

the INSIDER

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TOPIGS Sows: 28.8 Weaned Piglets Per Year

Pig farms with TOPIGS sows produced an average of 28.8 weaned piglets per sow per year in 2011. The top 10% of farms achieved 31.6 weaned piglets per sow per year. This was revealed in the technical results from 678 Dutch farms with a total of almost 332,000 sows.

Last year, the production of TOPIGS sows rose by 0.7 piglets. This is a bigger increase than in previous years where the average was 0.5 piglets per year. Despite the increase in production, piglet mortality remains at roughly the same level as several years ago. The sow replacement rate has not risen either.

A growing number of farms are weaning 30 or more piglets per sow per year. In 2011, a total of 164 farms achieved this, and 16 farms achieved a production of 32 or more piglets per sow per year.

The results have been put together using overviews from the sow management system sent in by Dutch sow managers. In addition to this, the overview includes data from farms with their own breeding programs that are linked to the PIGBASE system of TOPIGS.

Best Belgium Producer: 34.9 Piglets Per Year

In 2011, TOPIGS sows in Belgium produced an average of 28.9 weaned piglets per sow per year. This is an increase of 0.7 piglets. The top 10% of farms achieved 32.3 weaned piglets per sow per year. This was revealed in the technical results from 104 Belgium farms with a total of almost 37,000 sows. The farm with the best results realized 34.9 weaned piglets per sow per year.

FCR TOPIGS Finishers Improves By 0.07

Pig farms with TOPIGS finishers realized a FCR of 2.55 in 2011. This is 0.07 lower than in 2010. In addition to this, the growth per day rose by 5 gram (.01 lb) to 811 gram (1.79 lbs), and the meat percentage rose

by 0.5%. This was revealed in the technical results from 312 farms in the Netherlands that in total supplied 1.9 million TOPIGS finishers.

Results TOPIGS Finishers

| | 2007 | 2008 | 2009 | 2010 | 2011 | Top 10% 2011 |
|----------------------|-------|-------|-------|-------|-------|--------------|
| Growth (g/day) | 797 | 793 | 801 | 806 | 811 | 884 |
| Growth (lbs/day) | 1.76 | 1.75 | 1.76 | 1.77 | 1.79 | 1.95 |
| FCR | 2.65 | 2.69 | 2.64 | 2.62 | 2.55 | 2.48 |
| Mortality (%) | 2.3 | 2.3 | 2.2 | 2.1 | 2.2 | 1.9 |
| Carcass weight (kg) | 90.2 | 90.5 | 91.7 | 92.2 | 92.2 | 92.6 |
| Carcass weight (lbs) | 198.8 | 199.5 | 202.2 | 203.3 | 203.3 | 204.1 |
| Feed intake (kg) | 2.11 | 2.13 | 2.12 | 2.11 | 2.07 | 2.19 |
| Feed Intake (lbs) | 4.65 | 4.70 | 4.67 | 4.65 | 4.56 | 4.83 |
| Meat (%) | 56.7 | 56.6 | 56.7 | 56.8 | 57.3 | 57.0 |

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Low Concentration, High Fertility; Every Day Dutch AI Practice

This article is an abbreviated version of a paper presented by Peter Berkvens (TOPIGS Technical Manager, AIM) at the Midwest Boar Stud Managers Conference IV held in St. Louis, MO on August 9-10, 2012. Copies of the full manuscript are available upon request from TOPIGS. Please phone 1-866-355-5132 or email topigscanada@topigs.ca



For decades TOPIGS has been focused on improving the performance of its breeding pyramid and the performance of its clients. Being a producer-owned organization, TOPIGS' focus has always been to add value to the pork production chain. Low semen concentration (or, more accurately, "low sperm count") of 1.2 billion motile cells/dose is resulting in efficient semen production of more than 3,700 doses / boar / year. With annual averages of 14.4 live born per litter and 91% farrowing rate, the fertility results of artificial insemination (AI) remain high and are being implemented by all the leading farms in the Dutch pork industry.

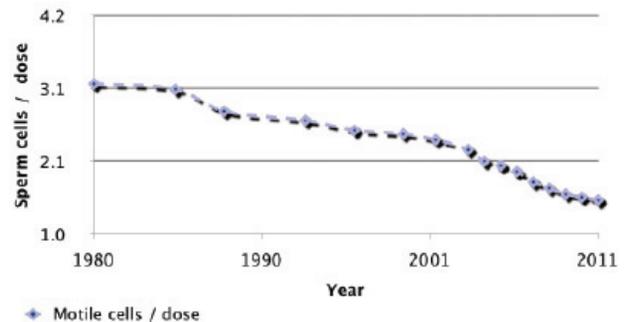
Low sperm count (LSC) in the Netherlands

With good control over essential management aspects, TOPIGS' boar studs continue to reduce the number of sperm cells per dose without a loss in fertility and with a reduction in variation in the fertility performance. In 2011, TOPIGS used a concentration of 1.5 billion motile cells per dose in the Netherlands, but research is showing that concentrations as low as 1.2 billion motile cells per dose still do not affect the fertility on the farm (Figure 1).

Our expectations are that 1.2B cells are not yet the critical lower limit and that well controlled semen production will allow us to go further down in sperm count levels. Post cervical insemination is not necessary for the use of insemination doses with the current low number of sperm cells; with intra cervical insemination technique it is possible to achieve the same results.

Figure 1. History of sperm count decrease at TOPIGS AI stations in the Netherlands. This reduction in sperm count was achieved without a change to post cervical technique.

Average sperm cells / dose Varkens KI Netherlands 1980 - 2011



Quality of semen, heat detection and insemination time become more important when implementing LSC dose; a conclusion that was drawn by TOPIGS in the mid 1990s leading to a series of research projects focusing on these subjects.

Controlled semen production

A variety of measures to control semen production at the AI station and semen usage on the farm have been investigated and implemented over the past 15 years.

- Boars are intensively screened before entry into the AI stations; semen quality standards must be met and must be stable before entry.
- Boar management in the boar stud is optimized and intensive individual care of the boar is applied.
- High hygiene levels and extreme low usage of antibiotics in boar treatments are applied to create a sound foundation for semen production.
- Much effort is invested in objective semen quality assessment and improvement of the accuracy and repeatability of this assessment.
- Effective and controlled semen storage and transport are applied to reduce the risk of damage to the sperm cells after production.
- The client farms are intensively trained and educated in semen handling and sow management.
- Accurate estrus detection and timing of insemination have been found to be essential elements for successful farm production.

For many years, effective control over the semen production process has allowed TOPIGS to lower the sperm count, increase the output per boar and, therefore, use fewer boars at its AI stations.





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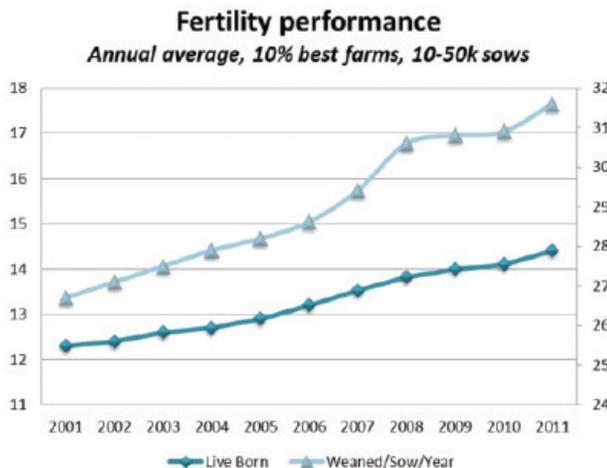
Monitoring / analysis effect of changing production standards

These research results and improved production control have allowed the Dutch AI organizations to gradually drop their sperm count, without a decrease in fertility. TOPIGS continuously monitors its semen fertility performance in the field. Using its large breeding database (PIGBASE), TOPIGS Research Centre IPG is able to make a link between field performance of the semen and the database of its AI stations. This allowed TOPIGS to create a database with over 1.2 million ejaculate records and over 12 million litter records. These merged databases can be used to closely monitor the fertility performance of the AI stations, and to apply a statistical correction for other fertility performance affecting factors.

Benefits

LSC doses are only one side of the coin. Why would sow farms want to receive insemination doses with a lower number of sperm cells? Because it is not less of a product; but it is actually more. Annually the Dutch AI stations are able to demonstrate to their clients an increase in fertility performance. Sperm count per dose is not the focus of breeding farms; sow farms want good fertility resulting in reliable production and high number of piglets. Since 2008, the 10% best farms in the Netherlands have been weaning more than 30 piglets per sow per year and, in 2009, that same group passed the boundary of 14.0 live born piglets per litter. These fertility results make the Netherlands one of the leading countries in sow fertility. This level of performance, in combination with the extreme LSC doses, demonstrates that efficient production is possible, without compromising on fertility (Figure 2).

Figure 2. Dutch fertility performance of TOPIGS farms over the last 10 years.



The benefit of using LSC doses is that the genetic gap between the nucleus and the field is reduced. The same number of sows can be

inseminated with fewer boars. If AI stations select the boars with the highest genetic merit, the average genetic index of the AI boars will increase. High productivity of boar studs, in combination with efficient use of semen at the sow farms, has resulted in a genetic dissemination rate of 1 boar for every 500-700 sows. In 2011, the Dutch AI organization sold on average 2,453 doses / boar / year, including maternal lines. This is a 100% increase in boar:sow ratio compared to the global average ratio of 1 boar to 250 sows. A higher boar:sow ratio allows TOPIGS to increase the selection intensity in boars, resulting in higher genetic merit for TOPIGS customers.

A selection of the best boars can easily result in an improvement of 10 selection index points on the average genetic index in the boar stud. Each point represents an economic value of \$0.10 on finisher level. For a 10,000 sow production system this results in an additional economic benefit of approximately \$250,000 (\$1 per finisher, \$25 per sow / year, \$5 per insemination dose; Table 1).

Table 1. Impact AI Efficiency

| Variable | Reference | 1.5B cells/dose |
|--------------------------|-------------|-----------------|
| # sows | 10,000 | 10,000 |
| Cells/dose | 3.0 billion | 1.5 billion |
| # boars needed | 41.25 | 20.625 |
| Average boar index value | 100 | 110 |
| Difference | 0 | 10 |
| Value index point | \$ 0.10 | \$ 0.10 |
| Finishers/sow/year | 27 | 27 |
| \$ value | | \$ 270,000 |
| \$ per finisher | | \$ 1.00 |
| \$ per sow | | \$ 27.00 |
| \$ per dose | | \$ 4.91 |

From an AI station perspective, the high productivity of the boars has allowed TOPIGS AI stations to keep semen prices down.

From TOPIGS' perspective, the lower limits on LSC per dose and the upper limits on fertility have not yet been reached. We expect that an even lower sperm count per dose is possible and the challenge remains to achieve this in a controlled manner. Continuous research on the management factors influencing semen quality and fertility will remain essential to achieve this goal especially with the implementation of genomic selection which will allow TOPIGS to increase the speed of genetic improvement, via the early identification of superior boars with a much higher reliability.



Producer PROfile – Hillside Hutterite Colony



Amongst the gently rolling terrain just south of Doland, South Dakota you will find the Hillside Hutterite Colony.

Hillside Colony was established in 1958 and currently has a population of 130 people. The members of the Hillside community work together as one unit in this diversified enterprise. Each member has a specific responsibility in one of the various farming related enterprises. The colony holding consists of 8,000 acres, growing corn, soybeans and wheat. Production of 120,000 turkeys annually and 500 beef cows round out much of their farm business.

The Hillside Colony has also had a long history in hog production. Historically, they had a commercial farrow to finish 500-sow production unit. In October of 2009 they made a decision to disperse the sow herd and focus on custom finishing pigs. This allowed them to generate some cash from their buildings while not having the risk of hog markets or input costs.

Custom finishing hogs only required the use of their finishing barn and allowed the colony to repair and upgrade the farrowing and nursery barns. While general upgrades and equipment repairs were done, the nursery barn was totally remodeled. The inside of the barn was gutted and new pits and equipment were installed. All of the renovations were done to prepare the barns as a farrow to finish unit again.

In the spring of 2011, all of the projects were completed and they were ready to return to farrow to finish production. This meant finding a source for highly productive, healthy breeding females. The finisher barns were not refilled and the task of deciding which genetic company to populate their sow herd with began.

In 2011, TOPIGS USA had some presence in the Midwest and was in search of top quality producers to become multipliers for their rapidly growing business. Contact was made with Hillside Colony and discussions resulted in Hillside accepting the offer to become a multiplier for TOPIGS USA.

In October 2011, Hillside began to stock their farm with 500 TOPIGS Z-line gilts (Dutch Large White) to be bred to N-line (Dutch Landrace) boar semen from the Ai Partners stud in Morris, Minnesota. This breeding program produces the TOPIGS 20 F1 gilt. The 20 line is known as the most prolific commercial female in the industry with average weaning numbers of almost 29 pigs per sow per year.

Robert Glanzer and his brother Zack manage the farm along with Sam Waldner. They are pleased with their choice to become TOPIGS multipliers and running a purebred herd. Presently their second parity sows are farrowing 14 piglets born alive and weaning almost 12 pigs per litter. This is considerably better performance than many commercial farms achieve.

“These sows are easy to manage” says Robert, the unit manager. “They are docile and show no aggression, along with being good, calm mothers. We are having nice even litters; the pigs are strong and robust. Breed back after weaning has been great,” he goes on, “we wean on Thursday and we have no trouble with sows returning to estrus by Monday and Tuesday.”

Even though the oldest sows at Hillside are only approaching their third parity, the TOPIGS sows exhibit characteristics of good longevity. “They have good structure and legs” says Robert, “you can tell that these sows will last in our herd for many parities.”

Robert’s brother Zack manages the grow out barns at Hillside. “I am impressed with the growth of the TOPIGS gilts. These are nice looking gilts that have good length and good structure. They will work well in any herd.”

Recently, Hillside became the centre point for shipment of 6,000 gilts to Norson, a pig production company in Mexico. All of the animals shipped to Norson had to undergo blood testing and meet health requirements for international shipment. The testing, vaccination, and tagging of the gilts for shipment became an entire colony event. As many as 2,000 head of gilts had to be tested, tagged, and vaccinated in one day for each shipment. In true community spirit, 30 members of the colony pitched in to get the work done each time.

Robert, Zack, and Sam are pleased with the progress they have made since the original sow herd was sold. They have remodeled and updated their barns and are now part of the TOPIGS family. Robert sums it up this way: “It’s more than the genetics and the animals that made this a good decision; it’s all the people at TOPIGS that makes this work.”





TOPIGS: Genetics that can do more with less

TOPIGS Feed Group, TOPIGS International

Given the world feed market and current international feed developments, the swine industry is in search of alternative feed ingredients - alternatives that provide solutions to elevated feed prices and unpredictable environmental challenges.

A recent article by Dr. Hans H. Stein, Professor of Animal Sciences at the University of Illinois, titled "Finding ways to feed pigs for less", concluded that differences exist between breeds in regards to the efficiency in which fibres are digested. Dietary fibres are the predominant component in low quality or alternative raw materials. Dr. Stein commented that we, as an industry, need to explore opportunities for feeding more economically.

As part of Dr. Stein's project, The University of Wageningen in the Netherlands performed an experiment called "On the road to 1000 grams of gain" where they fed a wide range of diets to TOPIGS-sired grow-finish animals. Diets had a different composition each week, contained a wide variety of lower quality raw materials, and were less expensive to formulate than control diets.

Experimental diets were equal-caloric and equal-amino acid compared to control diets; however, the raw materials used in the experimental diets varied frequently in an effort to simulate a volatile feed market. Alternatives for corn included: wheat, barley, rye, fats and oils, bread meal and maize gluten feed. Alternatives for soy included: peas, canola, sunflower meal, and palm kernel.

| | Control | Diets changed weekly |
|-------------------|-----------------------|-----------------------|
| Start weight | 24.5 kg (54.0 lbs.) | 24.5 kg (54.0 lbs.) |
| End Weight | 118.0 kg (260.1 lbs.) | 118.7 kg (261.7 lbs.) |
| ADG | 855 g (1.88 lbs.) | 864 g (1.90 lbs.) |
| Feed Intake | 2.17 kg (4.78 lbs.) | 2.17 kg (4.78 lbs.) |
| Total days finish | 109.5 days | 109.2 days |
| FCR | 2.54X | 2.51Y |
| Feed Cost (€) | € 0.64 / kg gain | € 0.63 / kg gain |
| Feed Cost (C\$) | \$ 0.79 / kg gain | \$ 0.78 / kg gain |
| Feed Cost (USD) | \$ 0.36 / lb gain | \$ 0.35 / lb gain |

XY Significant differences ($P < 0.05$)

It was found that finishing pigs fed starter, grower, and finisher diets with a different composition of raw materials each week showed a similar feed intake, growth and slaughter quality to finishing pigs that received constant-composition diets. Feed conversion was slightly improved with the less expensive experimental diets that changed weekly.

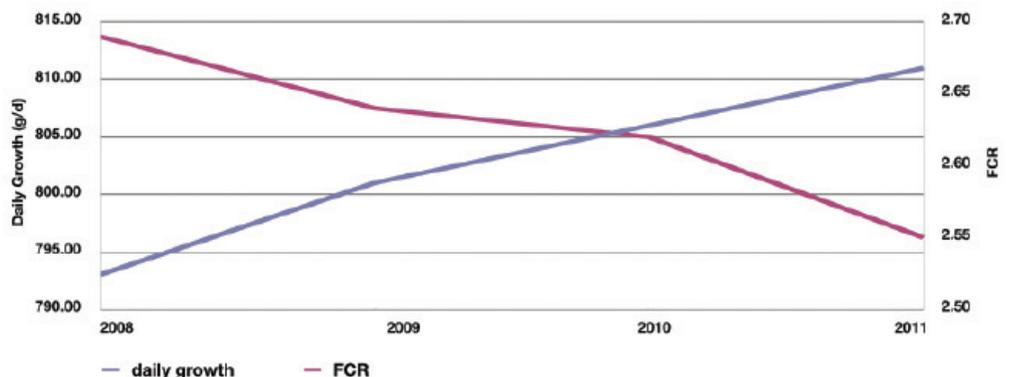
It was also concluded that TOPIGS-sired animals are more robust and capable of coping with abrupt changes in their diets, without negatively affecting their performance.

References

- Urriola, P.E. and H. H. Stein. Comparative digestibility of energy and nutrients in fibrous feed ingredients fed to Meishan and Yorkshire pigs. J ANIM SCI 2012, 90:802-812
- Effect van grondstoffsamenstelling en aminozuurgehalten op technische resultaten van beren, borgen en zeugjes. Report 563. February 2012.

Growth and FCR TOPIGS Finishers

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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

A.I. PARTNERS

Morris, MN
 Contact: Bruce Zierke
 Lab/Office: 800-247-0254
 Email: bzierke@zierkecompany.com

DUTCH SIREs

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

TOPIGS Canada Boar Studs

Magnum Swine Genetics Inc.

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

Ontario Swine Improvement Inc.

Innerkip, Ontario
 Contact: Marlow Gingerich
 Lab/Office: (800) 493-2627
 Email: mgingerich@osi.org

Alberta Swine Genetics Corporation

Nisku, Alberta
 Contact: Gregory Leboa
 Lab/Office: (800) 691-3060
 Email: gregasgc@gmail.com

Total Swine Genetics Inc.

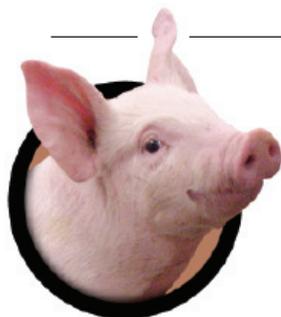
Tillsonburg, Ontario
 Contact: Stuart De Vries
 Lab/Office: (800) 844-9913
 Email: sdevries_shadeoak@sympatico.ca

Carlo Genetics Inc.

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

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 to be received by October 31, 2012. Winners will receive a desk statue of a TOPIGS boar or gilt. If you wish, the TOPIGS rep in your area will deliver the prize. Employees of TOPIGS and their subsidiaries are not eligible.

Please contact us for more information:

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

Sergio Sosa, Manitoba & Saskatchewan Business Development
 (204) 792-0776

Fred Coykendall, Business Development, Alberta and Montana
 (780) 878-5122

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

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

TOPIGS INSIDER Quiz

How much economic value does each TOPIGS boar selection Index point represent per finisher pig?

How many Dutch farms achieved 32 or more piglets / sow / year in 2011?

How many pigs / sow / year were weaned by the best producer in Belgium?

What is the average born alive in the Z-line Parity 2 females at Hillside Colony?

Name: _____

Farm Name: _____

Address: _____

Phone #: _____

Email: _____

TOPIGS INSIDER Quiz Winners

Here are the winners from last issue: Dr. Joe Connor, Carthage, IL; Rhonda Waldner, Cool Spring Colony, MB; Lillian Hofer, James Valley Colony, MB; Robert Kleinsasser, Rosebank Colony, MB; Dale Waldner, Red Willow Colony, SD; Joseph Hofer, Spring Lake Colony, SK; Andrea Waldner, Plainview Colony South, MB; Dave H. Waldner, Evergreen Colony, AB; Steve Mandel, Shamrock Colony, AB; Tracy Hofer, James Valley Colony, MB

Each winner receives a TOPIGS cookbook. The TOPIGS rep in your area will deliver your prize. Congratulations!

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