

the INSIDER

TOPIGS Canada Inc. | TOPIGS USA Inc. | Fall 2013

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TOPIGS 20 – The Ultimate Female

Dutch pig farms using the TOPIGS 20 sow have excelled once again in productivity. A total of 371 farms have averaged 29.1 pigs weaned / sow / year for the calendar year of 2012. Despite having older weaning ages as mandatory production practices, the TOPIGS 20 sow has the capability to farrow and wean larger litters to wean 30 pigs / sow / year (See Table 1).

Several factors contribute to being able to achieve these numbers:

- A low percentage of stillborn piglets
- Uniform piglets that are eager to nurse and survive
- High teat numbers on sows to allow large litters to nurse
- Quiet temperament to reduce crushing and mortality
- Quick, problem free and consistent breed-back after weaning
- Very easy to manage

Table 1.

| | TOPIGS 20 2012-Average |
|---|---------------------------|
| No. Farms | 371 |
| Farrowing rate, % | 89.0 |
| Born alive | 14.1 |
| Pre-weaning mortality, % | 12.7 |
| Pigs weaned/litter | 12.3 |
| Weaning-1 st service interval (days) | 5.6 |
| Pigs weaned/sow/year | 29.1 |

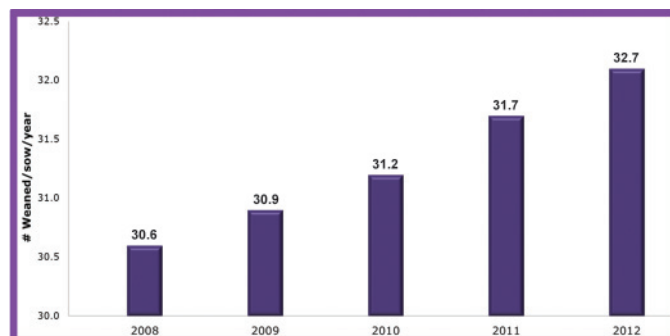
The top 10% of farms have weaned an average of 32.1 Pigs / sow / year with 13.1 pigs weaned per litter! (See Table 2)

Table 2.

| | TOPIGS 20 2012-Top 10% |
|---|---------------------------|
| No. Farms | 37 |
| Farrowing rate, % | 91 |
| Born alive | 14.7 |
| Pre-weaning mortality, % | 10.8 |
| Pigs weaned/litter | 13.1 |
| Weaning-1 st service interval (days) | 5.3 |
| Pigs weaned/sow/year | 32.1 |

Historically the number of pigs weaned / sow / year has continued to increase. The top 10% of TOPIGS herds have improved at an average of .375 pigs weaned / sow / year (See Table 3). Modern production practices, better feeding programs and management all contribute to the increases in productivity. However, there is no substitute for an intensive genetic and selection program. TOPIGS' use of genomics, and its link to the phenotypic database of more than 25 million pig records gives producers confidence in the improvements and production gains to be made now and in the future.

Table 3.





Genetic Progress TOPIGS Adds \$2.64 Profit per Finisher Pig per Year

In 2012, TOPIGS realized a genetic progress of \$2.64 per finisher pig. This genetic progress is far greater than in previous years. For example, in 2009 the genetic progress was \$1.33. An improvement of \$2.64 means that, compared to 2011, a TOPIGS pig has the genetic capacities to realize a profit that is \$2.64 higher due to better quality and lower production costs. In the last four years the genetic capacity has improved by a total of almost \$8.00 per finisher.

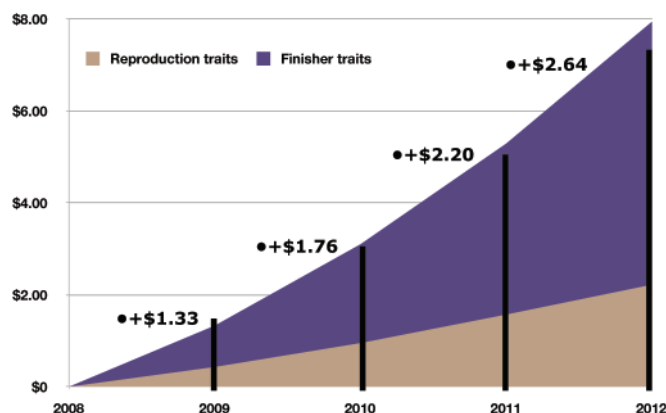
The improvement in genetic progress is the result of an updated breeding goal, the extensive use of individual feed intake registration during the rearing of breeding pigs in nucleus herds and the implementation of the live muscle scan that measures the leanness and muscling of live pigs. Also the first effects of the use of genomic selection are visible in the genetic progress of 2012.

In 2012, almost 75% of the genetic progress was realized in finisher traits. This means that the TOPIGS pig improves fast on traits such as feed efficiency and carcass quality. Besides this massive improvement in finisher traits, reproduction traits are also improving faster than in the past.

It is expected that the genetic progress per year will increase further when the effects of using genomic selection become increasingly visible in genetic progress.

With a production of more than 1.25 million crossbred gilts and over 7 million doses of semen per year, TOPIGS is one of the biggest genetics suppliers in the world. In several countries, TOPIGS is either the market leader or one of the major suppliers. TOPIGS stands for progress in pigs. This means research, innovation and genetic improvement are the cornerstones of our company. By continuously improving our products, we enable our clients to achieve maximum results.

Genetic Progress



TOPIGS Traxx: Robust Boar that Brings High Carcass Yields

TOPIGS introduces the Traxx boar. This new hybrid boar provides high carcass primal yields and leanness in combination with robustness and excellent growth rate, even at the heaviest slaughter weights. The bottom line is that Traxx brings a lot of carcass value.

Traxx-sired pigs also demonstrate a low feed conversion rate. Combined with the robustness of the pigs, this means efficient production with low costs. In this way, the Traxx boar reflects the Total Feed Efficiency concept of TOPIGS.

The combination of high carcass value and low production costs makes Traxx the ideal boar for pork producers who want to maximize profits.

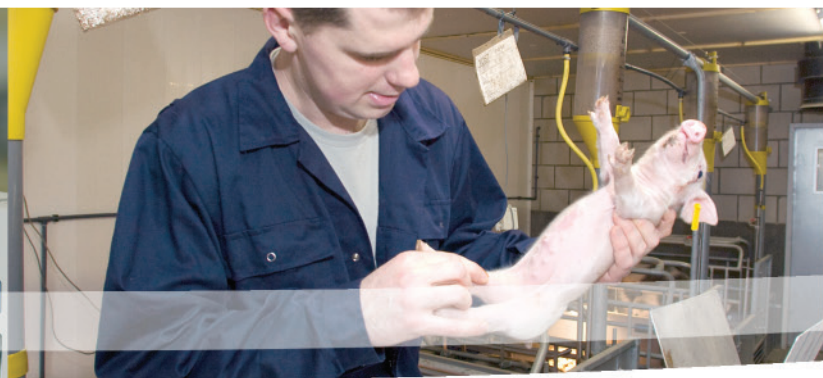
The Traxx boar is a product of TOPIGS' world-class breeding program which utilizes the most current technology: individual feed intake registration for improving feed conversion rate, on-farm performance testing for improving performance in commercial environments, carcass quality scans on the live animal for improving carcass yield, and genomic



selection to increase the rate of genetic progress. These and other technologic innovations are used on a large scale in the TOPIGS breeding program to create the best genetics available.

For more information on this Terminal Boar please contact your TOPIGS sales representative or TOPIGS at 1-866-355-5132.





Producer PROfile: Power Point Genetics AI Stud



The Power Point Genetics Boar Stud

The Schmeichel Farm is like any ordinary farm in Southeastern South Dakota. "We raise corn and soybeans on land that has been in our family for three generations. We have a few cows and raise pigs," said Steve Schmeichel. "Back then we raised a few purebred Yorkshires. We sold purebred breeding stock to neighbours and other farms in the region. Everyone had 150-200 sows farrow to finish and used natural mating. In 1972, the interest in artificial breeding started to grow, so we built a boar stud, holding 12 boars. I guess we were innovative, and wanted to be part of the AI growth."

The breeding stock business and the use of AI continued to grow, so in 1998 Steve along with two partners, Tim Heine and Tom Koller built a 40 head boar stud and named the business Power Point Genetics (PPG).

In 2001 a second wing for boar housing was added, raising the total number of boar spaces to 80 head. "Timing could not have been worse for the addition," stated Steve. "The market crashed and after 2001 we lost a lot of our clients. The 150-200 head producer just went away. We continued to operate the stud for our own semen needs and some Hutterite Colony business, but business continued to decline."

In 2011 Steve and his partners made the decision to begin to look for a major breeding company to fill the empty stalls at PPG. "We looked at them all; some

had more interest in us than we had in them. We were looking for three things in a company: knowledge that we needed to take our "Cowboy Stud" to a first class, modern stud; the ability to supply world class genetics; and people we could trust. After meeting with TOPIGS we found all three," said Steve.

"As partners, we all felt that TOPIGS, the world leader in artificial breeding techniques, could bring us to the level of technology we needed to be at today. We want to supply our customer with the best semen possible, and PPG will have terminal and maternal TOPIGS lines available," added Steve.

TOPIGS Terminal

- The Tempo: sires fast growing animals that maintain good feed efficiency. It is a very robust animal with great close outs, high yield.
- The Talent: TOPIGS Duroc is very lean and is known for great feed efficiency as well. Both of these boars produce a high number of full value pigs.

TOPIGS Maternal

- The Z line (Dutch Large White).
- The N Line (Dutch Landrace).

Both of these maternal lines are recognized as the best lines in the world. As purebreds, they are highly productive females and farrow large litters. Crossing



Steve Schmeichel



The Power Point Genetics Lab

Continued on page 4...



...continued from page 3.

these two maternal lines will produce the TOPIGS 20, F1 gilt. She is world renowned for her maternal traits. "We wanted the maternal lines (Z Line and N Line) for our own farms. TOPIGS maternal lines are docile sows that are very productive with good mothering ability," said Steve.

The people of TOPIGS are great to work with. They understand the pork industry and production.

"It was TOPIGS dedication to continued genetic improvement that sold us. This company never sits still; they are really committed to genetic improvement," added Steve.

Today PPG has Tempo, Z line and N Line boars standing at stud with plans to add another 40 boars in the near future, making PPG 100% TOPIGS Genetics.

Peter Berkvens, TOPIGS AI Specialist from Holland has audited and approved the stud for sales of TOPIGS Genetics. Dr. Tim Snider, TOPIGS USA Veterinarian, has also audited the stud and approved the bio-security and health testing of boars at PPG for sales to commence.

"Sales are building, and I think they will really take off once people know the genetics we have here and how we are now processing the semen." Steve stated. "We now have world-class genetics with world-class technology; a long way from a 'Cowboy Stud'."

For more information, please contact Power Point Genetics or TOPIGS USA as listed on the last page of this newsletter.

Progress in Semen Dose Production Brings Better AI Boars

by Hanneke Feitsma DVM, Research Manager, TOPIGS Research Center IPG

Artificial insemination of pigs has advanced significantly in recent years. Looking worldwide, the use of AI in countries with professional pig herds probably accounted for at least 75% of sow matings during the period between 2000 and 2005. Today, the proportion is certainly higher. We estimate that in many places it has grown to more than 95%.

Another significant difference relates to the number of sperm cells contained in a typical dose of boar semen for insemination. When commercial pig AI first started in the 1970s it was normal for semen doses to contain between 3-4 billion sperm. Several parts of the world have dropped this number over time to around 2 billion per dose and the global trend to a lower sperm count looks set to continue in the years ahead.

The important point for every sow farm is that a high rate of reproductive performance is being maintained despite the reducing dosage. For example, Varkens K.I. Nederland, a sister company of TOPIGS, has used fewer than 2 billion motile sperm cells per dose in the Netherlands since 2005, and in recent years has been able to implement further reductions without compromising fertility.

Our research is showing that concentrations as low as 1.2 billion motile cells per dose still do not affect the fertility on the farm. In fact we expect that even this will not be the critical lower limit and that, with well-controlled semen production methods and good timing of the insemination moment relative to ovulation, sperm count levels can drop some more.

Extra efficiency

Why would sow farms want to receive insemination doses with a lower number of sperm cells? Why pay the same money for less, in the form of a more diluted product? The answer is that the farms gain from the improved efficiency in semen production at the AI centre.

Even at 2 billion sperm per dose, fewer than 2,500 doses can be produced annually from an AI boar. The number rises to about 3,200 doses if each

contains 1.5 billion sperm. But implementing a sperm count of 1.2 billion motile cells per dose would mean producing more than 4,000 doses per AI boar per year.

Notably, this potential for extra output would allow considerably fewer boars to be used than at present, for the insemination of the same number of sows. Therefore the AI centre could be even more selective in choosing boars with a higher average genetic value, to the direct benefit of every customer.

Insemination method

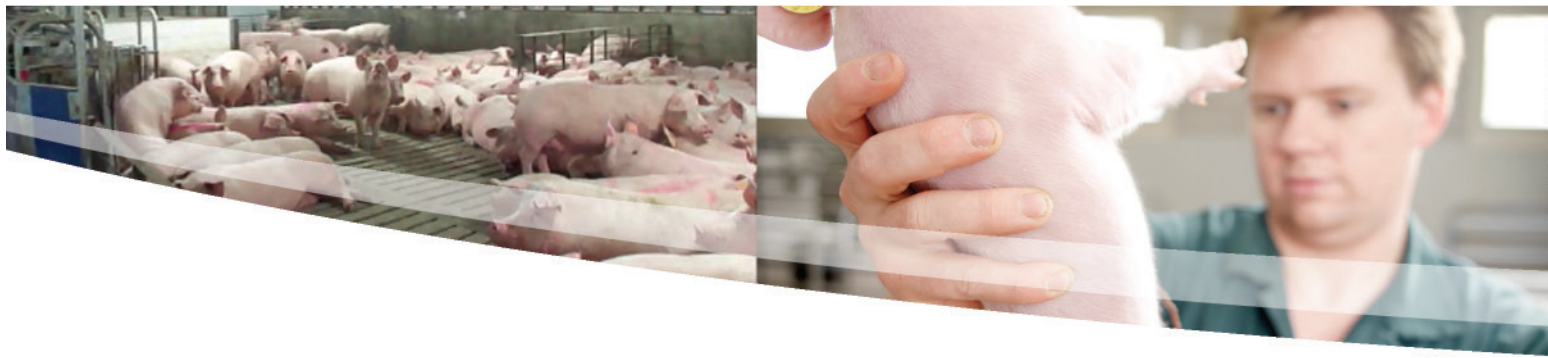
It is also clear to us that sow herds do not need to use more complicated insemination equipment in order to maintain fertility, despite inseminating with doses that contain a lower sperm concentration.

The traditional insemination procedure is called intra-cervical because semen is deposited by the conventional catheter within the sow's cervix. A variation developed in recent years moves the site of deposition beyond the cervix and nearer to the uterus and is therefore termed post-cervical. The main argument for post-cervical insemination has been that it should allow a considerably lower sperm count per dose.

However, from our experience, with the current low number of sperm cells, it is possible to achieve equal results by intra-cervical AI without resorting to a post-cervical technique. The sow farm does not need to change its inseminating technique in any way in order to benefit from the more efficient production of semen doses and the better selection of AI boars that this allows.

In the future, even a larger reduction in sperm cells per insemination could be achieved by introducing novel insemination techniques. However, it is necessary to investigate the lower critical threshold for number of sperm per insemination in combination with these new techniques.





The Effect of Breeding for more Teats

Recently, TOPIGS Researcher Naomi Duijvesteijn spoke with agricultural journalist Peter Best about an exciting new study she has carried out with Barbara Harlizius and Jaqueline Veltmaat at TOPIGS Research Center IPG. A summary of their findings is below:

Improved sow productivity has been a success story in pig breeding and all the signs for the future point to continuing improvements in the number of piglets born and weaned per litter. This brings an obvious challenge for the sow's milk production and for the ability of piglets in bigger litters to access her udder. Having more teats on the udder would, therefore, be a great advantage.

TOPIGS has experienced considerable success with the application of genomic technology to the improvement of traits such as litter size and mothering ability. The current investigation seeks to apply the same technologies in an effort to increase the rate of genetic progress in teat numbers for TOPIGS dam lines.

The chart below describes what the TOPIGS breeding program has achieved in terms of the genetic trend in the dam line TOPIGS 20. Careful selection techniques have allowed the increase in teat number to keep pace with the rise in sow productivity, so that the increasing number of live-born piglets can be nursed by the sow. The application of genomic technologies will provide for even more rapid genetic progress.

that appear to have a significant association, which means they could be used in genomic selection to gain more increases in the number of teats.

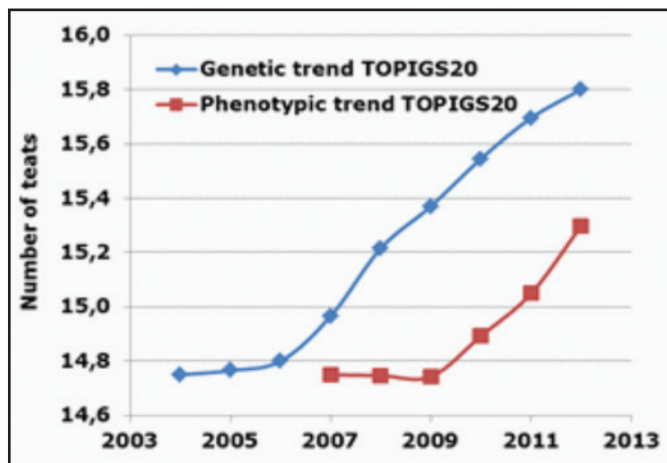


Teat number and body length

A close connection between body length and teat number in the pig has always been suspected. The results of this TOPIGS research project concur and indicate that there are common genetic mechanisms regulating both the number of teats and the number of vertebrae in the animal's body.

Many generations of pig breeding experience have demonstrated that an increase in body length coincides with increased teat number. The relationship to body length certainly seems to be a positive one by allowing more room for extra teats.

It was concluded that the genomic markers which were identified in this trial could be used in selection to increase teat number and that a related increase in number of vertebrae would not be a disadvantage.



By genotyping almost 1,000 pigs and searching for areas within the genome that may be associated with the genetic trait of higher teat number, TOPIGS has identified some sections of pig chromosomes

Please contact your local TOPIGS representative for a full-length copy of Naomi's interview and article "Genomic breeding can bring more teats on tomorrow's sows!"



TOPIGS AI Stations

TOPIGS terminal and maternal line boar semen is available throughout North America. Please contact TOPIGS or one of the suppliers listed below.

TOPIGS USA Boar Studs

AiPARTNERS

Morris, MN
Contact: Bruce Zierke
Lab/Office: (320) 760-3504
Email: bzierke@outlook.com

Power Point Boar Stud

Freeman, SD
Contact: Steve Schmeichel
Lab/Office: (605) 366-9532
Email: ssag@goldenwest.net

TOPIGS Canada Boar Studs

Magnum Swine Genetics Inc.

Fort Macleod, Alberta
Contact: Andrew Buesekom
Lab/Office: (888) 553-4844
Email: andrew@magnumswine.com

Carlo Genetics Inc.

Ste. Anne, Manitoba
Contact: George Goossen
Lab/Office: (204) 355-4012
Email: georgegoossen@carlogenetics.com

DUTCH SIRES

New Carlisle, OH
Contact: Gene Isler
Lab/Office: 937-846-1528
Email: piggene@aol.com

Total Swine Genetics Inc.

Tillsonburg, Ontario
Contact: Stuart De Vries
Lab/Office: (800) 844-9913
Email: sdevries_shadeoak@sympatico.ca

C & M Genetics

Lucan, Ontario
Contact: Dr. Corneliu Oltean
Lab/Office: (888) 259-7594
Email: corneliu-oltean@cmgenetics.com



HOW TO PLAY

Please answer the questions in our Insider Quiz. All the answers are in this newsletter. Then fax, mail or email your answers, along with your name, address, and phone number. Entries are to be received by October 31, 2013. Winners will receive a TOPIGS Personal Portfolio, and the TOPIGS rep in your area will deliver the prize. Employees of TOPIGS and their subsidiaries are not eligible.

John Sawatzky, Sales Manager
(204) 981-0243

Gord Edwards, Ontario Sales Manager
(519) 440-8128

Rick Beunen, Ontario Business Development
(519) 317-7403

Ron Musick, Manitoba Business Development
(204) 223-3193

Art Friesen, Alberta & Montana Business Development
(403) 382-9741

Craig Jarolimek, USA Business Development
(701) 866-4444

Brent Eyler, Eastern USA Business Development
(937) 733-8532

Jay Flora, Technical Service & Sales
(515) 297-1904

TOPIGS INSIDER Quiz

What is the name of the new TOPIGS boar?

What is the Pigs Weaned/Sow/Year for the Top 10% of herds in Holland?

In 2012, how many dollars were realized per finisher pig through genetic progress?

After the 2001 addition, how many boar spaces were at the Power Point AI Stud?

Name:

Farm Name:

Address:

Phone #:

Email:

TOPIGS INSIDER Quiz Winners

Here are the winners from last issue: Each winner receives a TOPIGS Surprise Package. The TOPIGS rep in your area will deliver your prize. Congratulations! Gerhard Hofer, Horizon Colony, MB; Johnny Wipf, R.V. Swine, MB; Jacco Van de Bruinhorst, Clinton, ON; Lisa Bercier, Porcherie Gauthier 1A, MB; Peter Stahl, Bon Homme Farms, MB; Jeff Hofer, Millerdale Farms, SD; Shawn Waldner, Rock Lake Colony, MB; John S. Wipf, Martinsdale Colony, MT; Christina Hofer, Starlite Colony, MB; Arnold Waldner Jr., Coolspring Colony, MB.

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