the INSIDER

TOPIGS Canada Inc. | TOPIGS USA Inc. | Winter 2013

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2013 TOPIGS Canada Inc. Customer Appreciation Night



The annual TOPIGS Customer Appreciation Night for Western Canada was another huge success, and the guest list continues to grow year on year. With higher hog prices and lower feed prices the room had a definite mood of optimism and a positive attitude. The annual event is highlighted by the Production Awards Ceremony, and this year included an interesting and informative guest speaker.

After a delicious dinner and dessert, Trent Loos from Litchfield Nebraska addressed the crowd. Trent travels the globe to unearth stories about the people involved in the many different facets of production agriculture and to spread the good word about food producers. His entertaining and informative talk was enjoyed by all in attendance.

Cam McGavin, TOPIGS General Manager, thanked Trent for his words of wisdom and commitment to promoting agriculture. He also went on to thank the many customers in attendance for their business and dedication to being among the best producers in the world.

Awards were presented to the winners and runners-up for the best numbers in various production categories. Participation in the awards competition is optional for customers. Awards are presented based on a one year period of performance ending June 30, 2013 from herds using TOPIGS genetics. This year's data from participants included more than 53,000 sows from Canada and Montana with herd sizes averaging 1,090 sows per farm. All data from participating herds are submitted to



SMS Swine Smart System Benchmarking (SMS) in Nebraska for data verification and equal calculations between herds.

Top producing TOPIGS customer herds are now achieving more than 30 pigs weaned / mated female / year, more than 14 pigs born alive / litter and weaning over 12 pigs / litter. The average production numbers of the total sows entered were: 88.5% Farrowing Rate, 13.02 Pigs Born Alive / litter, and 27.71 Pigs Weaned / Mated female / year.

Here is the summary of the 2013 production award winners and runnersup by category.

Herds of 500 Sows or Less Category:

Farrowing Rate

Winner with 93.2% – VDK Farms of Three Hills, Alberta Runner-up with 92.1% – Springdale Colony of White Sulphur, Montana

Born Alive

Winner with 14.09 – Keho Lake Colony of Barons, Alberta Runner-up with 14.01 – Arnold van Ginkel of Leslie, Alberta

Pigs Weaned / Mated Female / Year

Winner with 31.56 – Keho Lake Colony of Barons, Alberta Runner-up with 30.91 – Cool Spring Colony of Minnedosa, Manitoba

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Blue Ribbon Swine - 93.6% Farrowing Rate



James Valley - 29.44 Pigs Weaned Per Sow



Sunnybrook Site 1 - 30.18 Pigs Weaned Per Sow







Quinfield Farms - 29.32 Pigs Weaned Per Sow



Blumengart - 29.63 Pigs Weaned Per Sow

Herds of 501 – 1,200 Sows Category:

Farrowing Rate

Winner with 94.6% – Lakeside Colonv of Cranford, Alberta Runner-up with 93.5% – Garden Plane Colony of Frontier, Saskatchewan

Born Alive

Winner with 13.82 - Mystique Pork of Stephenfield, Manitoba Runner-up with 13.75 – Wohlgemuth Farms of Aylesford, Nova Scotia

Pigs Weaned / Mated Female / Year

Winner with 29.63 – Blumengart Colony of Plum Coulee, Manitoba Runner-up with 29.44 – James Valley Colony of Elie, Manitoba

Herds of 1,200 Sows or More Category:

Farrowing Rate

Winner with 93.6% - Blue Ribbon Swine of Grunthal, Manitoba Runner-up with 93.3% - Quinfield Farms of Lowe Farm, Manitoba

Born Alive

Winner with 13.69 - Sunnybrook Swine Site 1 of Ste. Agathe, Manitoba Runner-up with 13.53 - Blue Ribbon Swine of Grunthal, Manitoba

Pigs Weaned / Mated Female / Year

TOPIGS Progress in Pig

Winner with 30.18 - Sunnybrook Swine Site 1 of Ste. Agathe, Manitoba Runner-up with 29.32 - Quinfield Farms of Lowe Farm, Manitoba

At this year's banquet, a record number of award plaques were handed out to the winners of the TOPIGS 26+ Club Award. The 26+ Club Award was presented to 43 farms! This award is presented to the herds producing greater than 26.0 pigs weaned / mated female / year. The average result from the winners in this year's 26+ Club was 28.12 pigs weaned / mated female / year. This is an increase of .32 pigs weaned from 2012. The award recognizes the hard work of customers in attaining these numbers and demonstrates the genetic potential of **TOPIGS** breeding stock.

The award for Best New Start-Up Herd in 2013 was awarded to Kuijpers Key Farm of Strathroy, Ontario. This award is presented to a new herd of any size that has not yet reached an average parity herd and was recently populated with TOPIGS females. The Kuijpers farm was featured in the Summer 2013 issue of the TOPIGS Insider. In the start-up phase of this 550 sow unit they used an off-site finisher barn to breed their TOPIGS 20 gilts. They were then moved to the main production unit prior to farrowing. Considering the off-site breeding and the movement to the main barn as bred gilts, this farm had outstanding results in its first eight months of production. At an average parity of 1.43, the gilts weaned 11.38 pigs / litter resulting in 28.41 pigs weaned / sow / year!

Thank-you to all who attended and helped make the evening a wonderful success! We look forward to more great results in 2014.



CDPQ Trial Results

The Centre de Développement du Porc du Québec inc. (CDPQ) has released the results of its most recent genetic evaluation trials which compared four sire lines:

- Genesus Duroc from Genesus Inc.
- Magnus from Hypor Inc.
- Talent from TOPIGS Canada Inc.
- Tempo from TOPIGS Canada Inc.

Objectives

CDPQ conducts genetic comparisons on behalf of Quebec's commercial producers and pork industry stakeholders so that all may better understand the growth performances, carcass and meat quality of commercial pigs sired from terminal lines representative of genetic lines available in Québec.

Description of the trials

Two consecutive trials were carried out at the Deschambault swine testing station from May 2012 to May 2013, the second being a repetition of the first trial. Animals originated from twelve commercial breeders in Quebec; each farm provided all four genetic combinations to the testing station.

For both trials, the testing phase corresponds to the growth phase in which the pigs weights increased from 29.6 kg to a targeted slaughter weight of 130 kg. Growth, carcass and meat quality performances were measured. During each trial, individual feed intake was measured using an automated feed recording system (IVOG).

Average zootechnical performance data are considered excellent for commercial pigs originating from several herds, especially since no growth factor was administered as a preventive measure during the test period. The conditions in the testing station, therefore, allowed pigs to adequately express their genetic potential.

| | Sire Lines | | | |
|-----------------------------|---------------|--------------|---------------|--------------|
| GROWTH PERFORMANCE | Genesus Duroc | Hypor Magnus | TOPIGS Talent | TOPIGS Tempo |
| (30 – 130 kg) | | | | |
| Feed Conversion Ratio | 2.61 | 2.52 | 2.51 | 2.51 |
| Daily feed intake (kg/d) | 2.78 | 2.70 | 2.58 | 2.65 |
| Daily feed intake (lb/d) | 6.13 | 5.95 | 5.69 | 5.84 |
| Average Daily Gain (g/d) | 1067 | 1081 | 1038 | 1066 |
| Average Daily Gain (lb/d) | 2.35 | 2.38 | 2.29 | 2.35 |
| | | | | |
| CARCASS GRADING (Destron) | | | | |
| Backfat Depth (mm) | 20.54 | 19.86 | 17.41 | 17.78 |
| Backfat Depth (in) | .81 | .78 | .69 | .70 |
| Muscle Depth (mm) | 67.13 | 68.15 | 69.66 | 68.76 |
| Muscle Depth (in) | 2.64 | 2.68 | 2.74 | 2.71 |
| Lean Yield (Quebec grid, %) | 60.01 | 60.34 | 61.49 | 61.25 |
| | | | | |
| Loin Eye Area (sq.cm) | 50.14 | 50.94 | 53.29 | 51.50 |
| Loin Eye Area (sq.in) | 7.77 | 7.89 | 8.27 | 7.98 |
| Carcass Length (cm) | 84.97 | 85.26 | 85.25 | 85.46 |
| Carcass Length (in) | 33.45 | 33.56 | 33.56 | 33.65 |
| Carcass Yield (%) | 80.47 | 80.44 | 80.86 | 80.57 |

Conclusions

These trials at the Deschambault swine testing station clearly demonstrated differences in genetic potential between the four sire lines assessed. This independent terminal sire test demonstrated that TOPIGS boars provide better feed conversion, less backfat, larger loins, and higher lean yield.

For more details on this trial, or to obtain the complete description of the experimental protocol, visit www.cdpq.ca or contact your local TOPIGS representative.







Adapted Sows are Better in the Heat

by Egbert Knol Director of TOPIGS Research Center IPG in The Netherlands

Heat tolerance is already an important consideration for pig herds operating where the climate is hot. They know all about the need to have pigs that will keep performing well, even when temperatures are high.

This requirement is sure to increase. The fastest growth in pig production over the next three decades is predicted to occur in areas of the world which have a hot climate, such as in South-East Asia and Latin America.

Modern pigs have become more sensitive to high temperatures because of the genetic improvement applied to them. The metabolism of the pig selected for faster lean gain produces more heat within the animal's body and this means it is less adapted to cope with a challenging environment.

An increasingly important question, therefore, is whether the suppliers of genetics are doing enough to provide the breeding pigs that can tolerate the heat without suffering a significant loss of performance. Some valuable insights have been gained from investigations at TOPIGS that probed the genetic aspects of heat stress sensitivity and sow reproduction.

What is hot?

The research looked especially at the relationship between the temperature to which a sow is exposed and her farrowing rate, defined as her ability to become pregnant from the first insemination and to maintain the pregnancy subsequently until farrowing. Rather to our surprise, it revealed that upper critical temperature thresholds for sows of different breeds or lines could be estimated from real-life production data.

An upper critical temperature in this case is the point at which the farrowing rate of a sow starts decreasing. This point has been defined by our research as a maximum daily temperature of 19.2°C (66.6°F). In other words, for practical purposes the operator of a sow herd can assume heat stress to occur if the environmental temperature around the sows is at or above 20°C (68.0°F).

Even more revealingly, the investigations identified that temperature sensitivity in the sow's reproduction cycle is not limited to the day of insemination. In fact the influence of temperature on her farrowing rate begins three weeks before she is inseminated. Most probably this relates to the fact that three weeks is the length of the sow's normal cycle and therefore the heat stress has occurred just when a new wave of ova was being recruited.

Do genetic lines differ?

The research examined the records of almost 94,000 first inseminations on nearly 24,500 sows at 33 farms in Spain and Portugal. The results convinced us that there are quite relevant differences between families for their ability to tolerate a warm environment.

Figure 1 illustrates farrowing rate results according to the temperature on the day of insemination, for Yorkshire and Large White purebred sows in Spain. Production by the Yorkshire sows (dotted line) is better at the lower temperatures, but starts to drop after about 20°C (68.0°F). Above this temperature, the farrowing rate decreased by 1 percent for every degree Celsius increase. However, the performance of the Large White sows (black line) is less affected by temperature and it begins to match or exceed the Yorkshire farrowing rate after 23°C (73.4°F).

Figure 1. Farrowing rate of Yorkshire and Large White dam lines in relation to maximum temperature at day of insemination.



This is a strong indication that genetic differences exist in how animals respond to increasing temperatures. Some families drop their performance dramatically when the ambient temperature rises above the upper critical threshold, others react more mildly and some families (such as the Large White line in Figure 1) appear not to react at all.

Select for tolerance?

Although both heat tolerance and farrowing rate are traits with a low heritability, they still exhibited a variance genetically that selection schemes could potentially use to achieve an improvement.

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TOPIGS



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The information is already being applied by TOPIGS. As part of its policy of making sure that the sows in customers' herds perform robustly regardless of the local environment, the company has included farrowing rate in the breeding goals for the dam lines supplied to the warmer-climate areas of Asia, South America and southern Europe.

Which data?

Which temperature to use? Data from unfavourable conditions are a better option because the genetic variance is higher there. More variation always means more possibilities for genetic improvement. Unfavourable in this instance would include the challenging heat of a high ambient temperature.

At TOPIGS, we use data from commercial practice in addition to information from the top of the breeding pyramid. We believe in collecting data on crossbreds as well as purebreds, in the environments where the customers' animals are expected to perform. Selecting exclusively on pureline performance without data from crossbred sows carries a real risk of choosing the wrong candidates for the next generation. Equally, selection decisions must take full account of the performance of crossbred pigs in their various commercial environments.

Wider benefits?

Heat stress is only one of the four main challenges that can prevent the achievement of excellent performance results in pig production -- the others being disease, poor feed quality and a shortage of qualified labour. The sows that are steady producers in the sense of being more heat-tolerant may also be more robust or rugged in their ability to tolerate poorer management or feeding.

Ultimately, the research has backed the TOPIGS policy of developing a product range of specialised breeds or lines. Specialisation implies selecting some lines to be aimed specifically at moderate climates or controlled-environment conditions, in which they will achieve a high production level. Meanwhile there are other lines in the breeding program that are the steady producers, directed where they gain from their ability to cope better with challenges -- even if this may be at the expense of losing some efficiency when the temperature is less high.

Full Genome Sequence of 70 TOPIGS Pigs

Researchers from TOPIGS Research Center IPG and the Animal Breeding and Genomics Group at Wageningen University recently sequenced the full genome of 70 TOPIGS pigs. As a result of the sequencing, more than 10 million new SNPs have been identified.

The information from this sequencing increases the range of possibilities TOPIGS has to improve and speed up genetic progress within its lines. Having more precise information about the effect of genes and where they are located improves the accuracy of breeding and also makes it possible to breed for new traits.

An international consortium of researchers and sponsors from the breeding industry, including TOPIGS, recently published the complete pig genome sequence in the scientific journal *Nature*. This information provides not only the basis for the genomic selection tools but also for analyses of the TOPIGS pigs' sequences.

These data also provide new insights into areas of the genome that were preferably maintained during pig domestication and breeding. Researchers can even distinguish between older and more recent selection pressure. This research will contribute to the use of genomic tools in animal breeding.

TOPIGS

Innovations in the field of genomic selection are already increasing the genomic progress of TOPIGS lines today. It is expected that the full effect of this will become noticeable over the next few years, creating more genetic progress for our clients.





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

DUTCH SIRES

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

Power Point Boar Stud Freeman, SD Contact: Steve Schmeichel Lab/Office: (605) 366-9532

Email: ssag@goldenwest.net

Mar-Ke Semen Service Sharon, WI Contact: Keith Rithamel Lab/Office: 262-736-2346 Email: mar.ke@sharontelephone.com

TOPIGS Canada Boar Studs

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





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 January 31, 2014. Winners will receive a \$20.00 Walmart Gift Certificate 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

HOW TO TOPIGS INSIDER Quiz

In the CDPQ trial, what was the Feed Conversion for the TOPIGS Talent?

What was the average pigs weaned / mated female / year for this year's 26+ Club?

How many sows were used in the Heat Tolerance research project?

How many new SNPs have been identified through sequencing the full genome of 70 TOPIGS pigs?

Name:

Farm Name:

Address:

Phone #:

Email:

TOPIGS INSIDER Quiz Winners

Here are the winners from last issue: Reuben M. Wurz, Albion Ridge Colony, AB; Jenny Kleinsasser, Rosebank Colony, MB; Danny Kleinsasser, Springfield Colony, MB; Joseph Wollman, Long Lake Colony, SD; Philip Gross, Mayfair Colony, MB; Marg Rempel, Rempelco Acres, MB; Eda Tamara Walter, Spring Point Colony, AB; Sam Waldner, Evergreen Colony, MB; Will Waldner, Birch Creek Colony, MT; Dale Waldner, Red Willow Colony, SD. Each winner receives a TOPIGS Portfolio. The TOPIGS rep in your area will deliver your prize. Congratulations!

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