World’s Largest Gene Transfer Center Network

DNA Genetics has more company-owned/managed gene transfer centers than any other genetic supplier. Each gene transfer center is stocked with boars directly from our nucleus, not from boar multipliers. Using boars directly from our nucleus, along with the rapid turnover of boars, delivers higher-level genetics to you more quickly and minimizes genetic lag.
The Time is Right to Try DNA Genetics Precision PCAI

By Brady McNeil, Technical Services

"PCAI increases efficiency, better leverages the best breeders, and reduces costs."
- Brady McNeil

Win-win. It’s how DNA Genetics does business, creating win-win scenarios provide the opportunity for both parties to have long term success. It can also be used to describe Post Cervical Article Insemination or PCAI, which increases efficiency, better leverages the best breeders, reduces costs and allows farms that own their boars to cover more sows with the highest indexing sires. PCAI allows DNA Genetics to minimize the genetic lag within multiplication and leverage high indexing boars across more sows.

PCAI is the process of depositing semen in the uterine body, past the cervix where traditional AI deposits it eliminating the need for sows to draw in semen. When combined with multi-dose bag technology allows for time savings of up to 5 minutes per sow. The time savings allows the best breeders to be responsible for heat checking and breeding more sows. Because PCAI deposits the semen closer to the site of ovulation, the required number of sperm cells is reduced. This reduction in cells allows DNA Genetics to pass on a cost savings to the end user. In an operation that has their own boar stud, there is reduced variation within a contemporary group of pigs as fewer sires are represented and leverages the highest indexing boars across more females.

DNA Genetics has been at the forefront of bringing low dose PCAI to its customers in North America over the last 8 years. In that timeframe, customers representing over 600,000 sows have made the switch to DNA Genetics’ specific Precision PCAI program. Not all PCAI products and protocols are created equal. Because of this, if a customer is looking to make the switch, DNA Genetics has a representative spend 2-3 days in the farm walking through the DNA Genetics Precision breeding technique. The training involves equipment that DNA Genetics is the sole distributor for in North America. This commitment to training, industry leading equipment and years of experience is part of the reason why over 95% of the farms that try DNA Genetics Precision PCAI stick with it.

In order for any technology to work, the data has to back it up. It is important to note, DNA Genetics does not claim any production increase from using PCAI, however there should not be any decrease either. To prove this, DNA Genetics worked with Swine Management Systems (SMS) to look at production numbers of DNA Genetics Customers that use Precision PCAI vs. those that do not. Customers selected were all herds that submit data regularly to SMS for benchmarking and were over 28 P/S/Y, this avoided any major health issues showing up in the data. As shown in Table 1, the Farrow Rate % and Total Born are similar across 50 farms representing 114,000 sows.

Table 1. Comparison of data from sow farms that use or do not use DNA Genetics Precision Post Cervical Artificial Insemination (PCAI) process.

<table>
<thead>
<tr>
<th>Item</th>
<th>PCAI Range</th>
<th>Conventional Range</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Sows</td>
<td>78000-271,12</td>
<td>36300-241-2,875</td>
<td></td>
</tr>
<tr>
<td># of Farms</td>
<td>21</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Piglet Survival %</td>
<td>30.07</td>
<td>28.18-32.75</td>
<td>0.31</td>
</tr>
<tr>
<td>Piglet Survival %</td>
<td>80.3</td>
<td>79.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Wean to 1st Service %</td>
<td>5.09</td>
<td>4.40-7.06</td>
<td>-1.08</td>
</tr>
<tr>
<td>Farrowing Rate %</td>
<td>88.2</td>
<td>85.2-92.5</td>
<td>-0.7</td>
</tr>
<tr>
<td>Death Loss</td>
<td>10.1</td>
<td>8.1</td>
<td>2</td>
</tr>
<tr>
<td>Repeat Services %</td>
<td>3.3</td>
<td>5.1</td>
<td>-1.8</td>
</tr>
<tr>
<td>Multiple Matings %</td>
<td>89</td>
<td>87.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Avg Parity</td>
<td>2.29</td>
<td>1.52-2.89</td>
<td>-0.29</td>
</tr>
<tr>
<td>Total Born</td>
<td>15.58</td>
<td>14.85-17.15</td>
<td>-0.34</td>
</tr>
<tr>
<td>Stillborn %</td>
<td>6.2</td>
<td>8.3</td>
<td>-2.1</td>
</tr>
<tr>
<td>Pigs Weaned</td>
<td>12.16</td>
<td>11.06-13.39</td>
<td>0.42</td>
</tr>
<tr>
<td>Weaning Age</td>
<td>19.47</td>
<td>17.35-21.54</td>
<td>-1.99</td>
</tr>
</tbody>
</table>

Table 1. Comparison of data from sow farms that use or do not use DNA Genetics Precision Post Cervical Artificial Insemination (PCAI) process.

Farms included in dataset were all DNA customers with 28 PW/MF/Y or higher and who submitted data to SMS. Data were originally published in the National Hog Farmer.

PCAI is not for everyone or every situation. Smaller farms have a harder time realizing the time savings, because there is a period of time after heat checking before you can start breeding. This time allows the sow to relax after being in standing heat, making it easier to pass through the cervix into the uterus. If the breeds for the day will take 45 minutes or less there won’t be any time savings advantage. Some producers breed gilts PCAI, however due to gilts
What Testing 30,000 Duroc Boars Means to You

By Dr. Tom Rathje, Chief Technical Officer

"This is a big investment for DNA Genetics to provide all of our product at this level. We feel it is the only way to ensure the predictability and performance that our customers demand."

- Dr. Tom Rathje

At 3,950 sows, the DNA Line 600 Duroc nucleus is the world’s largest terminal sire resource. All of the pigs produced from this sow base enter our performance testing program which results in over 30,000 pigs tested per year. Testing of these animals begins the day they are born with a birth weight and ends with an off-test weight 5.5 months later. In addition, a sample of boars from all sires enters the InSight Performance Center weekly to measure feed intake, resulting in 25% of all Duroc boars having feed intake data. This results in all pigs within our Line 600 nucleus having between 30 and 40 half-sibs with feed intake measures. Every Duroc boar is genotyped at on-test (11 weeks of age).

What does all this data mean and why is the way we test and manage our herds important to you as a customer? We think it is important for you to know, so we plan to lay it all out over the next several newsletters. It comes down to four key items:

1. Rate of genetic progress
2. Accuracy of predicted breeding value and selection intensity
3. Generation interval of the nucleus
4. Genetic lag in the product production stream

Genetic gain in any nucleus is described by the ‘I/T’ equation, which predicts genetic progress extremely well (”ΔG” or delta “G”). Items 1 to 3 above are described in this equation:

\[ \Delta G = \frac{(I \times r \times \sigma)}{T} \]

Where “I” is the selection intensity, “r” is accuracy or how confident we are in the breeding value for a given pig, “σ” is the genetic standard deviation for the index or trait and “T” is the average age of parents when their replacements are born. Investments and decisions are made by genetic suppliers that will impact all of these values in some way. We operate our system for maximum ΔG.

Item 4 is extremely important for you to consider as a customer and is our first topic. DNA Genetics does not use boar multiplication to produce terminal product for our customers. All DNA Line 600 boars originate from the nucleus, are fully performance tested and contribute data to the genetic evaluation. This affects two areas:

- The amount of individual pig data greatly improves accuracy and increases genetic gain
- Individual data on a boar allows for accurate rankings and more predictable performance of the boars you purchase.

This is not true of multiplication pyramids producing terminal boars that do not do performance testing or rely on a pedigree index for ranking. Predictability and accuracy suffer, but the largest problem with boar multiplication is genetic lag. The best a boar multiplier can be is 1 generation behind the nucleus. This is hard to achieve as it requires the following:

- All replacement gilts come from the nucleus
- All sires used for matings are the same sires as the nucleus
- The replacement rate in the multiplier is equal to the nucleus (which in our case is 140%)

Multipliers rarely make the investment required to accomplish this. Turning a herd is expensive and reducing the herd turnover rate is one of the first cost-saving measures implemented. In addition, for health reasons, herds providing breeding stock are often closed to incoming gilts. Producing internal replacement gilts automatically adds a generation of lag. If we assume $3.00 per year genetic improvement, a multiplier can quickly be $6.00 to $9.00 behind the nucleus. This value loss is reflected in poorer potential performance of your pigs compared to receiving boars directly from the nucleus.
Providing Consistent, Biosecure Semen Deliveries in Every Environment

By Jon Heibel, Marketing and Customer Service

“We all know it takes more than thorough protocols and innovative equipment to make things happen. It takes great people!”

- Jon Heibel

From picture-perfect sunshine days to extreme hot and cold temperatures, DNA Genetics must provide a consistent product with meticulous attention to biosecurity no matter what conditions Mother Nature throws at us. Although we experience drastic changes in the temperatures outside, the temperature of semen doses inside must maintain a constant 16 degrees Celsius. Likewise, following strict biosecurity practices must remain at the forefront of everyone’s mind every step of the way.

The first and most important thing we consider each and every day is health. Our couriers begin each route in a clean, fueled-up vehicle that’s well-stocked with all the necessary biosecurity items needed for their trip. Couriers drive directly to the gene transfer center with no stops, and take designated routes to maintain the highest level of biosecurity. Once the doses are on board, strict protocols are followed at every stop to ensure the most bio-secure delivery possible to our customers.

Next, our team members focus on quality by transporting semen at its optimum temperature. One of the ways we’ve been able to ensure minimal variation in temperature is by transporting doses exclusively in YETI coolers. The ability of a YETI cooler to protect its contents in punishing environments is legendary. Daily temperature readings by our couriers, on delivery routes from Manitoba to Oklahoma and hundreds of points in-between, have proven a YETI will hold semen temps within 1 degree Celsius over an eight hour period. It’s a simple game plan we can execute systematically on every route, every day. This means a consistent product to our customers year-round, no matter the climate.

We all know it takes more than thorough protocols and innovative equipment to make things happen. It takes great people! Having disciplined, careful, and detailed team members are necessary to deliver consistent, world-class results. Our couriers pay close attention to the product being delivered, and the environment it’s placed in. Each courier records the semen temperature of every stop and submits a complete, written report at the end of each route. Any safety, biosecurity, and storage concerns they encounter are reported. If a customer’s semen storage unit is not within the acceptable range, we work with the customer to ensure the doses can be stored at the appropriate temperature as quickly as possible. This critical, honest and open communication is necessary to ensure our customers can capitalize on the full genetic potential of our product.

Every day, we’re faced with the unpredictable. Weather, equipment, biology, and countless other factors can change quickly. We must measure and improve upon the things we can control to lessen the impact of the things we cannot. Our team members look for inconsistencies and work to find long-term solutions. Just like our most recent ad says, we are “fixed on continuous improvement, allergic to shortcuts, and in it for the long haul.”

DNA Couriers follow a strict protocol with every delivery to maintain the highest possible standards of health and quality. All courier vehicles are equipped exclusively with YETI coolers, as well as wireless temperature monitoring devices, to ensure semen remains at a constant 16 degrees Celsius.
Three New Gene Transfer Centers Opened in Three Years

By Dr. Cory Faust, Business Leader of Gene Transfer Centers

“Utilizing the full technology of PCAI, each gene center will produce 14,000 semen doses per week - enough to influence the genetics of 11 million market pigs per year.”

- Dr. Cory Faust

For the past three years, DNA Genetics has celebrated the opening of new, state-of-the-art gene transfer centers: Saunders, near Valparaiso, Nebraska in 2019; Indiana, near Cambridge City, Indiana in 2018; and Wisconsin, near Belleville, Wisconsin in 2017.

Utilizing the full technology of PCAI, each gene center will produce 14,000 semen doses per week - enough to influence the genetics of 11 million market pigs per year.

Saunders Gene Transfer Center, which received boars in February, began delivering product this month.

Nebraska Governor Pete Ricketts (left) and Dr. Jim Pillen at the newly opened Saunders Gene Transfer Center. More than 300 people attended the open house.


A look inside the main barn of one of our new gene transfer centers.
You might say we were born this way. Driven, disciplined, allergic to shortcuts and in it for the long haul. Funny thing is, the more we stick to our principles, the more folks stick with us. Because chances are, those are the traits you admire in our people and our pig. Join us at dnaswinegenetics.com.