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Willow Creek West -- 31.27 PSY

2016 Topigs Norsvin Canada Awards Banquets

November is the month when Topigs Norsvin Canada takes the time to recognize the achievements of our customers. Awards banquets were held in Winnipeg, Manitoba and Stratford, Ontario. These events are all about providing an opportunity to not only to give recognition to the outstanding and exceptional achievements of our Canadian and Montana customers, but to also thank them for their loyal patronage as customers of Topigs Norsvin. The annual event offers a chance to update customers on recent achievements and new developments as a company, and it is capped off by the highly anticipated Production Awards ceremony.

As a company whose focus is "Progress in Pigs," Topigs Norsvin Canada made several important advancements in the past year. Cam McGavin, General Manager, updated the attendees in Winnipeg on a number of these developments, including a recently announced alliance with Peak



RFW Farms-Kincardine Sow Unit -- 92.4% Farrowing Rate

Swine Genetics of Leduc, Alberta, as well as several key additions to the Topigs Norsvin Canada team. Most notably was an overview of the nearly \$10 million state-of-the-art Delta II boar testing and research complex to be built in Manitoba that will be the sister facility to Delta I in Norway, and will be the only one of its kind in North America.

Cam concluded by thanking our customers for their business which has resulted in Topigs Norsvin being the largest and fastest growing swine genetics company in Canada, and for their dedication to being among the best producers in the world.

Peter van Kemenade, Regional Director of the Americas, addressed the group in Stratford with an overview of the "marriage" between Topigs and Norsvin. He went on to highlight the progress made with new products like the TN70, and successes in the past few years.

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 were presented based on a one-year period of performance ending July 2, 2016 from herds using Topigs Norsvin genetics. This year's data from participants included 72 farms with 70,769 sows from Canada and Montana with herd sizes averaging 983 sows per farm. The number of farms participating and the size of the sow herds continue to increase. All data from participating herds are submitted to Swine Management Systems (SMS) in Nebraska for data verification and equal calculations between herds.

This year the average for the best 10 herds (14%) exceeded 30 pigs weaned / mated female / year. Of the 72 farms, 98.2% of the farms are weaning more than 25 pigs / sow / year.

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Topigs Norsvin customer herds continue to achieve better results year on year.

The 2016 production award winners and runner-up winners are listed by category.

Herds of 500 or Less Sows Category:

Farrowing Rate

Winner with 93.0% - VDK Farms, Alberta
Runner-up with 92.6% - Albion Ridge Colony, Alberta

Born Alive

Winner with 14.75 – A & A Van Ginkel, Alberta
Runner-up with 13.8 – Horizon Colony, Manitoba

Pigs Weaned / Mated Female / Year

Winner with 30.90 – Cool Spring Colony, Manitoba
Runner-up with 30.27 – A & A Van Ginkel, Alberta

Herds of 501 – 1,200 Sows Category:

Farrowing Rate

Winner with 93.0% - Huron Colony, Manitoba
Runner-up with 92.4% - Kincardine Sow Unit-RFW Farms Ltd., Ontario

Born Alive

Winner with 13.99 – Willow Creek Colony (West), Manitoba
Runner-up with 13.96 – Blumengart Colony, Manitoba

Pigs Weaned / Mated Female / Year

Winner with 31.31 – Evergreen Colony, Manitoba
Runner-up with 31.27 – Willow Creek Colony (West), Manitoba

Herds of 1,200 or More Sows Category:

Farrowing Rate

Winner with 92.4% - Adare Pork, Ontario
Runner-up with 92.0% - Stonywood Farm, Ontario

Born Alive

Winner with 13.8 - Morris Piglets South, Manitoba
Runner-up with 13.57 – Morris Piglets North, Manitoba

Pigs Weaned / Mated Female / Year

Winner with 30.48 – Adare Pork, Ontario
Runner-up with 29.09 – Stonywood Farm, Ontario

This year the 26+ Club Award was presented to 60 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 28.23 pigs weaned / mated female / year. The award recognizes the hard work of customers in attaining these numbers and demonstrates the genetic potential of Topigs Norsvin breeding stock.



Morris Piglets South --13.8 Born Alive



Adare Pork -- 92.4% Farrowing Rate & 30.48 PSY



Eastern Canada 26+ Club



Western Canada 26+ Club

Breeding for Crossbred Performance

Breeding for crossbred performance

Traditionally, estimation of breeding values has used data collected from purebred animals collected at nucleus farms. Although this strategy has enabled important genetic progress for decades, improvements made at the nucleus are not fully realized at the commercial level. This inefficiency is expected in traits for which the genetic correlation between purebred and crossbred performance deviates considerably from one, a characteristic that is typical for production traits, such as feed intake and growth.

There are different reasons for a low genetic correlation between purebred and crossbred performance: the presence of dominance, imprinting, and genetic differences between breeds. Moreover, specific genotypes can show different effects in different environments (genotype by environment (GxE) effects). Therefore, dominance, imprinting and breed-specific effects could be considered in order to improve the efficiency of selection when selecting purebreds for crossbred performance. Furthermore, crossbred field data could be included, in

addition to purebred data, in the genetic evaluations to account for GxE effects.

Crossbreds in the genomics era

With the implementation of genomic selection in pig breeding, the genetic progress in purebred populations is expected to increase by more than 35% compared to traditional selection. However, as most animals in the pork production system are crossbreds, the increase in genetic progress in purebreds will add much more value to commercial production if this progress is also realized in crossbreds.

The genome of crossbred animals is formed by the combination of alleles inherited from the parental breeds that may be expressed differently according to their parental or breed of origin, but also depending on the interaction between alleles and the environment where the animals are located. Topigs Norsvin has focused on a better understanding of such combination and interaction of alleles to maximize the accuracy of selection in purebreds for crossbred performance.

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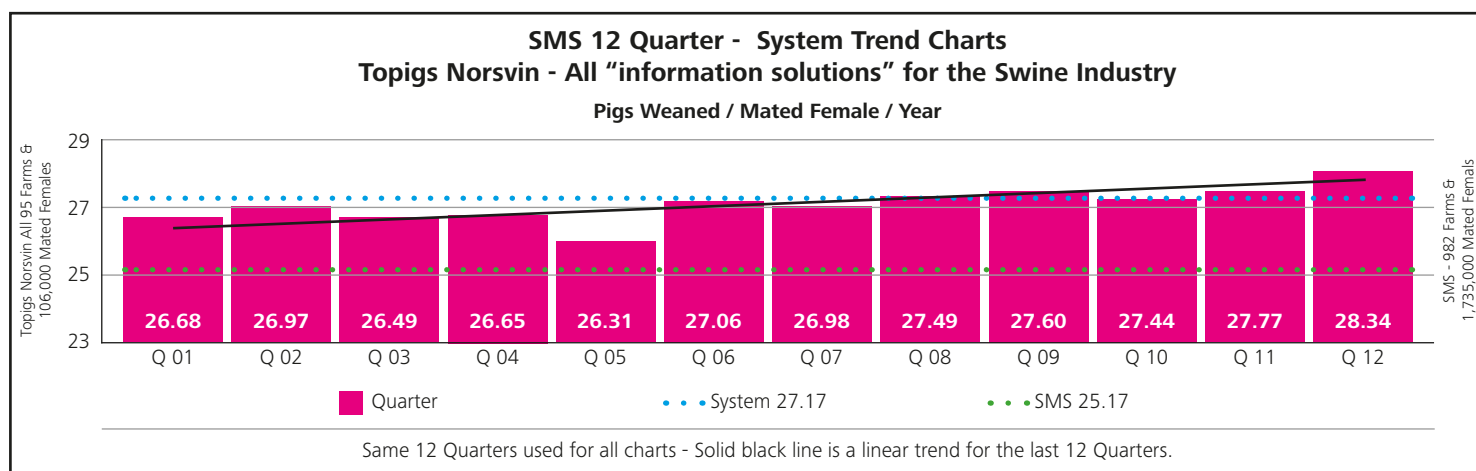
Swine Management Systems 2015/2016

Topigs Norsvin recently completed its annual reproduction benchmarking with Swine Management Systems (SMS) and our customers demonstrated a +2.55 pigs weaned / mated female advantage compared to the SMS industry average! In the most recent quarter (Q2, 2016), Topigs Norsvin females demonstrated an even greater reproductive advantage (+2.70 pw/mf), and further differentiated themselves in terms of sow death loss (5.7% Topigs Norsvin vs. 10.1% SMS average).

The SMS database includes data from 982 farms and 1,735,000 sows throughout the USA and Canada. For the 2015/2016 benchmarking, the list of participating Topigs Norsvin customers has grown to include 95 farms and 106,000 sows.

	# farms	# sows	52-week Q3, 2015 - Q2, 2016		13-week Q2, 2016	
			pigs weaned / mated female	sow death loss	pigs weaned / mated female	sow death loss
SMS - all	982	1,735,000	25.24	9.6%	25.64	10.1%
Topigs Norsvin Canada/USA - all	95	106,000	27.79	6.1%	28.34	5.7%
TN Canada/USA - multipliers only	12	11,600	27.62	6.0%	28.46	5.7%
Topigs Norsvin Canada - all	72	70,800	27.91	4.7%	28.73	4.5%
Topigs Norsvin USA - all	23	35,200	27.55	9.0%	27.55	8.2%

"The Z-line continues to prove herself as the best baseline female in the industry," commented John Sawatzky, Director of Sales for Topigs Norsvin Canada, referring to Topigs Norsvin's grandparent Large White line. "Our multiplier performance is outstanding (28.46 pw/mf; 5.7% sow death loss) and the trend lines are pointed in the right direction, so the future is going to be even better."



This year's benchmark is the first to include performance data from Topigs Norsvin's newest parent female, the TN70. "The TN70 is clearly having a positive impact for our customers," noted Mike Terrill, President and CEO, Topigs Norsvin USA. "These data mirror the feedback we have received from customers regarding improvements in both reproductive performance and sow death loss as more and more TN70s are integrated into their systems. Additionally, they are reporting improvements in both finisher performance and carcass cut-outs."

"Every year we have more and more customers electing to participate in this benchmarking program," added Sawatzky, "and every year the Topigs Norsvin numbers continue to improve." Participation in the annual SMS benchmarking program is provided by Topigs Norsvin to its customers at no cost. Customers receive detailed reports, including a wide variety of reproduction metrics, and performance trend lines for each sow farm in their production system. The benchmarking reports allow customers to compare their production to industry averages, but also provides an anonymous comparison to other Topigs Norsvin customers using the same products.

"This program began as an attempt to simply gather data but quickly developed into a customer service tool as well," added Jon Feitz, Director of Sales for Topigs Norsvin USA. "The SMS data reports and benchmarking provide valuable information to help us target potential areas of improvement for our customers and further enhance the performance of our products on their farms."

Producer Profile: Fiedler Finishing



Fiedler Family

In recent years, Fiedler Finishing has been converting its multi-faceted pig operations to Topigs Norsvin genetics. And every time they check data, their numbers confirm that it was a good decision to switch to Topigs Norsvin.

Based in Sauk Center, Minnesota, Paul Fiedler owns and operates Fiedler Finishing, which includes 3,000 commercial sows (Country Pork), their own feed mill (70k ton / year), a Topigs Norsvin multiplier (Crystal Lean), and excess finishing. Additionally, Paul owns his own trucking company (Kodiak Express) and farms 3,000 acres of corn and soybeans (P&S Family Farms).

Fiedler Finishing

"As we have made the transition to Topigs Norsvin, average daily gain has steadily improved," reported Paul Fiedler, "We have trialed a lot of other boars and the Tempo terminal sire is definitely the best product for us." Fiedler is pleased with cut-outs at both Tyson and Hormel. "Even the byproducts perform," Fiedler continued, "In addition to our own production, we have taken on maternal byproduct from other Topigs Norsvin multipliers, including pureline byproduct, and they get the job done at the packer, too."

"The Topigs Norsvin finishing pig is different than what we have experienced in the past," Paul described, "The animals in the barn are curious, not flighty. They come right up to you – they are social, without being aggressive."

Country Pork

"Compared to our previous genetic supplier, the full-program Topigs Norsvin pigs have lowered our pre-weaning mortality from 12-15% down to a consistent 8-9%," Paul shared, "and our wean weights have increased by over 1 lb at 18-20 days. The Topigs Norsvin parent female and the Tempo boar complement each other very well – she milks, and our rupture problem went away." Number born alive has increased as well. "As we continue to roll to 100% TN70's, we expect the numbers to get even better."

Crystal Lean

The Crystal Lean multiplier is in the process of rolling to the Z-line, Topigs Norsvin's baseline, Large White grandparent. "The impact of the Z-line is obvious: sow death loss decreased, conception rates improved, pre-wean

mortality decreased, wean weights are up, and we are seeing 1.0+ more born alive," commented Paul, "She can produce the pigs."



Crystal Lean

Kodiak Express

"Kodiak started out of necessity," Fiedler described, "There was a lack of biosecure trucking companies, so I started my own high-health transport fleet." Kodiak Express only hauls multiplication animals, and the stringent health protocols, blood testing, etc. go far beyond what most people need. "We have our own truck wash. Kodiak has not only increased our comfort levels regarding biosecurity, but also provides a lot of flexibility to our system."



Trucks at Mill

Working with Topigs Norsvin

"TN has really been growing for the last 3-4 years and it has been great to watch them grow. We have enjoyed being a part of it." Fiedler continued, "They provide the services we're all looking for and have a lot of good people in place. If I have a question about health, nutrition, or whatever, Topigs Norsvin has a contact that will help me work through the decision."

Topigs Norsvin Canada Inc. Announces New Manitoba Sales/Technical Representative



Geraldo Shukuri

Key appointment enhances Topigs Norsvin Business Development team

On October 24, 2016, Topigs Norsvin Canada announced that Geraldo Shukuri has joined its staff as Manitoba Sales/Technical Representative, based out of the Winnipeg head office. In his new role, Geraldo will be involved in business development in Manitoba. As well he will be responsible for technical support to customers in Western Canada.

Geraldo has more than 18 years of experience in swine production and technical support for large production systems in Brazil. He spent the last 12 years with a major swine genetics company. He graduated in 1998

with his Bachelor of Science in Veterinary Medicine from the Federal University of Minas Gerais (UFMG). "Geraldo brings a wealth of experience and new ideas to the dynamic Topigs Norsvin team in Canada and will be a great asset for us" said John Sawatzky, Sales Manager, Topigs Norsvin Canada.

"I am truly excited about the opportunity that exists in this industry and in particular at Topigs Norsvin," Geraldo said. "I am looking forward to supporting the Canadian customer base as well as the sales and production team. I am proud and excited to become part of the Topigs Norsvin team in Canada." Geraldo and his family will reside in Manitoba.

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To strengthen genetic progress in crossbred populations, Topigs Norsvin now includes genotypes and phenotypes of commercial crossbred animals into the genetic evaluation. Many projects at Topigs Norsvin have been carried out in order to investigate the best models and strategies to include crossbred genomic data into the genetic evaluation, including:

PhD project of Renata Veroneze

Renata evaluated how linkage disequilibrium (LD) can affect genomic selection. She showed that the LD patterns in purebred lines are not the same. This is an indicator that using crossbred data in the genetic evaluations of crossbred performance will result in higher prediction accuracies compared to using purebred data only.

PhD project of André Hidalgo

The main goal of André's thesis was to exploit genomic information from purebred and crossbred pigs. He showed that selecting purebreds for crossbred performance was more accurate when crossbred data were used in the genetic evaluations compared to using purebred data.

PhD project of Marcos Lopes

Marcos' PhD thesis evaluated and further developed different models of genomic information to improve selection of purebreds for crossbred performance. The results presented in his thesis show that by going beyond traditional genomic selection models, performance of animals can be predicted more accurately.

Topigs Norsvin Canada

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Canada

AI Stud Stations

Magnum Swine Genetics Inc.

Fort Macleod, AB
Andrew Buesekom
(888) 553-4844

Carlo Genetics Inc.

Ste. Anne, MB
Kyla Ripley
(204) 355-4012

Total Swine Genetics Inc.

Tillsonburg, ON
Stuart De Vries
(800) 844-9913

C & M Genetics

Lucan, ON
Dr. Corneliu Oltean
(888) 259-7594

Sunrise Genetics

Amherst, NS
Mike MacDonald
(902) 661-7883



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Canton, IL
Doug Groth
(217) 357-2811

Eastern Iowa AI

Spragueville, IA
Doug Peterson
(563) 689-6661

Mar-Ke Semen Service

Sharon, WI
Keith & Marie Rithamel
(262) 736-2345

Ai Partners-Skylab

Morris, MN
Bruce Zierke
(320) 760-3504

Whole Hog AI

Hartington, NE
Ron Brodersen
(402) 254-2444



Topigs Norsvin Insider Quiz

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 to: Fax: 204-489-3152 Email: info@topignorsvin.ca

Entries are to be received by January 31, 2017. The first 10 entries drawn with the correct answers will receive a \$20.00 gift certificate. The Topigs Norsvin rep in your area will deliver the prize. Employees of Topigs Norsvin and their subsidiaries are not eligible.

What is the total for pigs weaned / mated female for Topigs Norsvin Canada – all in Q2-2016? _____

By how much does genomic selection in pig breeding increase the genetic progress in purebred populations? _____

How many sows, in total, participated in the benchmarking from Canada and Montana? _____

How many pigs weaned / mated female advantage do Topigs Norsvin customers have in the SMS data? _____

Name: _____

Farm Name: _____

Address: _____

Phone #: _____ Fax #: _____ Email: _____

Topigs Norsvin INSIDER Quiz Winners

Here are the winners from the last issue: Kevin Hofer, New York Farming, AB; Janelle Nagel, Tenth Line Swine Inc., ON; Sam Waldner, Evergreen Colony, MB; Samuel Wipf, Grass Ranch South, SD; Stephanie Wisdom, Stanhope, IA; Johann J. Wurz, Albion Ridge Colony, AB; Laurie Connor, University of Manitoba, MB; Janice Wipf, Springfield Colony Farms, MB; Todd Erickson, North Dakota Pigs Coop, ND; Steven Gross, Mayfair Colony, MB

Winners from the last issue will receive a unique "Merry Pig."

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