies with removal parity number. Unplanned removal accounts for most of the removal in low parity numbers. The proportion of removal due to reproductive failure (e.g. return to estrus, lack of estrus) is almost 50% in parity one and decreases as parity increases. Reproductive failure represents the largest removal reason up to parity 5, where it accounts for 30% of the removals. Removal due to locomotor disorders mainly occurs in parities 1-5, whereas removal due to low productivity mainly occurs after parity 3. Removal due to old age is the most common removal reason after parity 6.

Today, sow removal from the breeding herd of commercial operations includes a substantial

<table>
<thead>
<tr>
<th>Table 1. Proportion of removed sows by removal reason</th>
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<tbody>
<tr>
<td><strong>Removal reason</strong></td>
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<tr>
<td>Reproductive failure</td>
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<tr>
<td>- Return to estrus/did not conceive</td>
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<tr>
<td>- No heat</td>
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<tr>
<td>- Farrowing difficulties/failure</td>
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<tr>
<td>- Abortion</td>
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<td>Old age</td>
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<td>Locomotor disorders</td>
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<tr>
<td>- Lameness</td>
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<tr>
<td>- Downer</td>
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<tr>
<td>Low productivity</td>
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<tr>
<td>- Litter size at farrowing or weaning</td>
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<tr>
<td>- Litter performance including growth</td>
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<tr>
<td>- Litter abnormalities or dead litter</td>
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<tr>
<td>Body condition</td>
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<tr>
<td>- Inferior body condition/unthrifty</td>
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<tr>
<td>- Injury/trauma</td>
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<tr>
<td>Miscellaneous</td>
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<tr>
<td>- Management/depopulation</td>
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<tr>
<td>- Other including size and behavior</td>
</tr>
<tr>
<td>Diseases</td>
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<tr>
<td>- Udder/vaginal-urine organs</td>
</tr>
<tr>
<td>- Gastrointestinal problems incl. ulcer</td>
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<td>- Infectious diseases</td>
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<td>- Heart- or lung diseases</td>
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Typically, a sow returning to estrus can be rebred twice for less money than it costs to rear or buy a gilt.

Proportion of sows that are not sent to slaughter. These sows are mortalities or are euthanized on the farm. Figure 2 shows that of the removed sows, 84% were sent to slaughter, 3% were euthanized on the farm and 12% were mortalities found on farm. Sows that are sent to slaughter represent a relatively small income due to cull sow value to the operation, but it is better than the zero-value alternatives of mortality or euthanization. In addition, the proportion of sow mortality is highest in low parity numbers. This is, therefore, the worst kind of removal, both in terms of economics and animal well-being.

Every farm is unique, with differing housing and management practices that may result in a specific removal pattern for each farm, and variation between farms is large. In the analyzed data, the average removal parity ranged from 2.7 to 7.1 and the proportion of removed sows sent to slaughter ranged from 57% to 99% between farms. The removal pattern reflects the farm's status and by analyzing the data, it is possible to find weak points to improve. For example, a farm with lameness problems should pay attention to feet and leg soundness when selecting replacement gilts, and floor surfaces throughout the breeding, gestation and farrowing areas should be evaluated. On the other hand, a farm with high removal rates due to reproductive failure should closely monitor management of the sow around the breeding phase. It is important that sows are bred at the correct time and that high quality semen is used.

**REDUCE EARLY REMOVAL**

The biggest challenge is that not enough sows reach the later parities. A too-high proportion (30%) of sow removals occurs before the sows reach parity 3. This means that almost every third sow has a negative net income. These figures don't even include the costs associated with gilts that are removed before their first litter, since the analyzed data only includes sows with at least one litter.

Reduction of sow removal could be accomplished by improving management, breeding for more robust sows or by making systems more adaptable to the sows. In addition, it would be possible to reduce high removal rates by simply accepting a single bad litter or a single return to estrus without removing the sow.

Another way to reduce a part of the high early removal is by increasing selection and removal among gilts. If there is little or no selection before first parity, it may cause a negative spiral where sows are replaced by gilts that only get one litter and then new gilts have to be purchased, and so on. The result of this is a lower parity distribution on the farm, which is more likely to result in lower productivity and give rise to a higher proportion of reproductive problems.

Gilts should not replace a sow unless the sow is in a poor physical state or is at a poor productivity level where the replacement gilt is expected to be more productive. Remember, sows on average have larger litters than gilts. In addition, that mediocre gilt is likely to be a mediocre sow (i.e., a selected gilt with poor feet and legs is likely to be a sow with even poorer feet and legs). Select gilts with good feet and good reproductive performance. Scientific studies have shown that gilts that reach puberty at a later age are likely to have a shorter productive life (Koketsu et al., 1999; Schukken et al., 1994) and are more likely to be removed due to infertility (Schukken et al., 1994). Also, sows that are older in age when they farrow their first litter have a higher removal risk during their productive lifetime, compared to sows that farrow their first litter at a younger age (Engblom et al., 2008; Serenius and Stalder, 2007).

In conclusion, breed only with gilts with good early indicators of reproductive performance and send the mediocre gilts to slaughter where they have a greater value per pound of live weight when compared to cull sows and their corresponding value. An operation that has a greater proportion of sows producing until the later parities is likely to improve parity distribution on the farm, which improves production results. It is economically favorable to occasionally rebreed a sow instead of replacing her with a gilt. Typically, a sow returning to estrus can be rebred twice for less money than it costs to rear or buy a gilt. So if you have the choice, send a mediocre gilt to slaughter and save yourself some money by giving a sow a second chance.

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*Editor’s Note: Linda Engblom, PhD, is a post-doctorate research associate at Iowa State University. She is from Sweden and has studied sow removal and sow longevity there. Ken Stalder, PhD; and John Mahy, PhD, are in the Department of Animal Science at Iowa State University, Ames, IA. For more information or comments, contact: lengblom@iastate.edu. For references in this article and more information, go to: www.swine.farm.com*
PIGCHAMP REINVENTED AND REVITALIZED
A vision for the company, along with new products and services, put PigCHAMP squarely in the leaders’ position.

By JoAnn Alumbaugh

Editor’s Note: Much has changed at PigCHAMP during the last 24 months. Under General Manager Bob Brcka, the company is focused on meeting the needs of producers who want the tools for production management and business improvement. This in-depth interview with Brcka provides an overview of the company’s philosophy and vision for the future.

Q: How has PigCHAMP changed, from when you started in 2005 to what it is today?

BRCKA: One of the things I found very appealing about the opportunity to work at PigCHAMP was the strong, well-respected brand and loyal following the product line has had for over 25 years. But, what I found was that we had become so comfortable in that position that we had lost sight of doing all the right things to maintain trust, loyalty and respect with our customers and the industry. Our product development efforts were not turning out world-class products and our sales people were not always dealing with customers in a manner that earned their trust and respect. So we initiated efforts to make the changes needed to clearly position ourselves once again as the global leader in swine record keeping and analysis systems.

We totally re-engineered our development staff and processes to secure the best talent available, including the addition of Martin Widdowson, who is widely regarded as the premier swine software developer on the planet. We also made changes in our procedures to incorporate world-class development standards for requirement definitions, development and testing to ensure that our products have the features the industry needs and the software is of the highest quality.

We have also upgraded our sales, support and training efforts with people who not only have good knowledge of the swine industry and our programs, but also the passion and integrity to provide value and trust to the partnerships we have with our customers.

At times, it has felt like we’re trying to change tires on a vehicle that’s traveling at highway speeds, but the results so far have been pretty dramatic.

Q: What do you consider the best features of PigCHAMP – what separates it from competitor’s products?

BRCKA: The original PigCHAMP DOS-based program has long been the global industry standard. As Microsoft Windows™ software and the Internet became more prevalent, some companies basically copied the functionality of this simple program and gave it a Windows or Web interface and claimed a product that was “as good as PigCHAMP.” These products are, for the most part, the alternatives that are available today.

Our challenge for the next generation of record keeping and analysis is to create products that are clearly superior to the old PigCHAMP and provide features and value that are important to increasing performance in the 21st century. Being “as good as PigCHAMP” isn’t good enough anymore. When people see the power of our current generation of products, they quickly realize we are providing value and analysis abilities that are not offered anywhere else. That’s why our Care 3000 reproductive program became the most widely used program in North America just a few months

"It seems to me that one of the few sustainable advantages for North American producers may be the ability to collect useful data, process the data quickly and accurately into information, and immediately execute change to increase efficiencies and performance based on that information." — Bob Brcka, General Manager, PigCHAMP
“The efficiency and accuracy of the grow-finish system to be introduced this summer will provide a new level of information on virtually every aspect of a finishing operation... We believe this product will be as revolutionary as the original PigCHAMP.” — Bob Brcka, General Manager, PigCHAMP

after it was introduced in 2007. The products we have in the pipeline for finishing pigs and web-based analysis will also raise the bar in functionality and producer value.

Q: If the PigCHAMP DOS program was so popular, why did you decide to discontinue selling it?

BRCKA: The simple truth is that although it was very popular, it wasn’t profitable. It is a very strange situation for a product to have virtually 100% market share and not be able to make money, but that was basically the situation with the PigCHAMP DOS program. When PigCHAMP was developed and marketed by the University of Minnesota, I believe the objective was to get this incredible tool into the hands of as many producers as possible. The nominal price for the software basically became ingrained as the “market value” for swine record keeping software, even though the value provided to producers could easily be justified at a much higher cost. This is one of the primary reasons, in my opinion, that we haven’t seen much advancement in swine software over the last 30 years... it is very difficult to provide service and support as well as make significant investments in new development at the prices that the industry has been accustomed to paying.

Fortunately for PigCHAMP, the brand was purchased in 2001 by Farms.com. Company leaders had the vision and saw the potential for PigCHAMP. They knew the brand could be expanded to provide value to the industry and they were willing and able to make the investments needed to produce programs that clearly provided more value than what was currently available.

Our new products now allow us to fund our own development efforts. Personally, I believe that the price of swine software is still a bargain when compared to other inputs of a swine operation, or compared to the software that other industries use to manage their business.

Q: Tell us about PigCHAMP Support and how these individuals work with customers.

BRCKA: The on-going support we provide for customers is another advantage that sets us apart. We have a wide range of support options, which includes an interactive web-based tool with frequently asked questions, an e-mail address specifically for support questions, and, of course, a toll-free telephone number. We try our best to provide immediate assistance when possible and always respond in a timely manner. We have a pool of experts that can be brought in to answer virtually any support question, ranging from installation issues to data entry shortcuts to setting up advanced reporting features. We want to be easy-to-find and responsive to our customers. We won’t take your money and then forget about you at PigCHAMP.

Q: Since this interview is featured in the Benchmark magazine, tell us why producers should use benchmarking as a management tool?

BRCKA: Quite simply, benchmarking is a way that producers can see how they are performing in key production indicators against a statistically significant average. This can be helpful in a number of ways: It helps producers understand where they may be underperforming against other operations and point out areas for improvement; and you can get an understanding of industry trends, regional differences and ultimately differences in performance for genetics, housing, feeding systems and any number of other factors.

PigCHAMP has been offering a free Benchmarking service for customers for several years, and it’s been very popular. Participants receive quarterly reports comparing their farms against the entire database on several key factors. Since the data set is so large (hundreds of farms from all over the world participate) this information gives a pretty accurate representation of what’s going on in the industry. The year-end data is widely used in research to better understand trends and changes in the industry.

One of the projects we are working on is to make information available through a web portal where producers can get “on-demand” Benchmark reports. This will allow a producer to compare his/her operations to a sub-set of the database that he/she defines. So, producers will be able to make comparisons specific to geography, farm size and possibly genetics on some key production indicators. We hope to have some components of this system available to the industry later this year.

Q: What role can PigCHAMP play in herd identification and a National Animal Identification Program?

BRCKA: We have been monitoring the animal identification program regulations in the United States, Canada and other countries for a number of years. PigCHAMP is well-positioned to help producers participate in national directives in a manner that should be relatively seamless.

We have been working with the USDA for several years on animal traceability and have received preliminary approval to provide an Animal Tracking Database that will
interface with the USDA Animal Trace Processing System in case of an emergency. All of our PigCHAMP programs have been designed to include the information needed for animal traceability. This information will be easy to upload into our database (much like our benchmarking information) where it will be safe and secure. PigCHAMP will provide the specific premise information on animal movement according to the USDA guidelines only in case of an emergency for the premise IDs that are impacted. The goal is 48-hour turnaround, and we should be able to accommodate requests in less than 48 seconds. This can be entirely accomplished without a producer needing to do anything except keep his/her PigCHAMP records up-to-date. That’s the plan, and we are ready to execute it if and when a National Animal ID program is implemented in the United States.

In Canada, we already share information with the CDPQ program in Quebec. We are also closely monitoring efforts in other provinces and nationally, to see where PigCHAMP can provide value.

Q: How does PigCHAMP plan to differentiate itself from the competition in the future?

BRCKA: The simple answer is that we intend to stay at the leading edge. We are responsive to customers and continuously use their feedback to enhance the productivity and performance of our existing products. We are working with complementary industry partners to help integrate our systems with other systems to enhance efficiency. This could be feed or equipment companies, genetic or animal health companies, packers, accounting software businesses or ear tag suppliers. We are looking at using the web and other communications technologies to make information available to customers faster and more efficiently. We will also continue to work with regulatory agencies to help our customers be painlessly compliant with any traceability programs that might be on the horizon.

Q: How does PigCHAMP fit into the overall Farms.com portfolio?

BRCKA: Working within the Farms.com family creates a lot of synergy in the area of using information as a means for competitive advantage. If you look ahead and ask yourself: Where will the advantages be for North American pork producers in a global market? Cheap labor? Lower feed costs? It seems to me that one of the few sustainable advantages for North American producers may be the ability to collect useful data, process the data quickly and accurately into information, and immediately execute change to increase efficiencies and performance based on that information. The core competencies that Farms.com has built in digital communications and risk management, along with PigCHAMP’s expertise in production management, offers some interesting opportunities. Stay tuned, it should be a fun ride.

NEW PRODUCTS IN THE PIPELINE

“Producers will see more exciting advancements from PigCHAMP in the next 24 months than we have seen in the last 24 years,” says Bob Brcka, General Manager for PigCHAMP. “While we are very excited about the development of our on-line benchmarking service, the big news is the PigCHAMP Grow-Finish program that we will be launching this summer.”

Brcka explains that the original PigCHAMP program had some basic functionality for swine finishing, and while some companies have made attempts to design finishing programs, there really isn’t anything available that fully meets the needs of the majority of people finishing pigs or who have farrow-to-finish operations.

“Tracking finishing pigs is often not a simple process that a simple software program can effectively handle,” explains Brcka. “Monitoring different feed programs, animal movement and other parameters within today’s systems can be very complex. Furthermore, aggregating the information in a way that facilitates good planning and meaningful reporting is not an easy task. We have been working on this for a number of years and believe we finally have the tool that provides the solution.

“The feedback from producers and veterinarians who have been assisting us with the development and testing of this product has given us confidence that virtually any production system will see great value from this program,” he continues. “The efficiency and accuracy of this system will provide a new level of information on virtually every aspect of a finishing operation – from barn placement planning, to feed management and ordering, to expense monitoring, to true close-out profit and loss analysis. We believe this product will be as revolutionary as the original PigCHAMP.”

The company has also recently launched a new generation of handheld data collection devices. Data collected in the barns can be directly imported into the PigCHAMP program without the additional step of manual data entry, says Brcka.

“PigCHAMP Mobile can save producers massive amounts of time and expense while ensuring data accuracy. Since the new system uses ‘smart logic’ to ensure incorrect information does not get entered into the program, potential inaccuracies never leave the barn. This system has already gained much interest and support from our customers,” he states.
For over 25 years, the first name that comes to mind when you think about swine record keeping and analysis is PigCHAMP. Over that time a lot has changed in swine production, but the software hasn't... until now. PigCHAMP is pleased to introduce the first farrow-to-finish record keeping and analysis system that gives operations of all sizes the information you want -- the way you want to see it.

Care 3000 Reproductive Software
Since being introduced in 2007, Care 3000 has quickly become the most popular reproductive record keeping system in North America. Building from the success of the original PigCHAMP and incorporating input from producers and veterinarians from all over the world, Care 3000 was designed to be the standard for the next generation of swine production.

NEW! PigCHAMP Grow/Finish Software
The PigCHAMP Grow/Finish program promises to be as revolutionary of a step in record keeping and analysis as the original PigCHAMP DOS program. With the flexibility to track expenses and movements the way your operation works, PigCHAMP offers unprecedented capabilities for pig flow management, real-time group performance, and complete and accurate profit/loss information. This program can be used independently or in combination with Care 3000 as a fully integrated farrow-to-finish system.

New! PigCHAMP Mobile
Nowadays, saving time, means saving money. Designed to work with Care 3000 to save time in the barn and office, the PigCHAMP Mobile system increases the productivity and accuracy of barn workers, while eliminating duplicate data entry. The PigCHAMP Mobile system quickly pays for itself with increased productivity and getting work done right the first time.

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In our current times of high feed prices and increasing expense of inputs, the cost of maintaining the sow herd has risen greatly over the past few years.

If a sow is not gestating or nursing a litter she is not generating income for the pork producer. 'Non-productive sow days' is the term used for these instances. The major traits impacting non-productive sow days (NPD) are farrowing rate, and the intervals of entry to first service, weaning to service, and weaning to removal. The trait with the most potential to reduce NPD is farrowing rate. When a sow is bred, but does not have a litter, the number of NPD generated is 21 at a minimum, and can be much greater depending on the management of the sow herd. The problem is it is virtually impossible to directly select for farrowing rate. When a sow is bred, but does not farrow, the cause is not clear due to confounding between several factors. Was the sow infertile? Was the semen bad? Did the inseminator do a poor job? Was the weather too hot? When a situation such as this exists, with no clear cause of the litter being lost, direct selection will not work. However, indirect selection may be possible if there exists another trait that is closely associated with farrowing rate, and is routinely measured at the farm.

One trait that is routinely measured on the sow farm, that should be closely associated with farrowing rate, is litters per sow per year (LSY). Litters per sow per year is measured as the annualized proportion of breeding female days attributed to successful gestation days. However, genetic improvement in reproductive efficiency by directly selecting for LSY has not yet been studied in depth. It may be possible to make a permanent genetic improvement in LSY (and indirectly improve farrowing rate) if LSY is found to have appropriate characteristics for making genetic improvement. To accomplish genetic improvement through selection, the trait must be accurately measurable. This is no problem with the computerized sow management software systems in use today. Secondly, the distribution of the trait should be normal. Figure 1 shows the distribution of LSY in a 2,400-sow herd.

As you can see, the distribution is skewed to the right. Preliminary research has shown that this skewness is caused by the parity of the sow. First litter sows have only one litter to spread the NPD due to entry to first service interval, thereby mathematically reducing their LSY. After adjustment of LSY for parity, the distribution of LSY is more normal, as shown in Figure 2, which is LSY adjusted for parity.

Thirdly, the traits must have an adequate genetic control, or heritability to respond to selection. To examine this, we used the data from the same 2,400-sow herd, and estimated the heritability for LSY using variance component estimation software. The result was heritability for LSY of 0.10. While this is in the low range it is similar to that of litter size, which has responded to selection when using a BLUP-based selection approach. This then suggests that LSY has the potential to respond to selection using a BLUP approach. If we can improve LSY via BLUP-based selection, then farrowing rate, as the primary component of LSY, should be improved also.

But just how much economic impact will be made if we genetically improve LSY? Consider the economic value of LSY in relation to other traits, such as litter size and NPD. The economic value of one pig born alive (NSIF guidelines) is approximately $13 per pig. The economic value of one NPD (according to ISU research) is somewhere between $1.50 and $2.50 per day. What do we stand to gain if we can increase LSY? For example, let's use an improvement of LSY by 0.10. Increasing LSY by 0.10 will reduce NPD in the herd by approximately 11 NPD/sow/year. If the average litter size is 11 pigs born alive and we get an additional 0.10 litters per sow per year, this would be an extra 1.1 pigs born alive. The economic impact of 11 NPD is approximately (11 x $2) $22 and the economic impact of 1.1 pigs born alive (1.1 x $13) is approximately $14.30. Improving LSY by 0.10 would then offer a payback of approximately $36.30 per sow per year in the herd. If this is genetic improvement, this would be a permanent improvement. For a 2,400-sow herd, this would be more than $87,000 per year.

In summary, there is a great potential to improve the profit of our swine herds if we can make genetic improvement in farrowing rate. Direct selection for farrowing rate does not appear feasible, but indirect improvement via selection for litters per sow per year might be possible. To examine feasibility, more research needs to be conducted.

Editor's Note: Dr. John Mabry, PhD is Director of the Iowa Pork Industry Center. He, Dr. Stalder, PhD, and Dr. Engblom, PhD are in the Department of Animal Science at Iowa State University, Ames, IA.
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