

Congratulations to Our Award-Winning Customers!

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Topigs Norsvin USA celebrates our customers that have been recognized by their respective state pork producer associations for outstanding performance and dedication to the pork industry.



John Wipf, Oaklane Colony

South Dakota

John Wipf, Oaklane Colony - Dedicated and Distinguished Service Award

The Dedicated and Distinguished Service Award recognizes an individual who provides outstanding and dedicated service to the South Dakota pork industry. Oaklane Colony is a 1500-sow farrow-to-finish operation in Alexandria, South Dakota that produces Norsvin Duroc x TN70.



Chet & Cassie Mogler, Pig Hill

Iowa

Chet & Cassie Mogler, Pig Hill – Master Pork Producers

A Master Pork Producer award acknowledges excellence in pork production, as measured by pork production statistics, commitment to the We Care principles, and contribution to the community. Pig Hill is a 4500-sow commercial InGene herd in Alvord, Iowa producing TN Tempo x TN70.

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AIM conference



Topigs Norsvin Canada recently hosted the 10th AIM Worldwide seminar in Winnipeg, Manitoba. The theme of this year's meeting was "Clean, Sweep, and Eliminate." There were 55 attendees including Topigs Norsvin customers from 20 different countries.

Participants engaged in discussions and received updates on numerous topics including AIM BoarPro software development, research and marketing activities, quality control, subfertility detection techniques, and a review of international reproduction research. They also had the

opportunity to visit Topigs Norsvin's new Delta Canada boar test station and observe the CT scanning process.

AIM Worldwide stands for Artificial Insemination Management Worldwide and is a sister company of Topigs Norsvin. AIM Worldwide is an international organization focused on semen production to optimize reproduction and gene transport in the swine industry. It specializes in services and management support for AI and AI stations throughout the world.

Metabolomic and genomic approaches provide biological insight for complex behavior traits

Behavior traits, such as docility, ease-of-handling, and sociability, are becoming increasingly important for modern pork production. Increased attention to animal welfare requires pigs that can thrive in group-housed environments, while increased scale of production requires pigs that are easy-to-manage. For these reasons, breeding pigs for enhanced, desirable behavior has become an important part of Topigs Norsvin's breeding program.

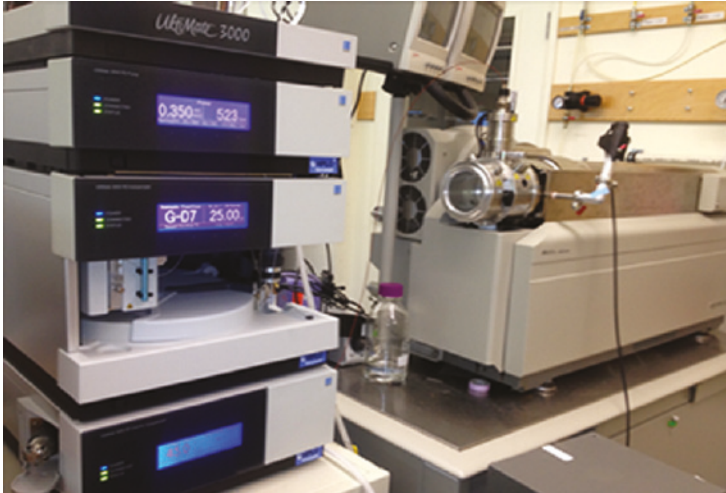
Pigs with desirable behavior should not only have good performance themselves, but also have a positive impact on the performance of their pen mates. The latter effect can be estimated using complex statistical models, summarized as an Indirect Genetic Effect (IGE), and, is heritable. Results from previous studies show that the progeny of high IGE parents performed less biting behavior and were less aggressive to pen mates upon mixing than progeny of low IGE parents.

These results show that it is possible to reduce the incidence of undesirable behavior by selecting animals with high IGE breeding values. However, many of the underlying pathways and biological mechanisms associated with tail

biting and general aggression, are not known. Therefore, a recent study was conducted in partnership with Livestock Gentec at the University of Alberta with the objective of identifying metabolites associated with behavior traits to: 1.) develop biological tests to screen young pigs for the propensity to develop desirable behavior; and to 2.) identify genes associated with behavior traits and key metabolites for behavior traits.

Tempo x TN20 finishing pigs (n=48) bred for high (n=27) vs. low (n=21) IGE for growth were used for this study. These pigs represented a subset of animals from a larger study designed to assess the impact of IGE on behavior. At 22 weeks of age, behavior observations were recorded for each individual (including incidence of performing vs. receiving tail damage) and blood samples were collected for metabolomics analyses. All metabolomics analyses were conducted at The Metabolomics Innovation Centre (University of Alberta) including assays for 249 compounds across multiple platforms (Figure 1). Physiological parameters were also evaluated for each blood sample, including: platelet number, platelet serotonin level, whole blood serotonin level, and blood platelet serotonin uptake.

Figure 1: Direct injection and tandem mass spectrometry with reverse-phase liquid chromatography and tandem mass spectrometry (one of the platforms used to perform metabolomics analyses).



Results show a significant, negative relationship between serum serotonin level and epinephrine level with tail damage score. Preliminary results also show that vitamins B2, B5, and B7, serotonin uptake, and platelet number, were significantly associated with tail biting behavior, where pigs with greater vitamin concentration, serotonin uptake, and fewer platelets were more likely to perform tail biting (Figures 2a and 2b). Additional results from a genome-wide association study revealed a region on chromosome 13 associated with IGE (Figure 3). The identified region is located near the synapsin II (SYN2) gene, which is involved in neurotransmitter secretion and has a known role in behavioral disorders in other species. Additional analyses are being conducted to investigate whether this same candidate gene is also associated with vitamin concentration, serotonin level, and serotonin uptake directly.

Figure 2a: Metabolites significantly associated with tail biting behavior.

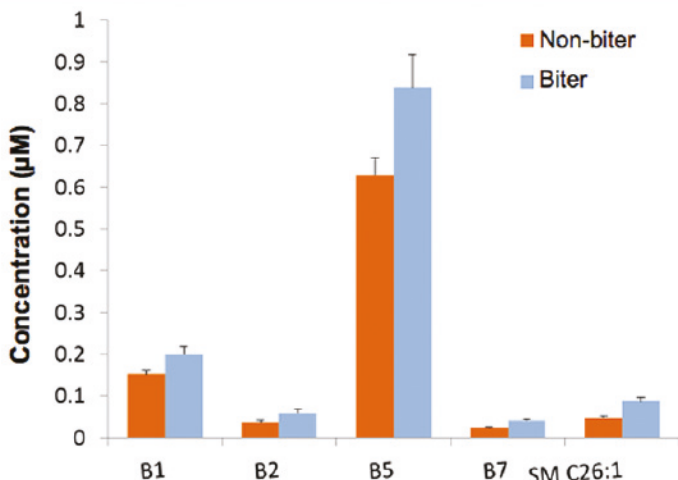


Figure 2b: Metabolite or blood parameter significantly associated with tail biting behavior.

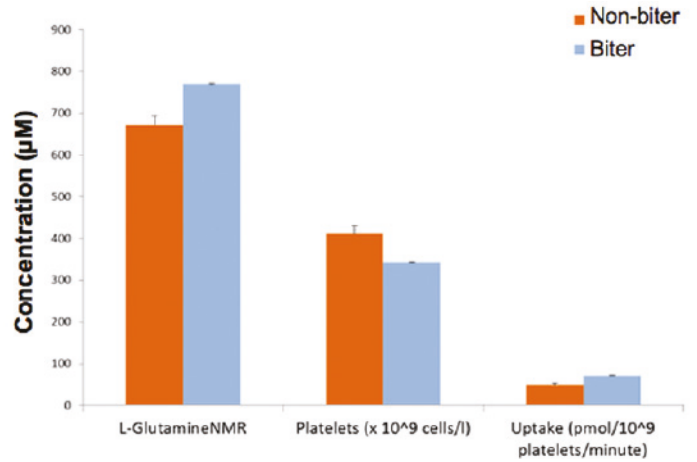
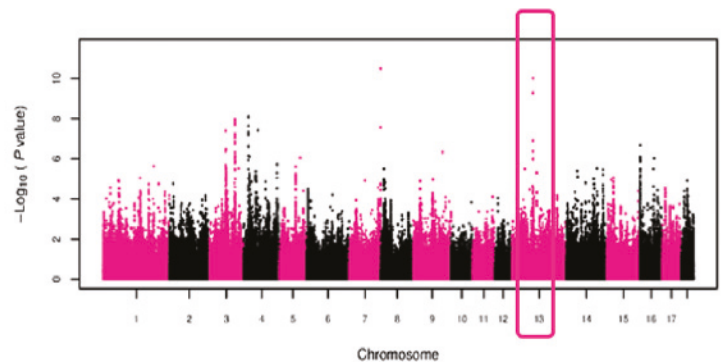


Figure 3: Results of a genome-wide association study reveals a candidate gene for Indirect Genetic Effects (IGE) on chromosome 13.



In summary, results indicate that, at the finisher stage, higher levels of serotonin and epinephrine are associated with increased tail damage, and increased vitamin concentration, serotonin uptake, and fewer platelets, is associated with propensity to exhibiting tail biting behavior. The association of IGE with a region on chromosome 13 suggests that these metabolites, associated with performing or receiving tail damage, may also be under some level of genetic control. Additional studies designed to validate these findings are currently underway. Ultimately, evaluating serum concentration of key metabolites may be used to screen pigs for desirable behavior traits and identification of associated genomic regions may be used to refine genetic selection for improved behavior.

This study is part of the project entitled "Genomic and metabolomics approach to improving new economically important traits in pigs" led by Dr. Elda Dervishi and Dr. Graham Plastow (Principal Investigator), and conducted in collaboration with Topigs Norsvin and Wageningen University. The project is funded by Alberta Agriculture and Forestry and by Mitacs Canada.

Mark Tijssen Appointed Chairman

On December 11, Mark Tijssen was appointed as chairman of Coöperatie Topigs U.A. and as chairman of the Supervisory Board of Topigs Group B.V. Mark operates a farrow-to-finish farm in The Netherlands and has been a member of the Supervisory Board since 2015.

John Lorist retires as chairman after nine years, during which Topigs Norsvin developed into one of the largest swine genetic companies in the world, highlighted by the merger between Topigs and Norsvin. John was named an honorary member of Coöperatie Topigs at his retirement.



Topigs Norsvin USA announces new boar studs



Long Creek AI Stud



Long Creek AI Lab

Topigs Norsvin USA is pleased to announce two new boar stud partnerships with TriOak Foods of Oakville, Iowa.

Long Creek Semen Center (Danville, Iowa) will house Topigs Norsvin genetics exclusively and has the capacity for 135 boars. This barn will be filtered and air-conditioned and will have semen available for sale beginning in summer 2019. Barlow Semen Center (Eads, CO) is a mixed genetics stud that will have Topigs Norsvin semen available in spring 2019.

“We are excited to work with and to partner with Topigs Norsvin in these studs,” commented Tom Gall, who oversees both Genetics and Research for TriOak Foods. “We were looking for a partner with the potential to grow, and Topigs Norsvin is clearly growing in the US marketplace. Globally, Topigs Norsvin is at the top in terms of market share and obviously has good products to offer to the industry.”

Long Creek and Barlow Semen Centers are welcome additions to the Topigs Norsvin USA family of boar studs. These new partnerships will enhance Topigs Norsvin’s distribution as well as increase the availability of terminal semen in order to meet the growing demand for Topigs Norsvin sires.

Year of the Pig



In the Chinese culture, The Year of the Pig recurs every 12 years and indicates good luck and prosperity for those born during the year.

Topigs Norsvin wishes you good fortune in The Year of Pig.

Awards Publishing Error

In the Winter 2018 edition of the Insider, we published an incorrect number in one of the production awards categories. Below is the corrected version. Our apologies for any inconvenience this may have caused.

Herds of 501-1200 sows

Farrowing Rate		East	West
Winner		Wohlgemuth Farms (NS) 93.6%	Evergreen Colony (MB) 93.8%
Runner-up		Van de Bruinhorst Acres Inc. (ON) 92.7%	Fal-Ric Farms (MB) 93.8%
			Huron Colony (MB) 93.4%
Pigs Born Alive/litter		East	West
Winner		Van de Bruinhorst Acres Inc. (ON) 14.22	Evergreen Colony (MB) 15.29
Runner-up		A-C DeGroot Farms (ON) 14.18	Blumengart Colony (MB) 14.77
Pigs Weaned/Sow/Year		East	West
Winner		RFW KSU (ON) 32.01	Evergreen Colony (MB) 32.69
Runner-up		A-C DeGroot Farms (ON) 31.84	Blumengart Colony (MB) 32.21

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Brothers Gary and Gerry Brands, Idlenot Farms

Brothers Gary and Gerry Brands, Idlenot Farms – 2019 Pork All-Americans

The IPPA Pork All-American award honors producers under 40 years of age who have established themselves as community leaders and successful and dedicated business people. The Brands were previously awarded the Master Pork Producer designation in 2009. Idlenot Farms (Inwood, Iowa) has 1500 TN70 sows in production with internal multiplication.

Michigan

Andy Snider, Snider Farms (Hart, MI) – Master Pork Producer

Snider Farms is a 600-sow pureline multiplier in Hart, Michigan producing Z-lines.

Ohio

Nathan Isler, Isler Crest Farms - Swine Manager of the Year

Isler Crest Farms is a 1200-sow TN70 herd in Prospect, Ohio.



Andy Snider, Snider Farms



Nathan, David and Scott Isler, Isler Crest Farms

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AI Stud Stations

Grand Vertex

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

Commercial Concepts A.I., Inc.

Needmore, PA
J. Mac Magee
(800) 573-4577

Ostler Sires

Frankfort, IN
Tawny Ostler
(765) 776-2156

Long Creek Semen Center

Danville, IA
Luke Newton
(319) 392-2004

Barlow Semen Center

Eads, CO
Dale Stewart
(719) 729-3444

US Sales Agents

Gordonville, PA

Abe Fisher
(717) 615-8378

Hamilton, IL

Terry Turner
(309) 337-5291

AgCentral

Canistota, SD
Keith Letcher
(605) 661-5819

Schafer Farms, Inc.

Goodhue, MN
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(651) 380-0645

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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

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 **April 30, 2019**. The first 10 entries drawn with the correct answers will receive a \$20.00 gift card. The Topigs Norsvin rep in your area will deliver the prize. Employees of Topigs Norsvin and their subsidiaries are not eligible.

Topigs Norsvin INSIDER Quiz Winners

Winners from the Winter 2018 issue will receive a \$20.00 gift card. Here are the winners from the last issue:

Mark Zekveld – Oinkspectations, ON; Joseph Maendel – Blue Clay Farms, MB; Debra Maendel – Sturgeon Creek Colony, MB; Sammy Wipf – Rockport Colony, SD; Elizabeth R. Wurz – Albion Ridge Colony, AB; Kaitlyn Waldner – Good Hope Colony, MB; Ryan Wipf – Baidon Colony, SK; Maria Kleinsasser – Hidden Valley Colony, MB; Matthew Wurtz – Jamesville Colony, SD; William J. Kleinsasser – Hidden Lake Colony, MT. The Topigs Norsvin rep in your area will deliver your prize. Congratulations!

1. Which University participated with Topigs Norsvin in a recent study to identify metabolites associated with behavior traits?

2. What is the boar capacity of the Long Creek Semen Center?

3. Where is the farm of Mark Tijssen located?

4. How many sows at Pig Hill?

Name: _____

Farm Name: _____

Address: _____

Phone #: _____

Fax #: _____

Email: _____

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