Western Hog Journal

Volume 34 | Number 2

Fall 2012

Date of Issue: October 2012

Published quarterly by Alberta Pork with cooperation from the British Columbia Hog Marketing Commission, Sask Pork and Manitoba Pork Council

Subscriptions
For new subscriptions, change of address or other subscription queries, please contact Alberta Pork
Phone: 780-474-8288
Fax: 780-479-5128
Email: info@albertapork.com

Publications Mail Agreement
No. 40062769
Return Undeliverable
Canadian Addresses to:
Circulation Department
4828 - 89 Street
Edmonton, Alberta T6E 5K1

Publisher
Darcy Fitzgerald

Business Manager & Editorial Director
Bernie Peet
Phone: 403-782-3776
Fax: 403-782-4161
Email: bjpeet@telusplanet.net

Advertising
James Shaw
1 Burnhamthorpe Park Blvd.
Islington, Ontario
Canada M9A 1H8
Phone: 416-231-1812
Fax: 416-233-4858
Email: jamesshaw@rogers.com

Cover Photo
Dr. Alex Pasternak (right) demonstrates the use of ultrasound to identify the time of ovulation at the U of A's Swine Research and Technology Centre

New breeding programs

Page 24

AgriACID®

Benefits of acidification.

Organic and inorganic acids have been shown to control pathogenic bacteria.

AgriACID® is a CFIA registered blend of organic and inorganic acids designed to lower the pH of water, resulting in improved water quality and maximizing the efficacy of water medication.

To learn how you can incorporate AgriACID® in your swine operation contact your feed rep and ask for it by name.

Distributed by: **HALCHEMIX CANADA INC.**
1-800-540-4756

Western Hog Journal

Editor's Notes

It was only a matter of time before a serious drought in the USA exposed the madness of turning corn into ethanol. Over the last 10 years, as the amount of corn used to produce fuel has escalated, generally good harvests have mitigated the effect on livestock producers. Now a once-in-50-year drought has led to the price of corn and soybeans rocketing, leaving producers across North America with the prospect of massive financial losses until (hopefully) a better harvest next year.

US policy on the use of ethanol on fuel has led to the situation where, in 2011, more corn went for this use than for feeding livestock. More than 40% of US corn is now used for ethanol production. Many question the morality of this use of a food product for energy, pointing to the growing demand for food to meet world population growth. High prices for agricultural staples such as corn impact the poorest nations where for many malnutrition is a way of life. Is it really a morally and economically sustainable policy to use so much of the world's food for fuel when there are so many other sources of energy available?

For pig producers, the current situation is now an uncertain one. They are being squeezed by much higher feed prices and a seasonally falling hog price. Unlike the owners of ethanol plants, who can close down their facilities temporarily, hog producers have to ensure their animals are fed, whatever the cost. Weakened by nearly 4 years of losses, from 2007 to 2010, many businesses are in no shape to weather the storm and there are already casualties, both in the US and Canada. The effect is being felt by livestock producers around the world, from Britain to Australia, from China to Chile. It is going to be a very tough year ahead.

A waiver of the Renewable Fuel Standard in the US would go some way to alleviating the situation over the next year or two. In the longer term, expansion of the ethanol industry must stop. Corn is food, both for humans and livestock, and using it for fuel is an extremely questionable policy. Hopefully the current situation will be a warning to the Canadian government that extending its current mandate on renewable fuels would be folly. ■

Barrie Peet

The power of *Full Value Pigs*™

It's about working together to find you more profit.

Full Value Pigs is more than a metric or a tool. It's a set of beliefs that together, we can make your business better. It's about taking a holistic approach to disease management and herd health. It's about feed optimisation and getting the most out of your biggest input. It's about marketing your pigs at the right weight and at the right time, giving you a precision harvest. It's about access and the assurance that you'll be able to sell your products to your preferred buyer. It's about feeding the world. But most of all, *Full Value Pigs* is about growing your business.

Elanco®, *Full Value Pigs*™ and the diagonal bar are trademarks of Eli Lilly and Company.
Used under licence by ELANCO/Division of Eli Lilly Canada Inc.
11-10-0396-12062011

Elanco

New face at Vétoquinol

Lavaltrie, Québec based Vétoquinol Canada has announced the appointment of Norman Machell, DVM as Technical Services Veterinarian, Western Canada, for the company's Production Animal Business Unit. A graduate from the Western College of Veterinary Medicine in Saskatoon, Dr. Machell comes to Vétoquinol with a wealth of experience in animal health which includes private practice, teaching, and over 16 years of experience in the veterinary pharmaceutical industry.

"Vétoquinol is well known as a leader in animal health and I am excited to join such a respected company and one that is exclusively and passionately devoted to animal health," explains Dr. Machell. "As a production animal veterinarian, I understand the challenges veterinarians and producers face on a daily basis and the importance of finding the right medications to improve animal health in a large animal production environment. I look forward to helping Vétoquinol clients find the right solutions to their herd's health problems.

Dr. Norman Machell can be contacted by phone at 403-392-7549, or email nmachell@vetoquinol.ca.

Edmonton livestock tracking company taken over

Edmonton-based Viewtrak Technologies, North America's leading supplier of livestock tracing and trading products, has been taken over by a group of investors led by W. Brett Wilson, best known for his role in the TV program Dragon's Den. The group acquired control of the company from its founder, Jake Burlett, who started the company in 1999 and was its President and CEO until the takeover. Wilson's group had invested about $3 million in the company.

Viewtrak is already the most widely used tracing and trading software in the industry, supporting over 40 million head of livestock annually with innovative IT products that track livestock from farm to fork, helping producers respond to growing industry and consumer demand for high quality, safe, and responsibly produced products, according to a company news release. The change in leadership will enable future growth, and enhanced customer service and product offerings, it says.

"With this change in leadership, and the outstanding business records of the new appointees, we're confident we can build on Viewtrak's strengths," said Wilson, adding that the company is already moving on growth opportunities in both government and private sectors across North America.

The corporate reorganization will include an immediate and significant injection of capital to allow for considerable expansion of the business model, focused on enhancements in research and development, technology, and customer service.

Abuse case highlights pressures on producers

By Myron Love

A case of animal abuse involving a western Manitoba hog operation is highlighting the desperate straits that many Manitoba (and other western Canadian) producers find themselves in as a result of the rising cost of feed due to drought in the United States.

The province's Chief Veterinarian's Office was informed on Friday, August 24, that about 1,300 hogs on the farm were being mistreated. An inspection revealed that the hogs were in severe distress. That led to a decision to euthanize them to prevent any more suffering. An Animal Care Act investigation is underway. The farm operators reportedly were deeply in debt and in great distress themselves.

"We understand the difficulties that producers are facing," comments Andrew Dickson, Manitoba Pork Council's general manager. "But there are no excuses for not looking after your animals." He points

CONTINUED ON PAGE 8

The Best in Ventilation and Feeding Equipment

Roxell BluHox Feeders
Users testify, all piglets start perfect on the BluHox

Fancom Fan
24v Damper & Measuring Wing Assembly

Paneltim PVC Partitions
Available in all sizes and many colors

GLASS-PAC

Contact us you'll love to call our plans your own!

702 9th Avenue North, Carstairs, Alberta T0M 0N0 | **(403) 337-3767** | fax 403 337 3590 www.glass-pac.com

OUR STRONGEST TRAIT
IS YOUR SUCCESS

Making the move to PIC semen is the fastest way you can increase your operation's efficiency.

Semen from PIC boars can deliver:

- Faster growth to market weight
- Increased productivity and greater margin
- Better feed conversion

THE FASTER YOU ACT, THE FASTER YOU WILL ENJOY GREATER EFFICIENCY.

Call 800-325-3398 or visit us at www.pic.com

PIC 50 Years

NEVER STOP IMPROVING

©2012 PIC All Rights Reserved.

100 Bluegrass Commons Blvd. Ste 2200 • Hendersonville, TN 37075 • 1-800-325-3398 • www.pic.com

Genesus purebred pigs being loaded at Winnipeg International Airport

out that the abuse case is an anomaly in the industry. "In Manitoba, we produce 8 million pigs a year," he says. "This 1,300 is a very small percentage. Producers do care for their animals."

As to how Manitoba producers are responding to the situation, Dickson says that the record is mixed. While some are looking to get out of the industry, others are hunkering down and waiting out the storm in anticipation of recovery.

Dickson reports that the MPC recently did a study of corn prices and the effect on producers here. "From September through April, because of higher feed prices and other input costs, producers were losing between $25 and $60 for every pig they shipped out," he says.

Those producers who rolled the dice on the futures market are now getting between $140 and $150 per animal, he reported. Those who didn't are only getting $120 per animal after fixed costs and inputs. "We are hoping to see a recovery starting by next spring," he says. "Perhaps by May, the futures pricing may get to $175-$180 per animal."

Genesus ships hundreds of pigs to China

Canadian swine breeding company, Genesus has exported 850 head of elite Genesus registered purebred pigs to a customer in China. They were loaded onto a China Cargo Airlines Boeing 747-400 freighter at the Winnipeg International Airport in July and flown non-stop to China. Giastar, the buyers in China, are located in Chengdu, Sichuan Province in the north of the country. Giastar is a feed manufacturer with 1 million tonne capacity. The company also has 7000 sows in breeding stock production, formerly PIC, now moving to Genesus. "These pigs will be placed into a newly constructed barn, specifically designed for use as a nucleus," explains

Mike Van Schaepdael, Executive Vice-President at Genesus. "Giastar's goal is to have 5 million pigs in production. They also currently have a meat processing facility with 500,000 head per year capacity."

Projects aimed at PRRS-free status for Alberta

The Alberta Livestock and Meat Agency (ALMA), in partnership with industry, is funding three research projects that help eliminate PRRS in pig herds, with the long-term goal of achieving a PRRS-free status for Alberta. PRRS not only causes production losses for Alberta producers but also endangers their ability to export live pigs to PRRS-free markets.

The University of Calgary's Dr. Markus Czub is evaluating the feasibility of pen-side diagnostics for PRRS. With immediate on-farm detection and diagnosis, PRRS will become easier to control and eliminate. The creation of a chute-side tool for detection of PRRS provides timely diagnostics to further support research initiatives.

Presently, the only existing PRRS vaccine is a modified live vaccine that comes with risks. Dr. Volker Gerdts of the Vaccine and Infectious Disease Organization in Saskatchewan

CONTINUED ON PAGE 10

PARKS LIVESTOCK
A Member of The Parks Companies

With over 30 years of experience in the livestock industry, we continue to provide today's producers with
The Best Full Service Marketing in North America

Feeder Pigs

S.E.W.s

Call today to talk to our team ~ Toll Free: 1-800-821-7418 ~ Email: jasonmills@parkslivestock.com

Proven protection you can bank on

*With Ingelvac Circo**FLEX** vaccinate early for proven protection, healthier growth cycle and an ROI you can take straight to the bank.*

Safe. Efficient. Convenient.

*Ask your veterinarian about the Ingelvac Circo**FLEX**® vaccination from Boehringer Ingelheim or visit us online at **www.boehringer-ingelheim.ca.***

Ingelvac CircoFLEX®

©2008 Boehringer Ingelheim Vetmedica, Inc. Ingelvac CircoFLEX is a registered trademark of Boehringer Ingelheim Vetmedica, GmbH, Ingelheim, Germany.

is using ALMA funding to create a novel PRRS vaccine and adjuvant formula. This project could provide a single-shot vaccine that will broadly protect against North American, European and other highly infectious strains of PRRS.

Dr. Frank Marshall of Marshall Vet Services in Camrose is performing surveillance and serology testing on 23 Alberta farms through an Area and Regional Control and Eradication (ARC & E) pilot project. This multi-year project will lead to producer-oriented PRRS assessments, while developing standard operating procedures that will help reduce the effects of PRRS in Western Canada.

"In swine production, costs of production are critical to control," says Dr. Marshall. "We know that in a PRRS-positive herd we incur an extra $5-8 to produce a market animal."

These figures contribute to more than $130 million in extra costs to national pork producers, according to Canadian Swine Health Board Executive Director Robert Harding. Market limitations also factor into this figure and Harding believes, "The elimination of PRRS within a province or region would provide real opportunities for enhanced market access."

By partnering with industry to spur important research, ALMA says it is helping realize Alberta's long-term goal of PRRS-free status. A PRRS-free Alberta will be able to increase exports of pork and live pigs to international PRRS-free markets. The outcomes of these projects will provide a greater return for producers, while also building a stronger local and national pork industry, the agency believes.

Drought poses mycotoxin danger

The drought in many parts of the USA and Eastern Canada could lead to higher levels of mycotoxins in grain, according to biotechnology company Alltech.

"While much of the nation's apprehension lies in the depleting harvest, many livestock producers are also concerned about the potential for an unsafe feed supply this year due to the drought,

it says. "Extreme temperatures and the additional stress on plant growth have put this year's crops at risk for increased nitrate levels as well as mould and mycotoxin problems."

"In swine, there is a higher sensitivity to contaminated feed, and feed avoidance is a common symptom"

Mycotoxins, harmful toxins produced by moulds, can create a variety of health problems for animals depending on species of animal involved and type of toxins identified. In swine, there is a higher sensitivity to contaminated feed, and feed avoidance is a common symptom of mycotoxicosis.

According to Dr. Swamy Haladi, part of Alltech's Mycotoxin Management Team, this year's drought is the precursor for several different types of mycotoxins. *Aspergillus* and some of the *Fusarium* molds such as *Fusarium verticilloides* and *Fusarium proliferatum* will be the most prevalent. This can lead to production of aflatoxins and fumonisins in addition to routine incidences of vomitoxin (DON) and zearalenone in US and Canadian feedstuffs.

In order to identify more of the risks associated with mycotoxins, Alltech recently launched its 37+ Program. The mass spectrometry technique LC-MS2 can investigate 38 different mycotoxins quantitatively, and more than 50 others qualitatively, in less than 15 minutes with limits of detection in the parts per quadrillion range.

"This approach allows us to have a broader analytical approach compared to the other commercial methods

that can only see a 'snapshot' of contamination," Haladi said. "Additionally a proper understanding of the mycotoxin challenge allows implementation of integrated mycotoxin management programs and technologies in a timely manner."

Workshop delegates can see NIR technology at work

Delegates at the 2012 Red Deer Swine Technology Workshop, being held on Wednesday October 31st, will be able to bring grain samples for rapid analysis using the latest technology. Two manufacturers of Near Infrared Spectroscopy (NIR) machines will be demonstrating how the equipment can give a more accurate assessment of energy values in around 30 seconds. Dr. Mary Lou Swift of AARD will be describing how NIR technology works and how it can lead to significant feed cost savings.

The workshop program features a wide range of topics focussed on the needs of barn staff, managers and owners. It combines presentations on new technology, management and stockmanship aimed at helping delegates improve productivity and reduce costs. Using technology to optimize the pig's environment and solve ventilation problems will be discussed by Dr Mario Ramirez of Gowans Feed Consulting. Other topics include management of the gilt up to first farrowing, optimizing herd parity structure and the impact of stockmanship on individual pig care.

"The panel discussion on reducing costs in the barn was very popular last year and so we are having a panel of nutritionists discussing hot feeding and nutrition topics," says Bernie Peet, the workshop manager. "Delegates are encouraged to come along armed with some questions to ask the panel."

The workshop will be held at the same venue as previously, the Exhibition Hall at the Sheraton Hotel (formerly the Capri Centre) in Red Deer. Registration costs $75, with a special "5 for the price of 4" package available for $300.

For further information or to register, contact Bernie Peet at Pork Chain Consulting Ltd. on (403) 782-3776 or (403) 392-3104 or email bjpeet@telusplanet.net.

HyLife Foods' Neepawa plant ramping up to full capacity

From Farmscape.ca files

LaBroquerie, Manitoba-based HyLife Foods expects the ramp-up of its newly upgraded and expanded Neepawa hog slaughtering plant to be completed by the end of this year.

In 2008 the company, formerly called Hytek Limited, purchased the Springhill Farms hog slaughtering plant in Neepawa with the intention of expanding the facility's processing capacity.

After a recent series of upgrades, which included the construction of a new industrial wastewater treatment plant, the addition of a new carcass cooler and a receiving facility, the plant added a second shift.

The expansion will add a total of about 250 new jobs to the operation and will increase capacity of the plant to about 28,000 per week from the current 18,000.

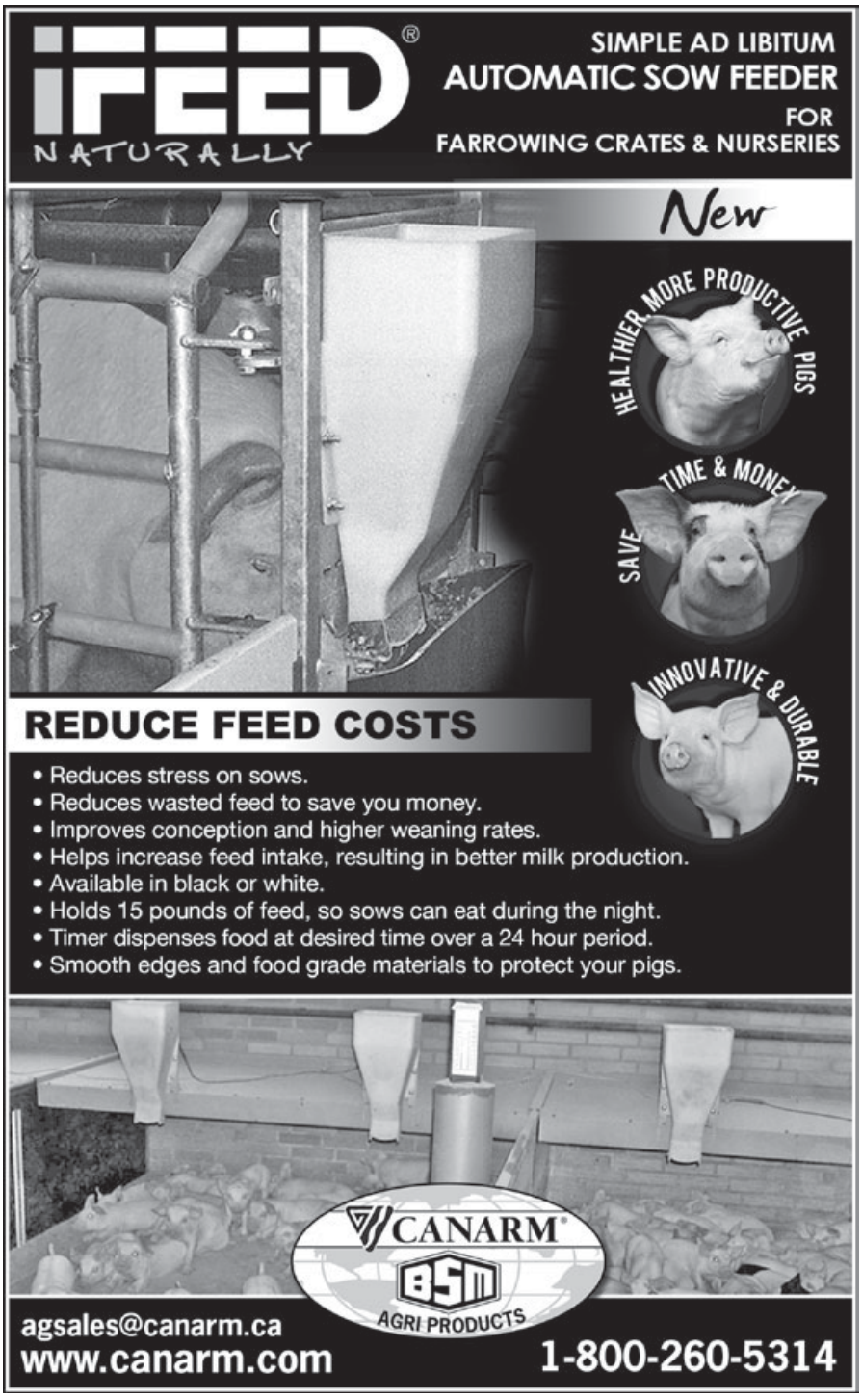
HyLife Foods Chief Operating Officer Denis Vielfaure, notes that the company will continue to produce the same mix of products as currently. He says that it does a lot of fresh chilled export business with Asia, specifically Japan, but also serves the domestic market, the USA and Mexico, with the balance being shipped into the frozen international market.

Vielfaure says that Hylife has essentially established its customer base, but the company has had stronger demand than supply for some of those markets, specifically the export fresh chilled market, so the expansion will give the company more product to supply to its customers. ■

Industry Viewpoint

By Bernie Peet

Over the last few years, the Industry Crisis column has looked at what has been going on in the Canadian industry as our producers have battled a series of unprecedented challenges which has seen the industry reduce in size by nearly a quarter. WHJ Editor Bernie Peet continues to review industry events and trends that will shape the industry in future, both in North America and around the world. He will comment on industry developments and how they impact Canadian producers, providing his unique perspective and personal viewpoint on the important issues.



Soaring feed prices threaten industry

Drought in the USA, which has led to huge increases in the cost of feed, is threatening the livelihood of livestock producers not only in North America, but around the world. Adding an estimated $30 - $35 per head to production costs in Western Canada, high feed costs will continue to squeeze producers until next year's harvest. Unless these added costs are offset by higher hog prices, there is likely to be further liquidation of sow herds.

The Canadian industry has been slowly recovering from its nearly 4-year crisis, which started in 2007. Over the last two years, the number of hogs in the national herd has recovered slightly, reflecting a more benign economic climate. The latest (July) statistics show an increase of 1.5% in the total number of hogs and a 1.1% increase in sows and gilts on farms compared with July 1 2011. However, warn US economists Steve Meyer and Len Steiner, the Canadian pig and cattle industries are in long term decline due to rising feed prices and the strength of the Canadian dollar. "The latest

> **"The expectation is for the breeding herd to continue to decline in the next three to four quarters"**

data from Statistics Canada showed that while the liquidation in the cattle and hog sector has come to an end, there is little impetus for growth in the short term," they say. "Indeed, skyrocketing feed costs in North America will likely continue to pressure producer margins, especially those

of hog farmers who still depend on shipping a significant number of feeder pigs to US hog operations in the Midwest."

The hog survey data for the June quarter revealed some interesting insights, according to Meyer and Steiner. "As of July 1, there were 1.216 million breeding sows in Canada, 1% more than the same quarter a year ago but 0.4% lower than the previous quarter," they comment. "This is an early indication of the margin squeeze and the expectation is for the breeding herd to continue to decline in the next three to four quarters as feed cost and exchange rate pressures escalate." Also important to note, say the US economists, is that Statistics Canada revised its historical inventory numbers following the results of the 2011 Census of Agriculture. "The revisions were dramatic, with the size of the breeding herd now estimated to be 7% smaller than previously thought," they note. "Between 2005 and 2010, Canadian producers removed about 25% of breeding sow capacity and the sow inventory has not changed much in the last two years."

Farrowing intentions for the next two quarters show significant contraction. Survey participants indicated that they expect farrowings in Q3 to be down 5.4% from the previous year and Q4 farrowings are expected to be down 2.4% from a year ago. "As in the US, productivity improvements have increased the number of pigs saved per litter. The latest Canada hog survey data indicated 10.57 pigs saved per litter, a 2% improvement from a year ago," Meyer and Steiner point out. "The increase in pigs per litter coupled with a 1% increase in the number of sows resulted in a pig crop for Q2 of 7.073 million head, 3.1% more than a year ago. In the short term, the supply of Canadian pigs coming to market will remain above year ago levels but all indications are that supplies will tighten up again in 2013 as sow numbers and farrowings decline."

Outcome of COOL win still unclear

The Appellate Body of the World Trade Organization (WTO) has upheld a previous WTO dispute settlement panel ruling that the meat labelling law violates US trade obligations under the WTO Agreement on Technical Barriers to Trade. It found that 'the regulatory distinctions imposed by the COOL measure amount to arbitrary and unjustifiable discrimination against imported livestock, such that they cannot be said to be applied in an even–handed manner'. However the appellate body also found that: "the Panel properly identified the objective of the COOL measure as being 'to provide consumer information on origin', and did not err in concluding that this is a 'legitimate' objective." Now, it remains to be seen what changes will be made by the US administration to meet the WTO requirements. These changes need to be made through legislation and it is

CONTINUED ON PAGE 14

possible that not only will this take time but that the outcome may still not be viewed as satisfactory by Canada and Mexico.

Since its implementation in 2008, COOL has had a direct impact of at least $1.4 billion on Canadian hog exports to the US, according to the Canadian Pork Council (CPC). This does not include any price suppression effects on hogs sold in Canada, it says.

> **"We hope the Canadian government will recognize the negative effects its programs have on our producers"**

The National Pork Producers Council (NPPC) has said it will urge the Obama administration to comply with the ruling. "We believed when it was being debated in Congress that MCOOL would be an unnecessary burden to trade," said NPPC President R.C. Hunt. "We have maintained that belief consistently from the outset, and we will be working to achieve US compliance with today's WTO decision." He pointed out that the United States risks retaliation from Canada and Mexico, both of which filed complaints with the WTO over the US labelling law, if it refuses to comply with the MCOOL ruling.

In an interesting twist to this long running saga, NPPC criticized Canada's financial support for producers, saying that, while they support harmonization of North American meat and livestock policies with regard to product labelling, food safety, animal health and subsidy programs, Canadian hog subsidy programs distort the North American hog and pork market.

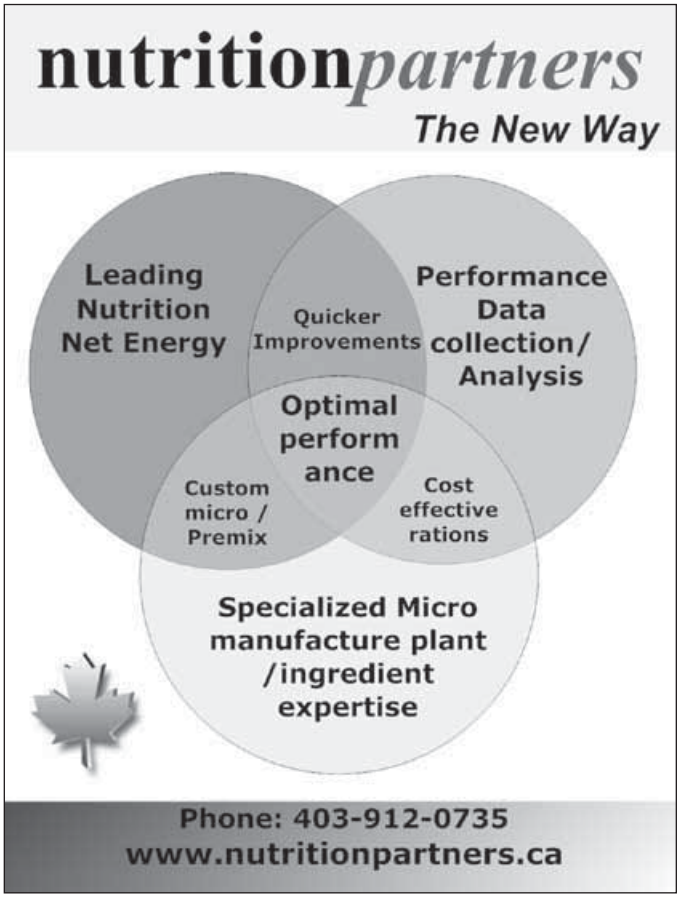
"As we work with our government to reform the US labelling regime for meat," says R.C. Hunt, "we hope the Canadian government will recognize the negative effects its programs have on our producers." NPPC has also asked the Canadian government to recognize the US swine herd health status as equivalent to Canada's – recognition that will facilitate pork trade between the two countries.

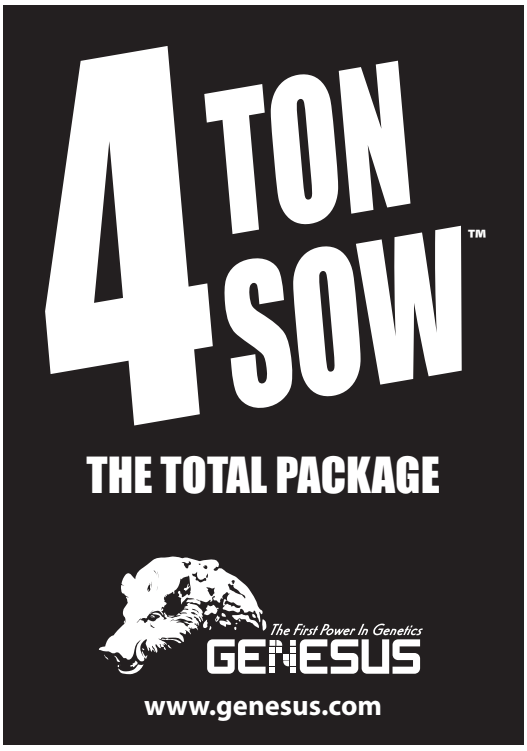
Canadian pork industry contributes $9.28 billion to the economy

A study prepared by the George Morris Centre has concluded that the economic development associated with hog production and exporting pork contributes $9.28 billion to the Canadian economy. In addition to describing the economic benefits of Canadian pork exports to the overall economy and to hog producers, the study indicates that Canadian pork exports in 2011 of $3.2 billion generated additional value-added activity of $3.5 billion for the Canadian economy, and some $20-30/head back to Canadian hog producers.

"This report demonstrates the effect exporting pork and pork products has on the Canadian economy, our sector and the return for producers," stated Jean-Guy Vincent, Chair of the Canadian Pork Council. "Canada is a globally competitive and successful producer and exporter of pork and pork products and our industry understands the key factor to sustaining our success is the ability to access a wide variety of markets."

CONTINUED ON PAGE 16





For a better bottom line

PFIZER SWINE COMMITMENT • PFIZER SWINE COMMITMENT •

Ask your veterinarian to make Draxxin® a part of your front line!

Pfizer Animal Health

Draxxin®
one single, simple solution

® Draxxin is a registered trademark of Pfizer Products Inc.; Pfizer Canada Inc., licensee. DXN JADP01B 0712 E

"The CPC is very supportive of the federal government's commitment to an aggressive trade agenda, seeking improved terms of trade for Canada through agreements with the European Union, Japan, South Korea and now, the Trans-Pacific Partnership," added Mr. Vincent. "The government has initiated a number of trade talks in key markets and we hope it will continue to show the same level of commitment to aggressively negotiate improved access for pork products to further strengthen pork industry and the Canadian economy."

"Exports provided the impetus and ability for the Canadian hog and pork industry to continue to grow over the past decade"

The report found the following economic impact of pork exports:

- 45,000 jobs at the processing, farming and other supplier levels
- $1.98 billion in wages, salaries and benefits
- $318 million in taxes both income and product related
- Gross Domestic Product contribution of $3.5 billion

Canada is a leader in the international pork industry, ranking third in terms of export volume and seventh in terms of production. "Exports provided the impetus and ability for the Canadian hog and pork industry to continue to grow over the past decade. Furthermore, robust global demand for Canadian pork has resulted in increased value and volumes going to a broader base of customer countries," according to a CPC news release. "This has increased the market leverage and opportunities of the Canadian pork industry and has provided the opportunity to generate added value to the whole carcass."

Protests on subsidies as Canada joins TPP

The announcement in the July G20 summit that Canada was to be included into the Trans-Pacific Partnership (TPP) discussions led to a call from several countries for Canada to dismantle its system of agricultural subsidies.

Australian Pork Limited CEO, Andrew Spencer, said: "Australian pork producers are aware that Canada's federal and provincial governments bestow countervailable subsidies on the Canadian pig industry. These subsidies cause significant distortions to overseas markets such as Australia, the US and NZ.

"Domestic subsidy programmes are generally not within the scope of free trade agreements. However, in this case Canadian agricultural subsidies are so wide ranging and have such a broad and far reaching impact on overseas markets it is on

Feed costs too high?

This is just one of the challenges that Danisco can help you solve.

As leaders in delivering the greatest value from Porzyme and Phyzyme XP feed enzymes, we are able to offer both the ingredients and expert knowledge to help keep your feed costs to a minimum.

Concerns about DDGS variability? Use Porzyme and Phyzyme XP in combination to maximize the nutritive value of these diets.

Danisco
more profit from lower feed costs

email us at
lowercosts@danisco.com

To find out more please contact

Halchemix Canada Inc
Tel: 1-800-540-4756
halchemix@halchemixcanada.com
www.halchemixcanada.com

John Van Oort
Tel: 403-701-2445
john.vanoort@danisco.com
www.danisco.com/animalnutrition

DANISCO
First you add knowledge...

these grounds we, along with the US, and NZ, urge the TPP negotiators and governments to deal with these issues fairly as part of the process," Spencer argued.

"Canada needs to end its federal and provincial hog subsidy programs, which are distorting the North American and world pork markets," said R.C. Hunt, president of the United States' National Pork Producers Council and a hog farmer from Wilson, North Carolina. "If the US had a subsidy program similar to Quebec's, for example, we would double pork production in 10 years to the severe detriment of our Canadian counterparts. Subsidy programs are antithetical to free trade and to the spirit of the Trans- Pacific Partnership negotiations that Canada is entering."

"One issue that will come under the microscope during further negotiations is that of supply management"

Australian, NZ and US pork producers have pointed out that the Canadian government's actions are counterproductive to the overarching philosophy of the TPP's goals and ambitions and are forming a united voice to strongly request national trade representatives involved in the TPP negotiations to address this serious and damaging action by the Canadian government.

One issue that will come under the microscope during further negotiations is that of supply management, and there will be pressure for Canada to end a system that is seen to be anti-competitive and restrictive to trade. However, a recent paper published by the George Morris Centre questions whether Canada needs to dismantle supply management systems as it prepares to enter Trans-Pacific Partnership (TPP) discussions. The paper, authored by Al Mussell, considers the role and function of marketing boards and agencies in supply management, the elements of supply management that marketing boards are not involved with, and what the interests of other countries in the TPP are regarding supply management in Canada. The paper concludes that Canada's trading partners are much more interested in the barriers to trade employed to protect supply management systems than in supply management itself. The conclusion is that there is no need whatsoever for Canada to dismantle supply management as it approaches the TPP negotiations. It will be interesting to see whether that argument holds any sway with the other 10 countries in the negotiations.

The nine strong partnership of the USA, Australia, New Zealand (NZ), Brunei Darussalam, Chile, Malaysia, Peru, Singapore and Viet Nam, also voted to include Mexico into the TPP, in addition to Canada. These nine economies have a combined gross domestic product (GDP) of US$16,968 trillion, a GDP per capita of US$33,546 and represent a population of 505.8 million people. The inclusion of Canada and Mexico now takes the 11 member TPP group to nearly 30 per cent of global GDP. This is a substantially larger trading power than the 27-nation European Union (EU) bloc.

CONTINUED ON PAGE 18

US livestock groups urge reform of ethanol legislation

As the cost of feed grains soared earlier in the summer, a coalition of livestock and poultry groups in the USA urged Congress to reform the federal Renewable Fuels Standard (RFS), which mandates the amount of ethanol that must be produced annually. It supported its argument with a new economic study on the impact of corn ethanol production on food prices and commodity price volatility.

Conducted by Thomas Elam, PhD, president of FarmEcon LLC, an Indiana agricultural and food industry consulting firm, the study, published in July, found that federal ethanol policy has increased and destabilized corn, soybean and wheat prices to the detriment of food and fuel producers and consumers.

The RFS, first imposed in 2005 and revised in 2007, this year requires 15.2 billion gallons of ethanol to be produced. Most of that amount is blended into gasoline at 10 per cent.

"The increases we've seen in commodity prices are strongly associated with the RFS mandate," said Dr. Elam. "At the same time, we haven't seen the promised benefits on oil imports or gasoline prices. This means that while Americans are forced to pay more for food, they're also not seeing lower prices at the pump; it's a lose-lose situation."

As a Senate Biofuels Investment and Renewable Fuels Standard Market Congressional Study Group examines several aspects of the RFS, the study will provide critical facts needed to reform the current standard. Among other results, the study found that because of the RFS:

- Ethanol, because its energy cost is higher than gasoline and because of its negative effect on fuel mileage, added about $14.5 billion, or 10 cents a gallon, to motorists' fuel costs in 2011
- Increased ethanol production since 2007 has had no effect on gasoline production or oil imports, contrary to supporters' claims
- Corn used for ethanol production rose 300 per cent from 2005 to 2011, increasing from 1.6 billion bushels to 5 billion. (Ethanol production now uses more than 40 per cent of the US annual corn supply)
- Corn now represents about 80 per cent of the cost of producing ethanol compared with 40-50 per cent before implementation of the mandate.
- Corn prices jumped to more than $6 a bushel in 2011 from $2 in 2005.
- The rate of change for the Consumer Price Index for meats, poultry, fish and eggs increased by 79 per cent while it decreased by 41 per cent for non-food items since the RFS was revised in 2007.
- Ethanol production costs and ethanol prices have all but eliminated a market for ethanol blends higher than 10 per cent.
- The United States exported 1.2 billion gallons of ethanol in 2011.

In addition to the effects of the RFS, the study pointed out that on an energy basis, ethanol, which has only 67 per cent of the net energy per gallon of gasoline, never has been priced competitively with gasoline. It also found that, contrary to supporters of the RFS, oil imports have declined not because of increased ethanol production but because of increased domestic crude oil production and higher refinery yields. ■

The Next Western Hog JOURNAL is January 2013

For advertising contact James Shaw at 416-231-1812 or jamesshaw@rogers.com


It’s time for a gut check.
You want your piglets to have the healthiest guts possible. If you wait until you see scours from coccidiosis, you’re too late. By the time symptoms appear, gut damage has already taken place, reducing weaning weights and adding days to market. Ask your veterinarian about diagnosing coccidiosis before it’s too late.
®Bayer and Bayer Cross are registered trademarks of Bayer AG, used under license by Bayer Inc.
Learn more at BayerPigletHealth.ca

Swine Breeding Management Workshop

How repeatable is average litter birth weight?

Recent research has investigated the phenomenon of pre-natal programming in pigs and other species. This is a biological process in which an adverse event such as maternal stress, malnutrition, uterine overcrowding or placental inefficiency occurs at a critical period of fetal development and results in fetal growth retardation and potential lifelong changes in the performance and health of the offspring. Dr. George Foxcroft and his team at the University of Alberta have been at the forefront of the work on the implications of pre-natal programming in pigs. Their research has shown that pigs from litters with a low average birth weight exhibit poorer growth and efficiency during the growing phase than those from high birth weight litters, irrespective of the size of individual piglets. With this knowledge, is it possible to identify 'low' litter weight sows early on in their life and cull them from the herd? Jenny Patterson, Research Coordinator at the University's Swine Research and Technology Centre, examines the evidence for this possibility.

Pre-natal programming

Recent studies in different sow populations have shown that litter birth weight phenotype, a result of complex interactions among several traits, including ovulation rate, the dynamics of embryonic and fetal survival, placental function and uterine capacity is repeatable over successive parities. Sows with low litter weights and high litter size at birth are often most susceptible to exhibit the 'low' phenotype, which results in limitations in both postnatal mortality and growth performance of the progeny. For example, research has shown that pigs from 'low' birth weight litters take 9 days longer to reach market weight than those from 'high' birth weight litters. "The constraint of low litter weight may reduce the growth potential of the entire litter, irrespective of individual piglet birth weight," comments Patterson. "The impact on a production system is that slower growing pigs need to stay in the barn longer to reach market weight and there will be increased variation in market weights."

Crunching the numbers

In order to investigate the repeatability of average litter birth weight, sufficient numbers of observations are required and the herd data used must include recorded litter weights, in addition to litter size. A suitable record database was obtained from a collaborating farrow-to-finish farm in Saskatchewan with both production nucleus and multiplier tiers. The database used contained 8999 individual parity records (Large White females x Landrace males and Landrace females x Large White males), from 2223 multiparous sows (parity <= 10) over 6 years (2006-2011). Total weight of piglets born alive was collected at the farm, average birth weight was calculated as total born alive litter weight divided by number born alive, with the assumption that weight of stillborn pigs was representative of the litter average.

To classify a sow as 'high' or 'low' for litter weight in each parity record, average litter birth weight was converted to a standard deviation score - or Z-score - adjusting for the

specific categories of total born (<8, 9-15, >16), parity (1-2, 3-5, 6-7) and year (2005-06, 2007-08, 2009-10). "A Z-score is a statistical measure that tells us how a single data point, or in this case average litter birth weight from a single parity, compares to the rest of the population, represented by a normal distribution curve," explains Patterson. "It is an important measure not only because it shows whether the weight is above or below average, but how distant the measurement is from the average." As expected, all Z-scores in this population were represented by a normal distribution. At least initially, the 'low' versus 'high' phenotype was categorized as falling above or below the population mean (0).

Table 1 shows that sows classified as exhibiting the "low" phenotype had higher numbers of pigs total born and born alive, and a lower average litter birth weight.

Table 1: Total born, born alive and average litter birth weight (pigs born alive) for sows classified as "high" or "low" (above or below the average z-score of 0)

Variable	High	Low	P-Value
Total born	12.7 ± 0.06	13.6 ± 0.06	0.0001
Born alive	11.7 ± 0.06	12.6 ± 0.06	0.0001
Average litter birth weight (g)	1523.6 ± 4.0	1141.5 ± 4.0	0.0001

Repeatability within parity

The relationship of the Z-scores between parities was examined by calculating the degree of correlation shown from parity to parity, using a correlation coefficient. "The correlation coefficient (r) relates to the strength of the relationship between factors", Patterson points out. Factors can be classified as weakly (r = 0.1- 0.3), moderately (r = 0.3-0.5), strongly (r = 0.5-0.7) or very strongly (r =0.7-0.9) correlated." The data analysis showed that the Z-score at first parity (P1) is moderately and positively correlated with Z-score at parity P2 (r = 0.30) and the correlation between P1 Z-score and subsequent parities becomes weaker with increasing parity (P3-6, r all <0.3). "The lack of association between P1 and subsequent parities may be due to other factors that influence litter birth weight such as selection rate, body weight at gilt mating, physiological age and immunity

CONTINUED ON PAGE 22

level to name a few," comments Patterson. "For this reason, any culling decision related to the low weight phenotype should not include parity one females."

> **"It is the higher ovulation rates in mature sows combined with a greater degree of uterine crowding that may contribute to the expression of the low litter weight phenotype in mature sows"**

The Z-score at P2 is moderately correlated to P3 (r = 0.36) and remains relatively consistent between P2 and P4 through P6. In most situations, the highest correlations noted are between subsequent parities and become stronger in more mature sows. "This is consistent with what would be expected, because the more mature 'prolific' sows are most susceptible to exhibit the 'low' birth weight phenotype," notes Patterson. "It is the higher ovulation rates in mature sows combined with a greater degree of uterine crowding that may contribute to the expression of the low litter weight phenotype in mature sows."

The data analysis suggests that it is unlikely that a sow with a 'low' Z-score at P2 will have a 'high' Z-score at P3. To examine this further, sows were classified as 'low' or 'high' with a Z-score of below and above the mean (0), after controlling for parity, total born group and year. A statistical procedure was used to calculate the probability of a sow delivering below average birth weight litters based on the sow's past performance over 1, 2 or 3 parities. "If a sow delivered 'low' in P2, the probability she delivered a below average birth weight P3 litter was 0.63. Recall that there is a 0.5 probability due to chance alone, similar to flipping a coin," observes Patterson. "If the same sow delivered two consecutive 'low' litters (P2 and P3), she was far more likely to deliver a below average birth weight litter in her 4th parity (probability = 0.82). This is when culling decisions should be made because the predictive probability did not increase when a sow delivered 'low' for 3 or 4 consecutive litters."

Predicting **above** average litter weights is also possible based on past performance. "If a sow delivers 'high' in P2, the probability that she will deliver an above average birthweight litter in P3 is 0.61, a slight increase over chance alone," explains Patterson. "If this same sow delivers 'high' in both P2 and P3, the probability of delivering 'high' in P4 only increases marginally to 0.63." Parity 4 sows that have delivered any 2 of 3 litters 'high' will have a slightly higher probability (0.56-0.58) of delivering an above average birthweight litter in P5. Importantly, Patterson notes, a P4 sow that has delivered 3 consecutive 'high' birthweight litters (P2, P3 and P4) is very likely to produce another above average birthweight litter in P5 (probability = 0.76). The probability of predictability increases to 0.83 when a sow farrows 4 consecutive parities as 'high'.

Using this data to make culling decisions

"Although this is a lot of correlation and probability data to digest, simple trends become apparent," Patterson says. "In other words, litter average birth weight is predictable within sows. This can be used as tool to help the producer determine when to make appropriate culling decision in the sow's productive life."

"Firstly, by comparing the probabilities, it is apparent that sows producing below average birthweight litters can be accurately predicted after parity 3," she continues. "This is when these sows should be culled. Do not wait until after parity 4, because the accuracy of prediction does not get any better."

Secondly, the repeatability of sows producing above average birthweight litters improves as sows mature and can be accurately predicted after their 4th parity. "This may be because uterine capacity could limit the full expression of birthweight in younger parities," Patterson concludes. "It is therefore very important to care for these sows producing high birthweight litters because this trait is repeatable and the sows add tremendous value to the feeding herd, because their progeny are faster growing and more efficient." ■

THE RESOURCES YOU NEED. THE SUPPORT YOU WANT. THE RESULTS YOU DESERVE.

Your veterinarian is committed to helping you optimize your herd's reproductive performance. So are we.

That's why we created **ReproPig**, a program that provides the widest possible range of products, tools and services to help you – with your veterinarian's guidance and assistance – reach the reproductive goals you've set for your operation.

Make the most of these valuable resources: consult your veterinarian.

ReproPig

REGU-MATE™ is a trademark of Intervet International B.V., Used under license.
PLANATE® is a registered trademark of Intervet inc. Used under license.
P.G. 600® is a registered trademark of Intervet International B.V. Used under license

Merck Animal Health, operating in Canada as Intervet Canada Corp., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA.
MERCK is a trademark of Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA.
Copyright ©2012 Intervet International B.V., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA. All rights reserved.

MERCK Animal Health

New breeding programs increase the genetic impact of AI boars

Artificial insemination (AI) is now almost universal in the worldwide swine industry and has had a major impact on genetic improvement over the last 40 years. However, existing AI methods have a number of disadvantages compared to artificial breeding in other food animal species, says Dr. Michael Dyck, of the Swine Research & Technology Centre at the University of Alberta. First, the effectiveness of standard semen evaluation methods is relatively low compared to other species and poor quality boars will affect the reproductive outcome of many females. Employing the use of sub-fertile boars and low quality ejaculates reduces production efficiency, according to Dr. Dyck. Also, he notes, the use of pooled semen breaks the link between known genetic value of individual boars and the paternity of progeny produced. Finally, the high number of sperm used (probably over 9 billion sperm using current practices), and consequently the high numbers of boars needed for semen production, reduces the genetic impact of the best boars. He looks at some innovative ways of increasing the genetic impact of AI boars.

Introduction

While conventional semen evaluation (concentration, morphology, motility) can establish that a boar is either sub-fertile or infertile, it cannot identify the relative fertility of boars that meet accepted industry standards for sperm and ejaculate quality. Furthermore, the relatively high sperm numbers used in commercial AI practice (usually more than 3 billion total sperm per dose of extended semen), and the pooling of semen from boars, masks the limited fertility of some of these boars. However, these differences in fertility do become evident when lower numbers of sperm are used for AI and boars are evaluated on an individual basis

Dr. Michael Dyck of the University of Alberta says that changes to AI techniques can help to capture more genetic value from boars

Effective prediction of relative boar fertility will allow for the removal of less reproductively efficient boars from commercial studs. This in turn will optimize the use of proven, high fertility, and genetically high index boars at lower sperm numbers per AI dose. At the nucleus level this will allow for increased selection pressure by increasing the number of offspring bred per collection from high ranking boars. At the commercial level, this would allow for considerable improvements in production efficiency to be realized, by capitalizing on boars with a high index for growth, feed efficiency and carcass traits. If these changes in production strategy are to be realized, it is critical to identify boars of relatively low fertility that will not perform well when used in the more challenging situations of reduced sperm numbers per AI dose.

> **"The almost universal use of pooled semen doses in commercial boar studs severely limits the collection of data on relative boar fertility at production level"**

There is a long history behind the search to find a single or combination of tests that can accurately predict male fertility from a semen sample. Unfortunately, there appears to be no

FARM SOFTWARE
AGROVISION

Desktop or Internet-based
You choose!
Complete Farrow-to-Finish with:
- Sow Cards
- Action Lists
- Standard Reports
- Custom Reports

Interfaces with specific:
- Sow Feed Equipment
- Ear Tags (RFID)
- Genetic Evaluation Services

Please call for more information.
Toll-free: 1-877-474-4946

simple answer to this very complex question. As a result, there is no accepted methodology for evaluating the relative fertility of AI boars.

Differences in relative boar fertility in commercial studs

The almost universal use of pooled semen doses in commercial boar studs severely limits the collection of data on relative boar fertility at production level. However, the limited data available continues to suggest a substantial range of fertility exists in contemporary populations of boars. Indeed, in the absence of routine procedures for identifying relative boar fertility, and hence an ability to effectively select stud boars for relative fertility at genetic nucleus level, a normal distribution of fertility traits should be expected. In recent discussions of overall breeding herd performance (Billy Flowers – personal communication) the point has also been made that limitations in AI technology may lead the industry to continually underestimate the existing productivity of contemporary commercial dam-lines. All these points are evident in recent data obtained from single-sire matings at the multiplication level. A comparison of the litter size for sows bred to commercial Landrace boars using single-sire matings with 3 billion sperm per AI dose demonstrated the differences.

Changing from conventional AI using 3 billion sperm per dose to a low dose post-cervical AI technique can be worth $0.80 and $1.30 per pig born, according to Dr. Michael Dyck

A minimum of 50 breedings per boar was used. The results indicated that the productivity of the top two thirds of the boars was very high, with an average of over 13 pigs total born. However, when the productivity of the lower one-third of these boars was included, overall productivity fell by over one pig born. This relatively inferior performance of 20 to

CONTINUED ON PAGE 26

30% of boars evaluated is consistent with the more extensive data available in the literature. Moreover, if the genetic merit of the three boars that averaged over 14 total born was high, the application of more efficient AI technologies would allow the merits of these "elite" boars to be spread across a larger proportion of sows bred. The application of advanced AI techniques such as post cervical AI (PCAI), single fixed time AI (sFT-AI) or the 2 techniques in combination can dramatically increase utilization of the most desirable sires.

Breeding programs to increase the genetic impact of AI boars

Putting the above information together, future developments in AI technology would involve:

- A move to single-sire inseminations with the lowest possible doses of semen
- Use of ejaculates from boars with high genetic value and proven fertility in a "low semen dose" environment.

The suggested economic model for implementing a program of AI use with lower numbers of sperm per dose and single-sire breedings, modelled on a 10,000 sow system using an internal 100-boar stud, is as follows:

Before any intervention occurs, the following assumptions would apply to the production system:

- All sows are bred by AI using standard catheters, multiple inseminations (average 2.2) dependent on the duration of oestrus and existing breeding protocols.
- Semen is pooled from multiple boars, with 3 billion sperm per AI dose.
- Average Index (Estimated Breeding Values indexed on a relative 100 system) is 115.8 (range from 90-150).
- Pigs per sow per year (PSY) averages 24.5
- Wean to farrow loss of 7%
- Total pigs sold/year = 227,850
- Pigs produced per boar = 2,279

There are several stages in the proposed approach to improving the impact of superior boars within the system. At each stage typically only one item is altered.

Stage 1

- All sows are bred by AI, using standard catheters, multiple times (average 2.2 times) dependent on the duration of estrus and standard farm protocol.
- For all new boars entering the stud, semen is processed as single-sire doses of 2 billion sperm cells per dose
- Minimum of 50 single-sire matings per boar is used to identify the top 66% of boars in the stud (33% reduction in needs due to the change from 3 to 2 billion sperm per dose and hence 33% more doses created from the 66% best boars retained)

CONTINUED ON PAGE 28

"GETTING THE MOST OUT OF YOUR FEED INGREDIENTS"

NIRS workshops

- International speaker: Geoff Smith from DFS, Newell, Iowa will speak on the routine use and economic value of NIRS in their feed milling and farm operations
- Other speakers: Dr. Mary Lou Swift, Alberta Agriculture and Rural Development; Dr. Ruurd Zijlstra, University of Alberta; Ron Gietz, Alberta Agriculture and Rural Development; Rob Hand, Alberta Crop Industry Fund (ACIDF).

Topics include:

- Practical experience using NIRS technology
- Economics of NIRS technology
- Grant for NIRS machines
- Value for livestock & crop producers
- Developing and managing calibration equations
- Available NIRS networks & services
- Hands on experience using NIRS machines

These workshops will be of interest to: swine & poultry producers, feed mills, nutrition consultants, crop producers & consultants, and ingredient procurement companies.

Wednesday November 14th, 2012
Coast Lethbridge Hotel and Conference Center,
526 Mayor Magrath Dr., Lethbridge, AB. 10 am to 3:30 pm

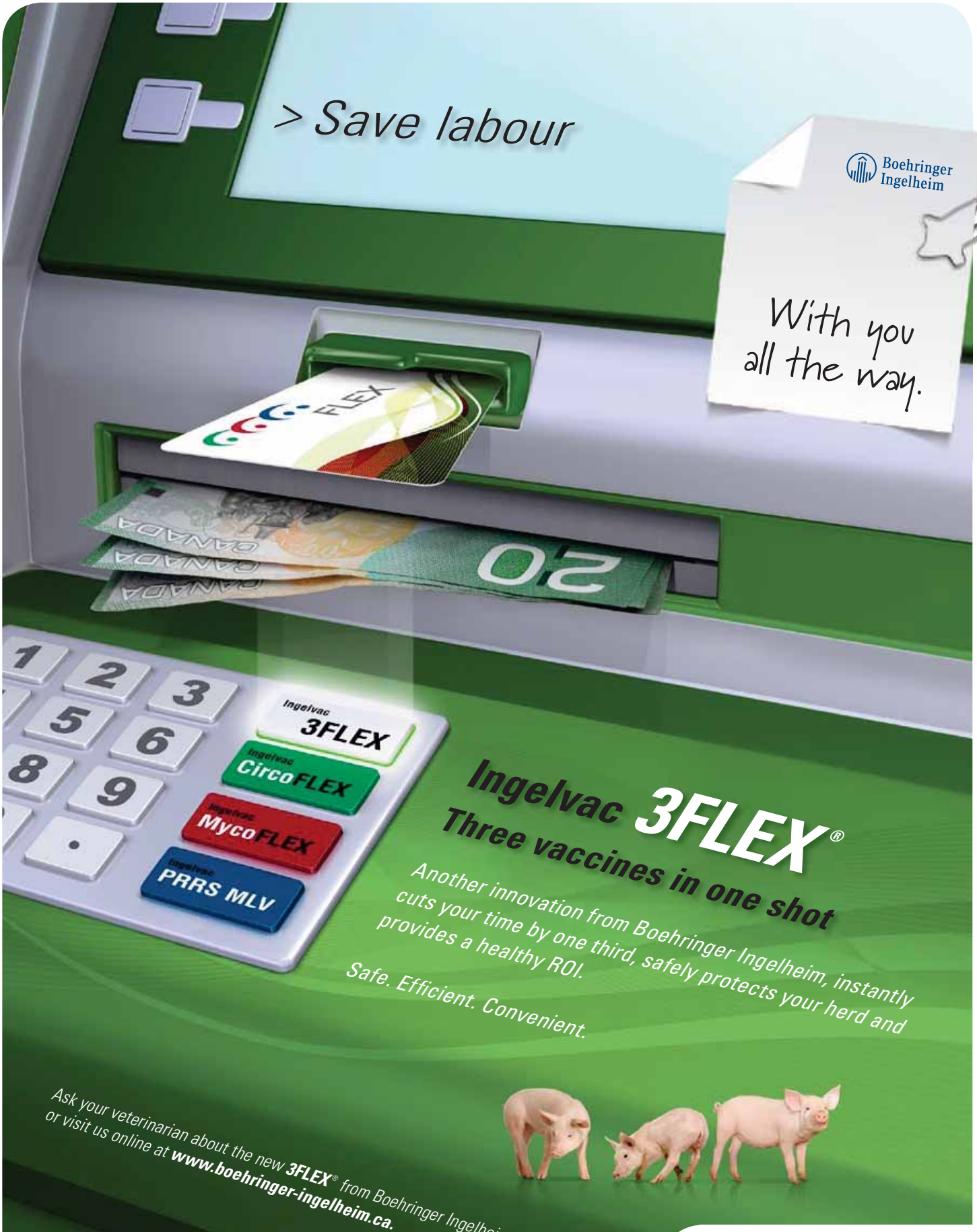
Thursday November 15th, 2012
Lacombe Memorial Centre,
5214 50th Avenue, Lacombe, AB. 10 am to 3:30 pm.

Doors open at 9:30. Lunch and refreshments will be served.

There is no cost to attend but pre-registration is required. For further information or to register, please contact Brenda McLellan at 1-800-387-6030 or Brenda.mclellan@gov.ab.ca. Final registration date November 7th, 2012.

The following companies will be demonstrating their NIRS equipment at the workshops: Bruker Ltd., Foss North America, and Unity Scientific.

Gowans Feed Consulting Alberta Agriculture ACIDF University of Alberta



©2010 Boehringer Ingelheim Vetmedica, Inc. Ingelvac CircoFLEX, Ingelvac MycoFLEX, Ingelvac PRRS MLV and 3FLEX are registered trademarks of Boehringer Ingelheim Vetmedica, GmbH, Ingelheim, Germany.

Table 1: Cost:benefit analysis of improved swine AI procedures, based on a 10,000 sow system and an integrated 100-boar commercial AI stud. The steps 1, 2 and 3 are those outlined in the article

AI method	Start Standard AI		Step 1 Standard AI		Step 2 Post-Cervical		Step 3 Post-Cervical
AI dose (billion)	3	↓	2	↓	1	=	1
# Inseminations	2.2	=	2.2	=	2.2	↓	1
# boars in stud	100	↓	66	↓	33	↓	15
Average index	115.8	↑	122.5	↑	129	↑	134
Commercial sows In production	10,000	=	10,000	=	10,000	=	10,000
PSY (after gradeouts)	24.5	↑	26.5	=	26.5	=	26.5
W2F losses	7%		7%		7%		7%
Total pigs sold/year	227,850	=	246,450	=	246,450	=	246,450
Value for 1 index point per pig	$0.07	=	$0.07	=	$0.07	=	$0.07
Annual opportunities:	$ -	↑	$ 115,585	↑	$ 227,720	↑	$ 313,977
Other opportunities:							
Fewer boars (per year)	0%		33%		66%		85%
Savings	$ -		$ 90,750		$ 181,500		$ 233,750

- The lowest performing boars are removed from service, increasing average index to 122.5 (range 110-150).
- An indirect result would likely be an increase in PSY to 26.5
- Wean to farrow loss of 7%
- Total pigs sold/year = 246,450
- Pigs produced per boar = 3,734

Stage 2

- All sows are bred by post-cervical AI (PC-AI) technique, multiple times (average 2.2 times), dependent on the duration of oestrus and existing farm protocols.

SAND RIDGE FARM LTD.
Proven Methods. Superior Results.
Ken Hamoen
P. 780.674.5135
C. 780.674.7498
Box 216, Neerlandia, AB T0G 1R0
sandridgegenetics@hotmail.com
www.sandridgegenetics.com
SRG

- Semen used as single-sire doses at either 1 or 1.5 billion sperm cells per dose (from boars with proven fertility at 2 billion sperm/dose using conventional in AI Stage 1)
- 50 matings per boar used to identify top 33% of boar in stud.
- The lower performing boars again removed, increasing average index to 129 (range 122- 150)
- Pigs per sow per year (PSY) still averages 26.5
- Wean to farrow loss of 7%
- Total pigs sold/year = 246,450
- Pigs produced per boar = 7,468

Stage 3

- All sows are bred using a single, fixed-time, AI protocol (sFT-AI) and the PC-AI technique
- Semen: One single-sire dose of 1 or 1.5 billion sperm cells
- 50 matings per boar used to identify top 15% of boars in the stud.
- Again, remove the lower performing boars and average index moves to 134 (range 127- 150)
- Pigs per sow per year (PSY) still averages 26.5
- Wean to farrow loss of 7%
- Total pigs sold/year = 246,450
- Pigs produced per boar = 16,430

The potential economic gains achieved by adopting these advanced AI strategies are summarized in Table 1.

Conclusions

The evaluation of relative fertility amongst commercial AI boars, and a move to single-sire AI programs in combination with advanced AI techniques holds significant potential economic benefits to the swine industry. Data collected from initial boar evaluations would allow for elimination of the less fertile boars at an early stage. The characterization of AI boars that maintain high productivity at even lower numbers of sperm per AI dose then allows the industry to capitalize on established and emerging AI technologies like post-cervical and single, fixed-time insemination. These changes would be made without any loss in productivity, as measured in terms of pigs born per sow per year. The boars retained for commercial use would then have the highest genetic merit among boars available at any point in time, and would be used across a greater number of gilts and sows. Results to-date suggest that the relative value of commercial progeny could be increased by between $0.80 and $1.30 per pig born and would largely reflect the genetic merit of elite boars in terms of growth performance and feed utilization efficiency of their offspring. ■

The impact of early life experiences on sow performance and longevity

High sow culling rates and relatively poor lifetime productivity are a concern in the North American swine industry, with culling rates often over 50%. There is a critical need to develop and evaluate best management practices for gilt development that maximize future reproductive capacity, believes Dr. Mark Estienne, from the Tidewater Agricultural Research and Extension Center at Virginia Tech in the USA. Modern swine production has benefited from a large amount of research focused on management of replacement gilts during the grow-finish phase and around the time of sexual maturity to capture reproductive efficiency, he says. But, while management during these phases of production may greatly influence lifetime reproductive performance, it is becoming increasingly evident that management during the suckling and nursery periods may have profound effects as well. Moreover, Dr. Estienne argues, a growing body of evidence supports the notion that the maternal environment in which a gilt fetus develops plays an important role in the development of the reproductive and other physiological systems. This phenomenon of "fetal programming" becomes evident later in life when it can have a significant impact on the performance of the gilt and sow throughout her productive life. He explains some of the early life experiences that can impact breeding pigs.

Dr. Mark Estienne, speaking at the Swine Breeding Management Workshop held in Edmonton by the University of Alberta

Introduction

The impact of early life experiences on the productivity of the gilt through her breeding life, and also the impact on the boar, is a relatively new area of study in pigs. Not only does this include the suckling and rearing phase, but also the embryonic and fetal stages of development. "A growing body of evidence supports the notion that the maternal environment in which a gilt fetus develops plays an important role in the development of the reproductive and other physiological systems," explains Dr. Estienne. "If you put stress on the female during its development, it can affect development of the reproductive organs, which won't be evident until much later in life."

During the last two decades, management advances and selection for prolificacy have greatly increased litter size in pigs. An unintended consequence of the increase in litter size, however, has been an increase in the proportion of low birth weight pigs due to intrauterine growth retardation (IUGR). "This is defined as impaired growth and development of the mammalian embryo or fetus or its organs during pregnancy," points out Dr. Estienne. "In reality, a number of factors, such as inadequate maternal nutrition or disease, can contribute to IUGR in domestic livestock." However, he says, the most important cause of IUGR in pigs is probably insufficient uterine capacity, which limits the amount of placental attachment and as a consequence, nutrient exchange between the dam and fetuses."

CONTINUED ON PAGE 32

ECHBERG Distribution

DRINKING CUP
for water savings and high hygiene

FARROWING CRATE

European crate with long molded fingers to allow maximum access to the udder

FEEDER
MAXI+
Strong feeder, ideal for Nursery/WTF/Finisher

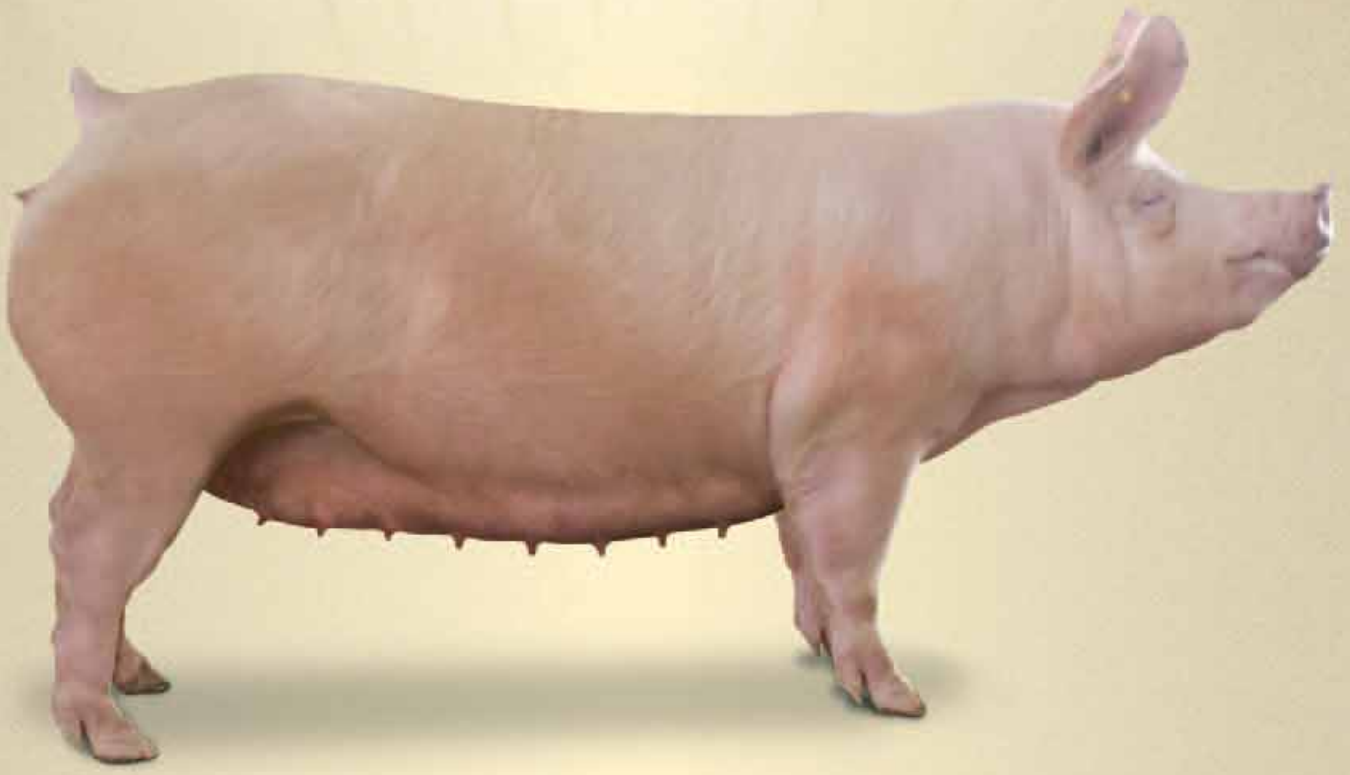
FREE ACCESS STALL
for group housed sows

FEED WIRE
Fully automated Chain Feeding system

2389 Route 202 | Dunham, Quebec, J0E 1M0 | Phone +1 450 263 0001 | Fax +1 450 263 0003 | Cell +1 450 770 2600 | www.echberg.ca

Fast Genetics™

30 YEARS



Generations of success.

Your source for leading pig genetics over the past 30 years.

Backed by world-class service and technical support, Fast Genetics delivers a superior portfolio of terminal and maternal products. We understand your bottom-line focus and go beyond the norm in today's market. Aided by biosecurity advantages, we deliver industry-leading health. Our prolific parent females produce large litters that make it to market, and our terminal sires deliver rapid growth and excellent carcass composition. At Fast Genetics we pride ourselves on delivering quality service from people you can count on.

Fast Genetics Corporate Office
#2–2175 Airport Drive
Saskatoon, SK Canada S7L 7E1

T 306.667.1420
T 306.667.1421
E contactus@fastgenetics.com

www.fastgenetics.com

™ Fast Genetics is a trademark of Fast Genetics Inc. 12008 06.12

The impact of IUGR

The consequences of IUGR on postnatal growth performance in swine are well-documented, Dr. Estienne notes. "Compared with high birth weight offspring, IUGR newborn pigs have greater rates of pre-weaning mortality and lower postnatal growth rates and, at slaughter, low birth weight pigs have less muscle, are fatter and have poorer meat quality," he says.

Although the reproductive effects of IUGR have been less well studied, it has been shown that the development of the male reproductive organs in 7-day old piglets was poorer in low birth weight pigs than in those with a higher birth weight. "Low-birth weight boars may have poorer reproductive performance at sexual maturity," comments Dr. Estienne. "Preliminary evidence from our laboratory supports this hypothesis." A recent study of his found that the birth weight of boars that were impossible to train for semen collection were lower than those that could be trained. Also, the low birth weight boars had lower sperm concentrations and total sperm per ejaculate than those classified as high birth weight.

IUGR also impacts follicular development in gilts and the onset of puberty. It has been shown that, at birth, runt pigs (mean weight 0.7kg) had more primordial follicles in the ovary, but fewer primary and secondary follicles than normal weight littermates (mean weight 1.5 kg), indicating that IUGR delayed follicular development. A recently reported pilot study by Dr. Estienne examined age at puberty in gilts farrowed in litters with various average birth weights. "Age at puberty, defined as the first standing oestrus in the presence of a mature boar, was determined for two to seven gilts from each of 33 litters that had a range of average pig birth weight of 1.13 to 1.98 kg," he explains. "Age at puberty was negatively correlated with average pig birth weight."

> **"The birth weights of boars that were impossible to train for semen collection were lower than those that could be trained"**

Stress during the gestation period is another factor that affects the fetus. "A study in which sows were stressed by restraining them daily for 5 minutes during weeks 12-16 of gestation looked at how this impacted the onset of oestrus in female offspring," says Dr.

Estienne. "Age at first oestrus was significantly delayed in gilts farrowed by stressed sows (~ 172 days) compared to gilts farrowed by control females (~ 158 days)."

Effects during gestation

"One of our recent experiments compared growth performance and reproductive characteristics of gilts farrowed by sows that were kept in individual crates throughout gestation, group pens throughout gestation, or individual crates for the first thirty days post-mating and then group pens for the remainder of pregnancy," continues Dr. Estienne. "Pig birth weights, and growth performance prior to weaning and during the nursery phase of production, were similar among treatments, but during the last four weeks of the grow-finish period, body weights of gilts farrowed by females housed in crates throughout gestation were greater than body weights of gilts in the other two groups." Also, he notes, the efficiency of feed conversion was greatest, and last-rib backfat the lowest, in gilts farrowed by females housed in crates throughout gestation. It has been shown that environmental influences on embryonic and fetal development most often express themselves in the late grower or finisher stages of production. "Interestingly, in our study, fewer gilts farrowed by females kept in crates throughout gestation reached puberty by 165 days of age compared with the other two groups," Dr. Estienne observes. "Although the mechanisms responsible for these effects were not addressed, maternal cortisol ('stress' hormone) secretion could be involved. Circulating cortisol levels were greater for gilts kept in individual gestation crates compared with group-penned individuals."

Influences during the lactation period

Research from nearly 40 years ago compared the performance of gilts reared in litters of 6 with those in litters of 12. "At 25 days post-mating, the gilts from small litters had more embryos than those from litters of 12 pigs," notes Dr. Estienne. "Moreover, through three parities, sows raised in litters of seven pigs or less were less likely to be culled and had higher farrowing rates and larger litters than sows raised in litters of 10 or more pigs." Another study showed that boars raised in litters of six pigs or less reached puberty sooner and produced more sperm cells per ejaculate compared to boars raised in litters of nine pigs or more. "This all suggests that lactation litter size can impose some type of stress that negatively impacts future reproduction of the suckling pigs," comments Dr. Estienne.

CONTINUED ON PAGE 34

NOVARTIS

Take Pride

Choose Denagard® to help treat and prevent swine dysentery, an enteric disease of pigs and the cause of severe economic losses worldwide.

Denagard is rapidly absorbed and widely distributed through the body tissues in high concentrations, particularly in the lung and colon, making it highly effective against the target pathogen.

The medicated premix can be used for treatment and prevention, while the liquid concentrate is suitable for treating pigs that are off their feed. The injectable is the option of choice for acute, life-threatening situations. Preventing and treating swine dysentery may help increase daily weight gain and improve feed conversion.

Denagard has been the right choice for pork producers worldwide for over thirty years. To learn more, contact your veterinarian.

Denagard® tiamulin
Take pride

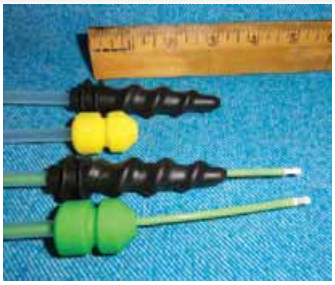
©2011 Novartis Animal Health Canada Inc.
®Registered trademark of Novartis AG –
Novartis Animal Health Canada Inc. licensed user.
3103-1E-10/11

Agroscan
A8-A-16-A-14 IMAGO EXAGO

V-Scan

A-7

Trade - Quick repair - Rebuilted



BLACK CATHETER : Deposit SEMEN 2" further than foam catheter

New and used for
Boar stud; lab, A.I.

SAVE TIME
DOING SPERM
CONCENTRATION

COLORIMETER

LIFE SAVIOR
prevent crushing

80% of crushed piglets died on first 6 days

S.E.C. repro inc.
speciality reproduction

Toll free: 1.888.446.4647
www.secrepro.com
louis@secrepro.com

Cell 450 776 0596

The rearing phase

Environment and management during the rearing phase also influences subsequent reproductive performance. "Inadequate floor space during the grow-finish stage has been shown to affect the onset of puberty," explains Dr. Estienne. "For example, one trial showed that the percentage of gilts reaching puberty at less than 285 days of age tended to be greater for females allowed adequate floor space during the grower and finisher phases of production (0.56 and 0.72 m2, respectively), compared to gilts allowed less floor space (0.28 and 0.56 m2, respectively)." Another trial compared gilts reared in pens of 8 or 16 animals showed that females reared in the smaller groups ultimately farrowed one more pig per litter than gilts reared in the larger groups.

> **"Inadequate floor space during the grow-finish stage has been shown to affect the onset of puberty"**

Crowding during the nursery phase also appears to have a significant impact on reproductive performance. "In one study, gilts kept in pens of 16 during a 5-week nursery period subsequently farrowed 1.25 live pigs less during parity 1 and 3.5 live pigs less during parity 2, compared to gilts kept in pens of 8 in the nursery," says Dr. Estienne. "Another study also showed the bigger impact of crowding on second parity performance. These studies demonstrate that the potential detriment increases in parity 2 after the female has experienced the normal rigours of the parity 1 lactation."

Conclusion

Clearly there are some significant effects of conditions in the uterus and in the early development of breeding boars and gilts on subsequent reproductive performance, in addition to those during the rearing phase. A better understanding of these factors will help to develop future management strategies that will contribute to higher lifetime performance. "Research will continue to identify prenatal or early-in-life stressors and to develop management strategies for mitigating adverse effects on reproduction and increasing sow longevity," concludes Dr. Estienne. ■

Factors affecting sow longevity

In recent years, high feed prices have increased the cost of producing replacement gilts. Gilts entering the herd now have to produce three litters in order to "pay" for themselves, according to Dr. Ken Stalder, from Iowa State University. A breeding female remaining in the herd for a shorter productive lifetime will have a reduced opportunity to be sufficiently productive (pigs weaned and sold per lifetime) to achieve a return on the replacement gilt investment and development costs, he says. More and more commercial producers and genetic suppliers are recognizing the value of sow longevity and are trying to keep sows in the breeding herd for an extended period of time, notes Dr. Stalder. Many factors can result in the removal of a sow from the breeding herd earlier than desired. Most of these are not well understood particularly when modern sow housing systems and genetics are taken into consideration, he believes. This edited version of his paper looks at the influences on sow longevity and the reasons for sow culling.

Dr. Ken Stalder speaking at the Swine Breeding Management Workshop

Reasons for culling

Numerous factors consistently impact culling decisions for breeding herd females in commercial pork production operations. The challenge is determining if the recorded culling reason is in fact the "real" reason the sow was culled or if the recorded reason was really a symptom of some other factor expressed earlier in the sow's productive life.

A large study evaluating cull sows at harvest was conducted, to better evaluate breeding herd female culling reasons. The physical and reproductive condition of 3,158 cull sows were evaluated. Body condition, feet, shoulders, teeth, lungs, and reproductive tracts were visually evaluated on harvested sows.

The incidence of specific health problems was (percent of sows):

- Heel lesions - rear feet 67.5%, front feet 32.9%.
- Cracked hooves - front feet 22.6%, rear feet 18.1%
- Rear toe overgrowth - 21.1%
- Non - cycling ovaries 9.0%
- Cystic ovaries - 6.3%
- Lung lesions - 9.7%
- Shoulder abrasions - 12.5%

CONTINUED ON PAGE 36

The incidence of acyclic ovaries increased as sow body condition score decreased, while the incidence of cystic ovaries increased as sow body condition score increased or sows became fatter. The frequency of lung lesions increased as body condition score decreased. The presence of shoulder abrasions increased as body condition score decreased.

> **"Interestingly, sows culled for reproductive failure had an 86.2% probability of having normal ovaries"**

Sows (923) from 8 farms, all from a single integrated US pork production system, were evaluated and the results analyzed by parity, culling code, farm and production parameters. The reported on-farm culling codes were categorized into poor body condition, old age, lameness, other, poor litter performance, and reproductive failure. The reproductive culling code was the most commonly used culling code in parities 1 to 5 (66.1, 58.1, 52.7, 39.4, and 37.7%, respectively). Cull sows having grossly acyclic ovaries decreased and grossly cystic ovaries tended to increase as parity increased. The likelihood of a sow having normal ovaries did not differ between culling codes. Interestingly, sows culled for reproductive failure had an 86.2% probability of having normal ovaries.

Sows culled with the lameness code had a higher prevalence of cracked hooves than the other 5 culling codes combined (30.9 vs. 18.7%). Foot lesions (front or rear heel lesions, front cracked hooves, front or rear digital overgrowth, and missing dew claws increased as parity increased. Sows culled for lameness were leaner and had lower body condition when compared to sows culled for old age, poor litter performance, and reproductive failure.

Sows culled with no shoulder lesions had more lifetime pigs born alive (60.0 vs. 58.0) when compared to cull sows where shoulder lesions were present. Also, cull sows with severe teeth wear tended to have fewer lifetime pigs born alive (58.9 vs. 60.3), pigs born alive in the last litter (9.87 vs. 10.31) and had less pigs born alive per day of life in the herd (0.0704 vs. 0.0734) when compared to cull sows without severe teeth wear. Cull sows without front cracked hooves tended to have more pigs born alive/day of herd life (0.0725 vs. 0.0703) when compared to cull sows where front cracked hooves were present. Cull sows with no overgrowth of the rear digits had more pigs born alive in last litter (10.22 vs. 9.68) and a trend for greater number of pigs born alive/day/herd life (0.0724 vs. 0.0702) when compared to cull sows that did not have rear digital overgrowth.

Cull sows with overgrowth of the rear digits had less pigs born alive in their last litter

Genetic effects on culling factors

A National Pork Board study examined the association between gilt compositional and structural soundness traits with reproductive and longevity traits. Longevity was defined as the ability to complete the fourth and the fifth parity. The objective was to determine factors measured or evaluated early in a sow's life that are associated with superior sow productive lifetime. The degree in which a trait is controlled by the genetics (heritability) and the genetic relationship between traits (genetic correlation) were estimated.

CONTINUED ON PAGE 38

WSTA ASSOCIATION
WESTERN SWINE TESTING
www.wsta.ca 1.403.782.7057

eFarm

Canadian Centre for Swine Improvement
www.ccsi.ca 1.613.233.8872

eFarm is a suite of online applications for swine breeders and producers

✓Use 24/7 from any web browser, including smart phones
✓Use it alone or add value to your existing software
✓Option to link automatically to your genetic supplier
✓Track and manage in-house replacement programs
✓Link to Canada's national swine database
✓Access genetic improvement tools and expertise
✓No need to burn data on CDs or install any software
✓All you need is a computer and internet connection

See for yourself what is behind Canada's world leading swine genetics
For more information, please contact CCSI or WSTA

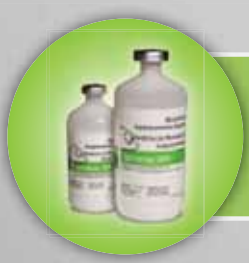
circovac®
SOW AND PIGLET PCV2 vaccine

Double Your Reasons for Choosing CIRCOVAC®

The first PCV2 vaccine for both sows & piglets

CIRCOVAC is the first PCV2 vaccine approved for use in both *sows* and *piglets* to provide total herd protection from start to finish. Now you have a choice in how you vaccinate your herd against PCV2 disease. CIRCOVAC gives you the flexibility for maternal or piglet vaccination. Either way, the choice is yours.

CIRCOVAC: One vaccine. Two options.



NEW SPRINTVAC® MH for Mycoplasma Protection.
Ask your veterinarian for details.

www.merial.ca

CIRCOVAC® is a registered trademark of Merial Limited.
SPRINTVAC® MH is a registered trademark of Merial Limited.
© 2012 Merial Canada Inc. All rights reserved.
MERO-2026

MERIAL
A SANOFI COMPANY

About 70% of the females were removed prior to the sixth parity. At the termination of data collection, 14% of the females were still alive and in production at the commercial sow herd. The parity distribution of the sows in the herd at the end of data collection ranged from the sixth to the ninth. Reproductive failure was the most frequent culling reason during the first three parities and it caused the loss of 16% of the females before the fourth parity. Culling for lameness or feet and leg problems primarily occurred prior to the third parity removal the removal of 7.5% of the young females. Litter performance became an important culling reason by the fourth parity.

The median survival times (time by which 50% of the females had been removed) was 546 herd days or 723 days of age, corresponding to a mean removal parity of 3.7. At culling, females had farrowed an average 44.6 piglets of which 40.4 were born alive.

The heritability estimates obtained for longevity traits ranged from 0.12 to 0.16 and for lifetime reproduction traits from 0.13 to 0.17. Compositional traits had high heritabilities (0.50 - 0.70). For body structure traits, the heritability estimates were low to moderate (0.11 - 0.34). The majority of the heritability estimates for leg structure traits were relatively low (total range 0.07 - 0.29). The highest heritability estimates were obtained for weak front and rear pastern postures (0.28 and 0.29, respectively). The heritability of overall leg action was 0.12. This indicates that the body structural traits can be improved through traditional selection methods, although progress would be slow due to the low heritabilities. However, advances in the science of genomics in livestock production include the possibility of improving sow longevity or sow productive lifetime and associated traits. Gene markers associated with improved sow productive lifetime have been identified and will allow faster genetic progress to be made in this area in future.

"Females with intermediate body length and more ideal rib shape remained in the herd longer and farrowed more piglets"

Body length and rib shape had significant associations with all longevity measures and lifetime reproduction traits. Females with intermediate body length and more ideal rib shape remained in the herd longer and farrowed more piglets. Greater body width was significantly correlated with longer lifetime and higher removal parity. From the leg structure traits, front legs turned slightly outward were significantly associated with greater lifetime number born, lifetime number born alive, and lifetime born alive per day of life. Furthermore, less upright rear legs were associated with greater lifetime born alive per day of life and percentage of productive days and intermediate rear foot size with greater lifetime and removal


MaxiPlex®

Send your hogs to market sooner with MaxiPlex.
THE RESULTS ARE IN THE BAG!
STANDARD NUTRITION
COME SEE US AT ANY ONE OF OUR 5 LOCATIONS
Winnipeg, MB 1-888-273-8763 | Brandon, MB 1-888-728-7807 | Swift Current, SK 1-888-773-5773 | Lethbridge, AB 1-877-329-1414 | Red Deer, AB 1-403-352-0006
Standard
Best People. Best Results.
MaxiPlex is a registered CFIA product, distributed in Canada and the US.
www.standardnutrition.com
impact soulutions inc.

parities. The results implied that less upright pastern posture is associated with improvements in longevity and lifetime reproduction traits.

Other factors influencing longevity

One cannot overlook the importance of proper gilt development including the nutritional program and the management protocols dealing with boar exposure. We know the proper management that must be implemented during the gilt development stage to improve sow herd lifetime productivity. It appears that implementing proper gilt development protocols becomes the stumbling block at the commercial producer level. This emphasizes the importance of the caretaker skills / stockmanship / management on improving longevity. It has been known for some time that farm-to-farm variation is always an important factor when looking at large data sets in the analyses for various sow productive lifetime traits.

The management gilts receive early in life has been shown to influence their lifetime reproductive performance. Work by Billy Flowers and colleagues reported that neonatal litter size and early puberty stimulation can impact sow longevity and reproductive performance.

The study showed that a gilt raised in a small litter (7 pigs or less) and receiving boar exposure at 140 days of age had a 5% better farrowing rate and 0.5 pigs more per litter in each of six parities, compared to those raised in litters of more than 10 . Similar impacts were observed on longevity. At the end of 6 parities, 45% of sows raised in litters of 7 or fewer pigs and given boar exposure at 140 days of age were available for mating to have their 7th litter. The same value for the sows raised in litters of 10 or more littermates that were exposed to boars at 170 days of age was only 10%. The total number of pigs produced through 6 parities per gilt bred in each management treatment was 21.9, 29.7, 29.8, and 43.2 for the large neonatal litter / boar exposure at 170 days, large neonatal litter / boar exposure at 140 days, small neonatal litter / boar exposure at 170 days, and small neonatal litter / boar exposure at 140 days treatments, respectively.

Summary

Sow productive lifetime is impacted by many factors that are influenced by genetics and the environment. Many traits are genetically correlated with sow productive lifetime and can be improved through selection. Continued molecular genetics will likely lead us to identifying important genes that influence sow productive lifetime directly or impact traits that influence sow productive lifetime. The effect of caretaker skills, stockmanship or management ability cannot be underestimated. ■

Improving energy digestibility in higher fibre diets

Results of a preliminary experiment conducted at the University of Illinois indicate that it may be possible to select pigs that can make efficient use of energy in less expensive feed ingredients, thus reducing diet costs.

"Less expensive feed is usually higher in fibre than the corn-soy diets typically used in US swine production," explains Hans H. Stein, professor of animal sciences at the University of Illinois at Urbana-Champaign. "However, the white breeds that are used in commercial pork production use only about 40% of the insoluble fibre. If you can increase that number to 50 or 60 or 70%, then of course, you would get a much better use of the energy in those ingredients," Stein points out.

"The white breeds have been selected for high efficiency and rapid gain for many, many generations," Stein continues. "But that's all based on corn-soy diets. "However, there are also indigenous breeds of pigs that have not been selected for commercial production and these breeds have, therefore, not been fed the corn-soybean meal diets for as many generations as the white breeds."

Among those indigenous breeds are Meishan pigs, which have been raised in China for many centuries. Stein's hypothesis was that these pigs, which have not been selected for efficiency and rapid weight gain, would use fibre more efficiently than the white breeds.

Stein and his team compared the fibre digestion of Meishan pigs with that of two groups of Yorkshire pigs. They tested four diets that used high-fibre ingredients: distillers dried grains with solubles (DDGS), soybean hulls, sugar beet pulp and pectin.

When fed DDGS, the values for apparent total tract energy digestibility were higher for the Meishan pigs (83.5%) than for either weight-matched (77.3%) or age-matched (78.8%) Yorkshire pigs. Researchers observed no significant difference in energy digestibility for the other ingredients.

"What we observed was that, particularly for the DDGS diets, the Meishans were quite a bit more effective at using that fibre," Stein said. "That diet is high in insoluble dietary fibre. When we looked at more soluble fibres, there was no difference."

Although Meishan pigs would never be used for commercial pork production in the United States, the results indicate that differences exist among breeds of pigs. Thus, it is possible that differences also exist among the white breeds and that some may use fibres more efficiently than others. However, Stein stresses that this study was preliminary and said that determining if white breeds can be bred to use insoluble fibre more efficiently will be quite costly because it requires selecting pigs for multiple generations.

"I think it is exciting that there are some pigs that can use fibre better than we have thought in the past, and I think this will open up opportunities to think in different ways about how we can feed pigs economically," he says. ■

MAXIMUM SWINE MARKETING LTD.

Get the MAXIMUM advantage

We have buyers waiting to pay top dollar for your weaner and feeder pigs

Maximum Swine Marketing has extensive industry contacts to consistently market your hogs at all stages of the life cycle.

You receive extra value through:

- Clean, Dependable Transportation
- Prompt payment terms
- Veterinary Consultation
- Professional After Sales Service and Support

Knowledge and skill to market swine throughout the life cycle

Contact David Scott @ (204) 834-2707
www.maximumswine.com

MAXIMUM SWINE MARKETING LTD.

On-farm milling: Being accountable in the production of safe food

By Dr. Dawn Magrath, Innovative Veterinary Services, Lethbridge

Making feeds on-farm is certainly not a way to escape correct protocols or take short cuts. It's more important than ever to ensure we are "doing the right thing" and that we can prove it.

As more and more on-farm mills are receiving inspections to ensure food safety, I felt it was a timely topic to discuss. It is important to understand that these inspections are not being done to try to "catch you out", or try to stop you from producing feed/ raising animals, but for Canada to show that it has a good handle on feed production and that the food we produce is safe.

The Canadian Food Inspection Agency (CFIA) is the body responsible for verifying livestock feeds that are manufactured, imported and sold in Canada. CFIA feed inspectors regularly inspect commercial feed mills. During these visits they assess manufacturing conditions and procedures, as well as ensuring there are adequate records, which show there have been no feed-related problems that could affect animals or people.

It is estimated that there are over 20,000 on-farm feed mills in Canada, and that's a lot of ground to cover. A large proportion of these mills are also handling medicated feedstuffs, which can really become complex if they are also manufacturing feeds for multiple species. Very similar criteria are used to assess on-farm mills compared to those used for commercial mills, which makes sense because, either way, the feeds ends up in the animals we eat.

Feed manufacturers, including livestock producers who mix their own feed on-farm, must:

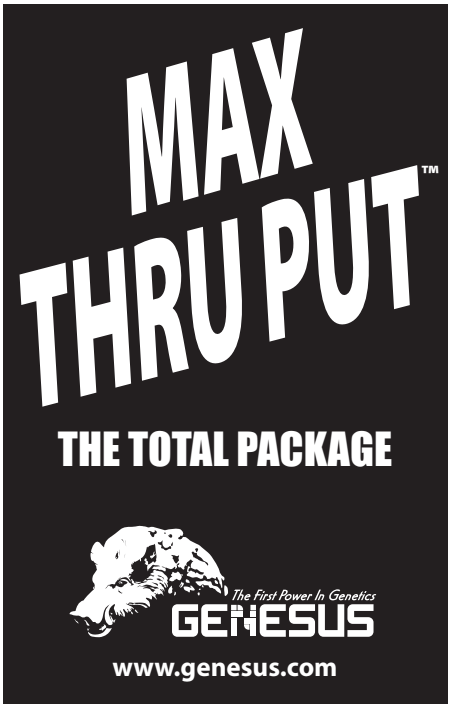
- Manufacture livestock feeds that contain only approved ingredients for that species (review sequence and ingredient lists)
- Purchase only approved ingredients that are labelled appropriately (review labels of purchased ingredients)

CONTINUED ON PAGE 42

- Manufacture livestock feed that does not contain substances that are toxic to animals, or that would contaminate food produced from the animals
- Complete and maintain records related to the conditions of feed (Mixing formulae, sequencing records, flushing procedures)
- Verify the operation and accuracy of the equipment used (e.g scale calibration, mixing sheets)
- Use medications according to the conditions set forth by Health Canada on their labels, or in accordance with a veterinarian's prescription(review records and prescriptions)

During your on-farm inspection, the CFIA inspector will review records and procedures and may sample feeds already mixed to determine that medications are at the correct levels. These feeds may also be checked for contamination or residues from previously medicated batches.

To ensure that you are meeting these requirements, it is useful to familiarize yourself with the Compendium of Medicated Ingredient Brochures (CMIB).



This document provides information on approved levels for each species and withdrawal times for those levels. If you are using levels other than those indicated on the CMIB, it should be under veterinary prescription only.

> **"Because one medication may have a zero withdrawal time for pigs, it does not mean it has a zero withdrawal time for all species"**

Also, beware that because one medication may have a zero withdrawal time for pigs, it does not mean it has a zero withdrawal time for all species, or is even approved for a different species. This is probably one of the biggest gaps I see during CQA validations.

Why is it important to have precise medication levels in feed?

- Over medicating feeds may result in residues in food products
- Under medicating rations may be ineffective and more likely to lead to antimicrobial resistance

Mixing formulae must:

1) Include the name of the ration
2) List the name and weight if each ingredient and ingredient names
3) Be kept for a minimum of 10 years (as of 2007)

Cleanout procedures – prohibited materials (PM):

In an instance where a PM (such as meat and bone meal) may have contaminated a ruminant feed, the Health of Animals Regulations explicitly requires a written policy to be in place on farm to rectify the situation. This policy could be sequencing, a validated flush, or a physical cleanout procedure to be compliant. It is always best to outline clearly the steps that you would take on your farm to deal with a particular situation and discuss this protocol with all staff on a regular basis.

It is important to be able to demonstrate that the technique you use on your farm is effective, as all mills are different. Guidelines are available from CFIA to assist in validation of your procedures. Ingredients used for "flushing", can only be used as an ingredient in a feed that is intended to contain the same medication.

If you sell, or distribute feed to other farms/livestock, your operation will be categorized as a commercial mill and therefore placed on a regular inspection schedule as with all other commercial mills.

One of the most common misconceptions that I see in the field are in multi-species mills that think that if there is no withdrawal period for the medication they are using for swine (e.g 2.5 kg Lincomycin 44), that they can simply assume it is a "clean" feed and make a ration for another species directly after that ration. This is a definite "no-no" and I recommend to all my clients that a good rule of thumb is to have a standard flushing protocol between species.

Some good resources

Consult with your CFIA office and inspector, should you come across something you are unsure about. The following documents are very useful to have at hand and you should become familiar with them if you are making feed on-farm:

1) Medication Sequencing Guideline for management of drug carryover
2) Medication residues – validation testing procedures for equipment cleanout procedures
3) Developing mixer performance testing procedures
4) Developing scale and metering device calibration and testing procedures

If you have access to the internet, the website to go to for more information on regulations , CMIB, ingredient lists is: www.inspection.gc.ca ■

TEST YOUR VACCINE KNOW-HOW AND WIN WITH FOSTERA PCV

Test your knowledge of 9 important considerations for proper care and handling of all swine vaccines. Receive a Fostera™ PCV pen knife for completing the test. Plus, the first 300 participants also receive a large, plush Fostera PCV barn towel.*

Visit switchtoblue.ca to take the test today!

Get the protection you expect from every Pfizer Animal Health swine vaccine.

Pfizer Animal Health

™Trademark of Pfizer Products Inc.; Pfizer Canada Inc., licensee
*Some conditions apply. While quantities last.

08/12-19325

Fine tuning your operation when times are tight

Submitted by Prairie Swine Centre

Any time is a good time to review management practices within your operation. In the current environment of high feed prices and tight margins producers are more aggressively seeking ways to reduce costs and increase revenue. Prairie Swine Centre's research program focuses on ways to enhance the economic position of pork producers throughout Canada. The following list provides some easy-to-adopt ideas that can be incorporated into your operation immediately.

You may have already implemented some of these ideas, in which case they will serve as a reminder as to the importance of each aspect.

1. **Removal of vitamins and trace minerals from finishing diets**

   Removal of vitamins and trace minerals from the finishing diet for periods of approximately 3 or 5 weeks prior to slaughter was found to have no negative impact animal performance and carcass merit. The economic benefit of such a change will vary among farms, depending on the current cost of supplementation; it is estimated that a typical saving of about $1 - $1.50 per pig sold may be realized.

2. **Adding peas to pig diets**

   Recent work at Prairie Swine Centre has shown that a high inclusion (60%) of peas does not necessarily result in reduced feed intake. At current market conditions, every $10/mt reduction in finishing diets will save approximately $1.20 per market hog. A bi-weekly publication (Feed Pea Benchmark) produced by Saskatchewan, Alberta and Manitoba Pulse Growers provides a quick summary on what the price of peas needs to be in order to price into diets.

The Next
Western Hog JOURNAL
is January 2013
For advertising contact James Shaw at
416-231-1812 or jamesshaw@rogers.com

3. **Monitor temperature**

   a. Elevated barn temperatures reduce feed intake and thus growth rate. For every 1°C above the pig's thermoneutral zone, feed intake drops by 1-2% and growth rate drops by about 3%. Thus, for every °C above the pig's thermoneutral zone, net income is reduced by $0.50 to $0.75 per pig.

   b. Reduced nocturnal temperature. By reducing the set-point temperature by 6°C during hot weather, the barn becomes cooler at night, with somewhat shorter durations of high temperatures. The net result was an increase in growth rate of 2-5%, equal to 2 to 5 fewer days to market; this is valued at $0.50 to $1.00 per pig sold.

4. **Properly adjusted water nipples and flow rates**

   a. By adjusting nipple drinker height, water wastage can be reduced by up to 20% in grower/finisher pigs. High flow rate can result in more water spillage from nipple drinkers.

   b. Nipple drinkers should be adjusted to 5cm higher than the shoulder height of the smallest pig in the pen. Having the drinker adjusted to a lower setting will result in an additional 10% water wastage in grower and 20% in finisher barns.

   c. Water wastage increased by 7% with a higher water flow rate of 1,000 ml/min compared to 500 ml/min.

"At the present time, 5% feed wastage costs the pork producer more than $2 per pig sold"

5. **Properly adjusted feeders**

   At the present time, 5% feed wastage costs the pork producer more than $2 per pig sold. It may be impossible to eliminate feed wastage, but research at Prairie Swine Centre has shown that with most commercial feeders, wastage of 3% or less is not an unreasonable target. Research has shown that having a feeder adjusted to achieve 40% pan coverage will have the optimal combination of reducing feed wastage and maximizing pig performance.

6. **Energy levels in finishing diets**

   Under typical market conditions, high energy diets do not necessarily result in the highest return over feed cost.

Feed efficiency is improved with higher energy diets. However, additional diet costs far exceed the beneficial impact of feed efficiency. Cost savings from using lower energy diets range from $3-$5.00 per hog under current market conditions.

7. **Review your ideal shipping core**
   a. This requires monitoring feed intake and growth as pigs approach market weight and comparing this to the changes in yield and index as market weights increase. In this way, determine the cost of adding an extra kilogram to the market weight, and compare that cost to the added income.
   b. With a finishing diet costing $0.25 per kilogram, and a feed conversion at of 4.0:1, it costs $1.00 to add 1 kg to the live weight. Assuming a dressing percentage of 80% and an index of 109, the price of pigs must be at least $1.15 per kg to break even on added market weight.

8. **Power washing and sprinkling**
   a. Recent work at Prairie Swine Centre indicates soaking prior to pressure-washing a fully-slatted production room may not be necessary. Additional labour costs where sprinkling is not carried out are offset by lower water (including well pumping) costs.
   b. Conventional pressure washer nozzles have been shown to be the most efficient in terms of labour requirements and total water used. They have been shown to save up to $5 per hog marketed when compared to other nozzle types.

9. **Check diet particle size**
   Once the diet has been formulated there are still opportunities to reduce costs by ensuring particle size stays within the 650-700 micron range to give optimum digestibility. Frequently, due to screen wear, improper screen size or hammer wear, the feeds milled on farm are significantly over the 700-micron threshold. For every 100 microns under 700 the feed conversion improves 1.2%. With feed costs today of $110 per finished hog, moving from, say, a 3.0 F/G to a 2.96 F/G (the effect of 1.2% improvement, or 100 micron reduction in feed particle size) is worth $1.30 per pig marketed.

While this is not an exhaustive list, it's meant to take a quick look at your operation and potentially find a couple of hidden dollars, or perhaps re-enforce why we do certain things. If you are looking for more information there is a wide array of resources available at www.prairieswine.com. ■

ENVIROTECH AG SYSTEMS LTD.
Fancom® forward thinking

WORKING TOGETHER FOR YOU

INTEGRATED AUTOMATION SOLUTIONS FOR PIG AND POULTRY FARMS

- climate control
- feed control
- biometrics
- data management

WWW.FANCOM.CA WWW.ENVIROTECHAG.COM

Nutrient profile and energy digestibility of wheat co-products from flour milling in growing pigs

By R. Jha[1], P. Regmi[1], L. Wang[1], A. Pharazyn[2], and R. T. Zijlstra[1]

Take home message

Wheat co-products from flour milling are often traded in Canada under the single name wheat millrun, but differences exist in their macronutrient profile. These co-products are available in the market place and can be used as an alternative feedstuff for conventional energy sources in swine diets to reduce feed cost, a major challenge of swine industry. The lack of information about the nutritional content and digestibility value limits their use in swine diets. An animal study indicated that wide variation exists in the nutritional value and digestibility of wheat co-products from flour milling in growing pigs that was related to their chemical composition, especially fibre and protein content. In conclusion, wheat co-products from flour milling provide energy for growing pigs but vary in their nutrient profile and digestibility, which needs to be considered in diet formulation.

Wheat co-products in pig diets

Wheat co-products from flour milling result from dry milling wheat into flour and are widely available in western Canada. During the wheat flour production process most of the starch in wheat grain is extracted as flour and the remaining portions become co-products. The wheat co-products from flour milling are, in Canada, commonly traded as wheat millrun but contain the individual co-products wheat shorts, middlings, screenings, and bran in various ratios, with these four being classified according to fibre content. The wheat co-products from flour milling vary in their nutrient content, but are overall rich in fibre, which affects the digestibility of nutrients in the pig intestine. These wheat co-products from flour milling may be used in pig diets to ameliorate high feed cost, a critical issue in swine production. However, lack of available information about nutrient content, energy value and digestibility limits their use in swine diets.

The Dr. F.X. Aherne Prize for Innovative Pork Production 2013

Banff Pork Seminar 2013

F.X. Aherne Prize for Innovative Pork Production

BANFF PORK seminar

The Banff Pork Seminar is proud to offer a chance for pork producers, herdspeople and their consultants receive recognition for practical on-farm technology innovations that answer production challenges.

Win one of three prizes valued at $1800:

- Two free registrations to Banff Pork Seminar 2013
- Free accommodation for winner and guest
- Up to $800 reimbursement in travel expenses

Mark your Calendar:
Banff Pork Seminar
January 15-17, 2013

Visit www.banffpork.ca/innovator.shtml for full contest details

The growing pig digestibility study

A total of 10 experimental diets were used in the animal study; 9 wheat co-product samples (2 shorts, Shorts A and Shorts B; 5 millrun, Millrun A, Millrun B, Millrun C, Millrun D and Millrun E; middlings and bran). Corn was used as control ingredient (Table 1). A 30-day digestibility study (a 10-day acclimation to a standard pre-grower diet, followed by 2 consecutive 10-day experimental periods) was conducted at the Swine Technology and Research Centre at the University of Alberta with 20 growing pigs (PIC Canada; initial body weight 37.5 kg). Pigs were fed wheat co-product diets as a mash (3 times the maintenance requirement for energy) in 2 equal meals daily and had free access to water.

Freshly-voided faeces were collected hourly from 0800 to 1530 h by using the grab method and the indigestible marker in diets and faeces were used to calculate the digestibility of wheat co-products.

Nutrient profile of wheat co-products

The protein content of wheat co-products from flour milling ranged from 15.9 (Bran) to 27.8% (Shorts A) and crude fibre

Table 1: Chemical composition of wheat co-products from flour milling, % DM basis

	Shorts		Millrun							
Variable	A	B	A	B	C	D	E	Middlings	Bran	Corn
DM, %	90.1	89.9	90.4	89.1	89.2	90.4	90.2	88.6	91.0	85.4
Ash	7.3	5.5	7.5	6.5	5.4	6.2	5.2	5.3	6.7	2.1
Fat	2.9	3.4	5.6	4.8	4.5	4.1	4.4	4.1	3.0	3.3
CP	27.8	24.9	20.0	18.7	17.1	19.0	16.5	22.1	15.9	9.4
ADF[1]	11.5	8.0	11.4	12.9	13.0	15.0	12.8	10.8	15.5	3.6
NDF[1]	31.7	22.9	32.6	34.0	35.2	36.3	32.1	26.6	49.2	8.7
Crude fiber	7.9	5.2	7.7	8.3	8.8	9.9	8.2	7.1	12.0	1.8
GE[1]	4.55	4.55	4.51	4.52	4.55	4.52	4.53	4.56	4.55	4.50

[1]ADF, acid detergent fibre; GE, gross energy (Mcal/kg DM); NDF, neutral detergent fibre.

CONTINUED ON PAGE 48

RALCO
Improve Your Profit
with industry leading nutrition technologies
EnMax® nutrition technology
The most advanced swine nutrition.
Pegano™
A feed flavor for enhanced performance.
Birthright
BABY PIG MILK REPLACER
For more uniform full-value pigs.
TO FIND A RALCO DISTRIBUTOR IN YOUR AREA CONTACT:
Dale McBurney
cell: 204-729-7305
e-mail: dale.mcburney@ralconutrition.com

from 5.2 (Shorts B) to 12.0% (Bran). Both Acid Detergent Fibre (ADF) and Neutral Detergent Fibre (NDF) content were lowest in the Shorts B and highest in Bran. The Gross Energy (GE) content in all wheat co-products was higher than corn; among the wheat co-products, millrun A had the lowest and the middlings had the highest GE content (4.51 and 4.56 Mcal/kg DM, respectively). Macronutrient profile also differed among the samples.

Results of the pig trial

In the pig study, digestible energy (DE) content of diets and apparent total tract digestibility (ATTD) of energy differed among wheat co-products, with differences within the wheat co-product type as well. The Diet DE content was highest in the Short B and the lowest in the Bran (3.56 and 3.21 Mcal/kg DM, respectively). The DE of millruns varied from 3.30 to 3.40 Mcal/kg DM. The ATTD of energy ranged from 74.4% in Bran to 82.5% in Shorts A, others were in between where ATTD of energy of corn diet was 82.9%.

Implications

The wheat co-product samples studied varied widely in fibre and protein content, within and among sample types. With respect to chemical composition, Shorts A was more consistent with millrun A and middlings, having a lower than average crude fibre and ADF content, resulting in a similar digestibility. Also, the composition of millruns and their digestibility varied within the same group of millruns such as the 2 Shorts and 5 Millrun samples.

Results indicated that DE content and energy digestibility of wheat co-products are related to their chemical composition. Higher fibre content negatively affected the energy digestibly, as reflected by the lowest digestibility of bran having highest ADF, NDF, and crude fibre content.

In conclusion, wheat co-products can serve as an alternative feed ingredient as these wheat co-products from flour milling provide sufficient energy for growing pigs. However, wheat co-products vary in their nutrient profile including fibre content and their digestibility in the pig intestine differs. Thus, the type and composition of wheat co-products should be taken into account while considering pig diet formulation using different type of wheat co-products.

Acknowledgments

Nutreco Canada Inc. (Guelph, ON, Canada) and the Canadian Swine Research and Development Cluster, Canada are acknowledged for funding the project. ■

Figure 1: Digestible energy content of wheat co-products from flour milling in growing pigs

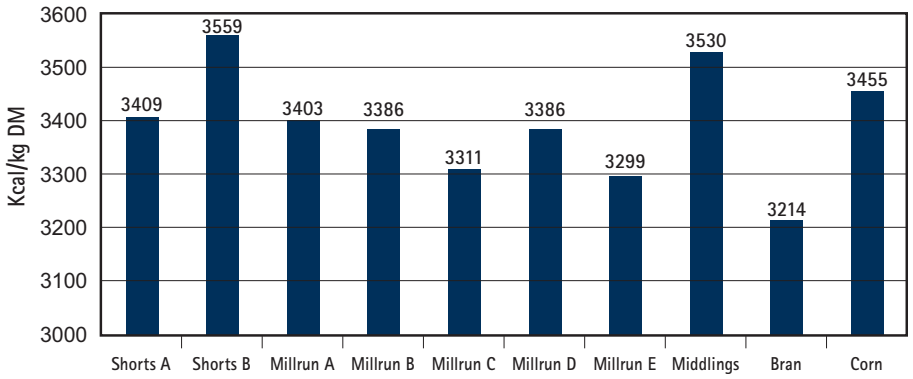
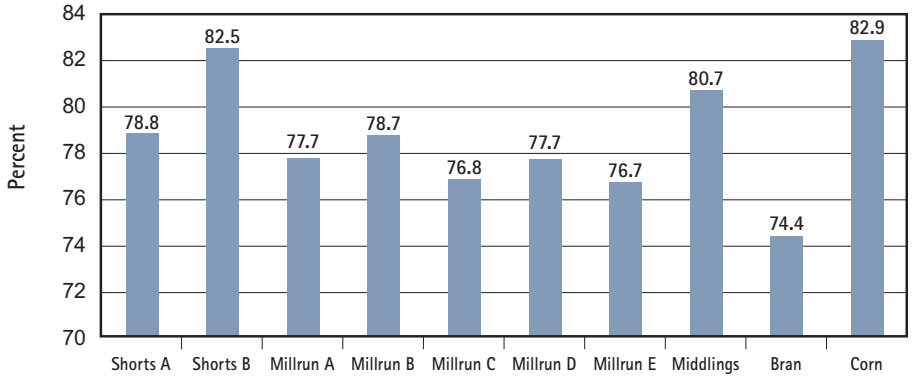


Figure 2: Apparent total tract digestibility of energy in wheat co-products from flour milling in growing pigs



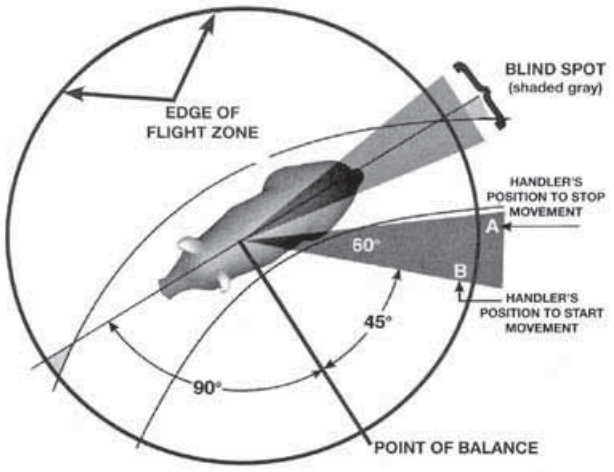
Low stress pig handling: Point of balance - A red herring

By Nancy Lidster, DNL Farms Consulting Ltd., White Fox, Saskatchewan

"Moving or loading pigs can be one of the most stressful and frustrating jobs on the farm – for both pigs and their handlers" (WHJ editor, Summer 2012 edition). Much of the stress and frustration associated with moving pigs arise from handlers' beliefs and applications of the "point of balance" concept when moving pigs.

Figure 1 comes from the Transport Quality Assurance Handbook – Version 3

Figure 1: A pig's flight zone, point of balance and blind spot



A Pig's Flight Zone, Point of Balance and Blind Spot

According to TQA and other programs that use Figure 1, "The point of balance is located at a pig's shoulder. If a handler enters a pig's flight zone, the pig will move:

- forward if the handler approaches from behind the point of balance
- backwards if the handler approaches from in front of the point of balance"

Problems arise when handlers try to apply the point of balance without regard for the other specifics of Figure 1.

The original diagram showed a cow and claimed only one thing: to show the correct handler position to move a cow through a curved chute. It involved:

- a single animal confined in a curved chute
- a single handler working:
  - at the edge of the animal's flight zone and
  - on the inside of the chute's curve ie. not in the animal's blind spot

Considerations:

- A pig confined in a chute can only move forward or back - or do summersaults or refuse to move. Once we remove the chute:
  - the pig is free to turn around and
  - the handler is free to get behind the pig ie. work in the pig's blind spot.

- Pigs aren't always free to move away to keep handlers out of their flight zones.
  - Sometimes pigs are blocked or impeded from moving away.
  - Sometimes handlers insist on crowding pigs even when they could give them more space.

While the point of balance statement tells us a pig will move away from pressure, it is important to realize that working inside a pig's blind spot and working inside a pig's flight zone are both actions that draw a pig's attention towards the handler. This has important consequences.

CONTINUED ON PAGE 50

TRACEABILITY - TOP OF MIND
think Magnum Force
the A.I. Solutions Company
CELEBRATING 15 YEARS
www.magnumswine.com
1.888.553.4844
MSG
GET MORE BOAR

KANE Manufacturing Company, Inc. AROUND THE WORLD

Let the power company pay for your Kane Heating System with electrical $avings

Our TD-34 controls up to 4 rooms automatically at just 42.25 Watts per Crate!

Use this chart to calculate your savings with Kane Heat Mats vs. Heat Lamps

Lamp Wattage	125	175	250
SAVINGS AT 42.25 WATTS PER CRATE			
With TD-34	82.75	132.75	207.75
Cents per KWH	**ANNUAL SAVINGS PER CRATE IN U.S. DOLLARS**		
4.5	32.62	52.33	81.90
5	36.24	68.14	90.99
5.5	39.87	63.96	100.09
6	43.49	69.77	109.19
6.5	47.12	75.59	118.29
7	50.74	81.40	127.39
7.5	54.37	87.22	136.49
Cents per KWH	**RETURN ON INVESTMENT IN MONTHS/YEARS**		
4.5	1.7	1.1	0.7
5	1.5	1.0	0.6
5.5	1.4	0.9	0.6
6	1.3	0.8	0.5
6.5	1.2	0.7	0.4
7	1.1	0.7	0.4
7.5	1.0	0.6	0.4

For more information visit us on-line at
www.kanemfg.com
or call 515-262-3001 or 800-247-0038 today!
email: info@kane.com

Contact your dealer for more information on the full line of KANE quality equipment.

SOUTH COUNTRY LIVESTOCK EQUIPMENT LTD.
Lethbridge, AB • 403-329-0155

NOR-AG LTD.
Red Deer, AB • 403-341-3767

FIRST CHOICE INDUSTRIES
Morinville, AB T0G 1P0 • 780-939-5499

WALBURN AGRI SYSTEMS
Linden, AB T0M 1J0 • 403-546-3810

A. G. PENNER FARM SERVICES LTD.
Blumefort, MB R0A 0C0 • 204-326-3781

WALBURN AGRI SYSTEMS SASK LTD.
Saskatoon, SK S7L 6A8 • 306-244-3838

FRIESEN LIVESTOCK LTD.
Medicine Hat, AB • 403-526-0909

EAST-MAN FEEDS (WINNIPEG)
Winnipeg, MB R2J 0K6 • 204-233-1112

UNITED FARMERS OF ALBERTA
Calgary, AB T2V 4J2 • 403-258-4500

Pigs' attention

We can follow pigs' attention by seeing where their eyes are looking, how their ears are perked or pointed, and the orientation of their heads and bodies.

Hogs in Figures 2 and 3 shifted and bent their bodies as they moved forward so they could keep track of the handler who was moving across behind them.

Pigs want to see pressure including pressure from us. This may involve turning to get us out of their blind spot or backing up if the space is too narrow for them to turn around. Pigs use other senses including hearing to track us as well.

Emotional state

A pig's desire to track us is linked to its emotional state and its flight zone. Pigs that are calm are more tolerant of us being behind them. Pigs get scared and distrustful when we work inside their flight zones and don't give them release from pressure. As fear and distrust levels rise, pigs try to track us more closely.

Handler position is vitally important in terms of both pigs' attention and fear levels. The only way to know if our position is right is by observing pigs' behaviour and body language.

Figure 2

Figure 3

Hogs in the photos had their attention on the handler and were moving forward, which suggests that the handler was working close to the edge of their flight zones. The hogs could stay calm and continue moving forward so long as they felt safe with the handler's position.

> **"Handlers need to constantly monitor pigs' attention and fear levels so they can adjust their position appropriately"**

If anything happened to make the handler more threatening or to expand the size of the hogs' flight zones, the handler would be too close. We would see the hogs' heads rise, possibly a spurt of speed, and certainly closer attention to the handler.

- If the handler noticed those changes and paused or otherwise released his pressure, the hogs would be able to gain distance, settle down and continue to move forward.
- If the handler missed the cues and continued advancing on them, the hogs would get more scared, more focused on the handler, and more likely to turn back and try to get around him.

Changes happen moment by moment. Handlers need to constantly monitor pigs' attention and fear levels so they can adjust their position appropriately. The information that handlers need comes only from observing pigs' cues and body language. It can't come from a prescribed line on a diagram.

Point of balance revisited

Figure 1 tells us that the point of balance of a pig in a curved chute is at the pig's shoulder.

For a pig that isn't confined in a chute, moving into its blind spot or moving too deep into its flight zone will encourage it to turn back. The handler position where the pig turns back – its point of balance if you will – can be several metres behind the pig.

Using Figure 1's point of balance without regard for the animal's field of vision and flight zone can produce the following scenario. (A male handler has been used for simplicity):

- Handler assumes pig will move away to keep him out of its flight zone
- Handler misses pig's body language cues that he is getting too close
- Pig turns back because the handler is in its flight zone and not giving release
- Pig isn't moving away so handler assumes he needs to get closer to get to the pig's flight zone and make it move away
- Pig is too threatened to let the oncoming handler out of its sight and tries to get around the handler
- Handler figures pig is being defiant, gets more determined and more "behind" the pig
- ...etc.

Tools are often used in ways that encourage and reinforce problems outlined in this scenario.

The mindset outlined in the scenario often interferes with effective use of the pigs' herd behaviour. It's possible and at times preferable to work ahead of the animals we are moving.

Summary

It is my view that the point of balance concept gives handlers a false sense of knowing what they're doing and distracts them from paying attention to what really matters: the vital behavioural and body language cues pigs give that tell handlers how to adjust their position and pressure to keep pigs calm, moving and cooperative.

Author's note: Frustration from trying to apply the point of balance is what ultimately drove us to pursue Low Stress Pig Handling. ■

Moving toward lower phosphorous levels in swine diets

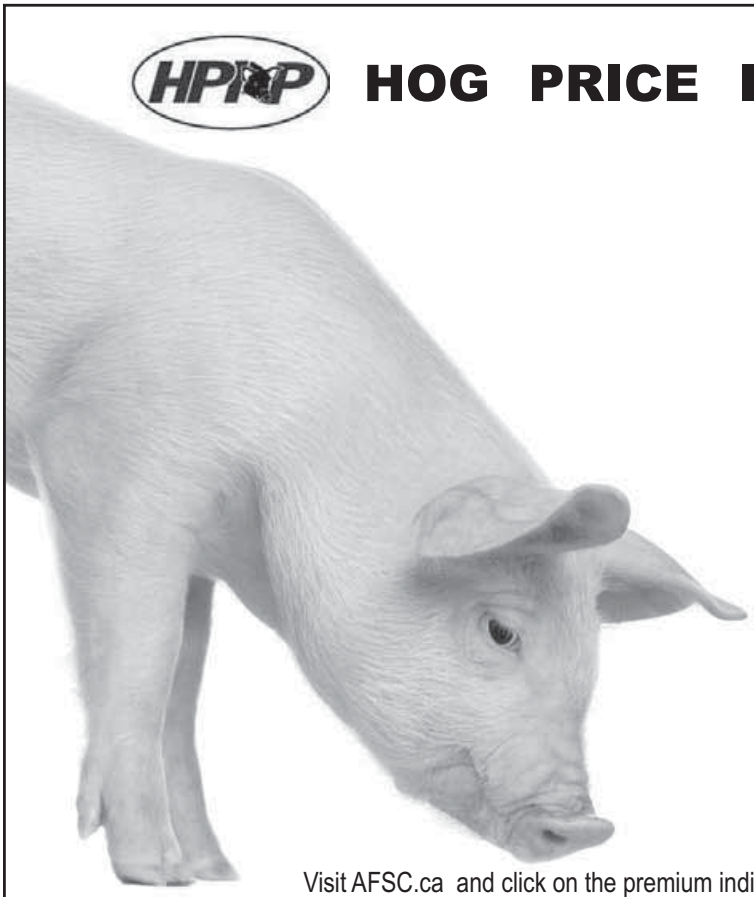
By Dr. Mario Ramirez, Dr. Malachy Young, and Clarence Froese, Gowans Feed Consulting

The management of residual phosphorous (P) in manure and the rising price of inorganic phosphate are becoming major issues for swine producers in some regions. To optimize phosphorous utilization, it is crucial to improve our ability to accurately predict the amount that will be digested by the pig in a given diet as well as the amount that will be excreted. Optimizing pig performance and structural soundness while minimizing production costs and impact on the environment can be complimentary goals in swine feeding operations. Successful strategies to meet this goal include reviewing phosphorous formulation targets, utilizing new tools to improve the accuracy of diet formulations, and using additives to enhance phosphorous digestibility.

Choosing target dietary P level

Historically, it was assumed that the phosphorous and calcium content of ingredients typically included in swine diets (tankage, meat and bone meal, fish meal) was adequate to supply the required amounts for pigs to grow. When these ingredients were replaced by cereal grains and plant protein sources in the early 1900's, many symptoms of phosphorous and calcium deficiency such as rickets in young pigs and bone breakage in adult pigs began to appear. Subsequent efforts to define calcium and phosphorous requirements therefore focussed on maximizing bone density and strength to avoid the symptoms of deficiency. Some of the earliest phosphorous recommendations were published in the late 1930's, and were listed at levels between 0.27 and 0.30% of the diet.

In the early 1960's researchers first showed that dietary calcium and phosphorus levels required for optimum growth and feed conversion were lower than those needed for bone development. Today, it is well known that the phosphorous level required to support optimum performance is about 0.1 percentage points below that which results in maximum bone strength. Formulators must therefore choose the criteria on which to base target dietary phosphorous levels. In Canada, that choice has been made for the industry by government regulation which stipulates a minimum level of 0.50% total P (approximately 0.32% digestible P) in growing and adult swine diets. As illustrated in Figure 1 (CFIA Min.), this



HPIP HOG PRICE INSURANCE PROGRAM

The Hog Price Insurance Program (HPIP) is market driven price insurance for hog producers in Alberta. Offered continuously throughout the year, HPIP is an easy to use risk management tool that provides protection against a decline in Alberta hog prices over a defined period of time.

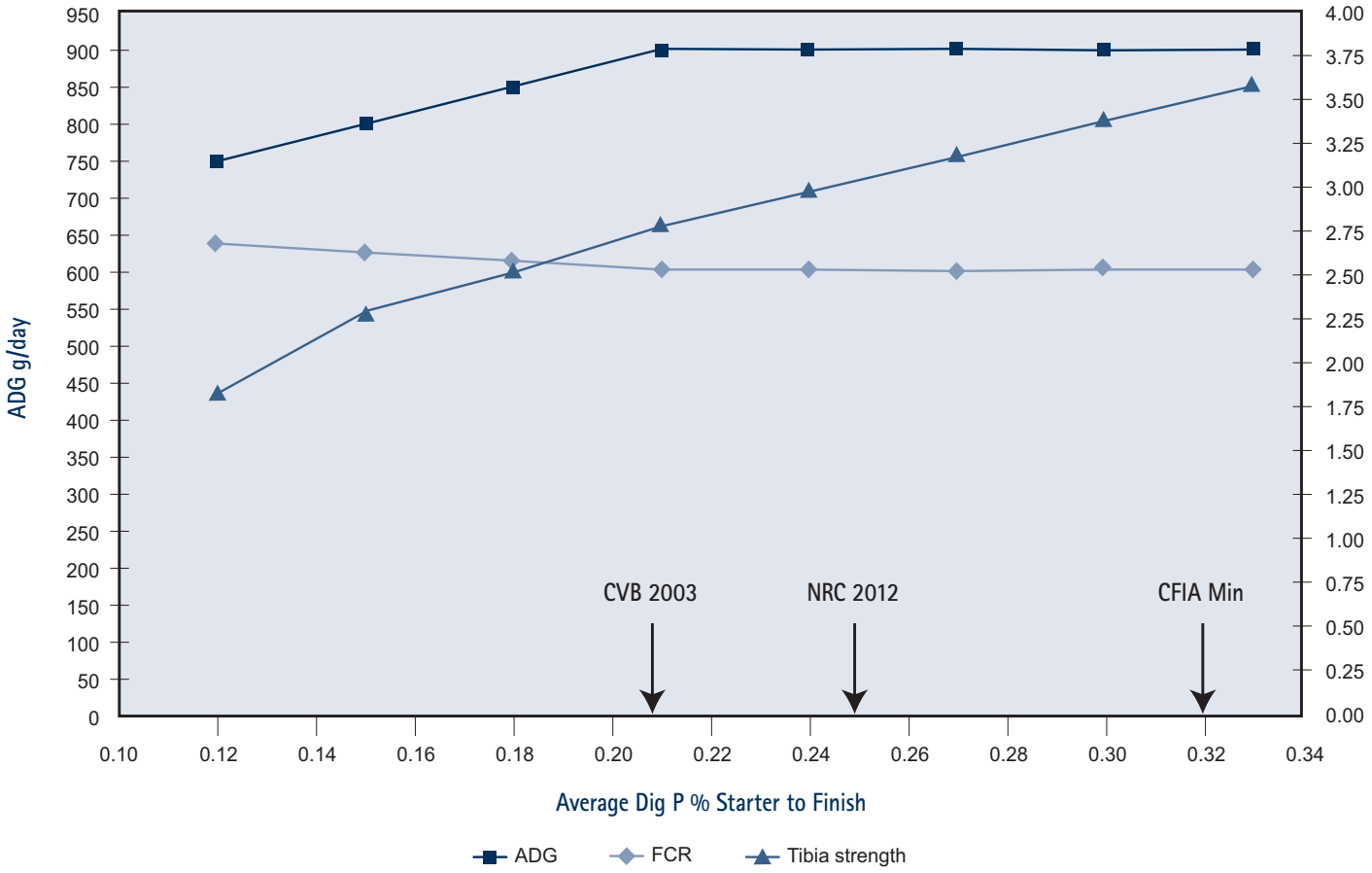
HPIP - NOW AVAILABLE

For more information, call AFSC at 1-877-899-AFSC (2372), visit www.AFSC.ca or stop in at any AFSC District Office.

Unique Financial Services
AFSC
INSURANCE • LENDING • INCOME STABILIZATION

Visit AFSC.ca and click on the premium indices to have the daily premium rates sent directly to your email!

Figure 1: Average response of ADG, FCR and bone strength to increased levels of digestible phosphorous in grow/finish pig diets



is the level that supports maximum bone strength. Other jurisdictions such as the Netherlands, where manure P content is strictly regulated, recommend dietary P levels much closer to those which support optimum performance (CVB 2003, Figure 1) and minimize P excretion. The Nutrient Requirements of Swine published by the National Research Council, a common reference used by the North American pig industry, recommends a dietary P level midway between these two points (NRC 2012, Figure 1). This recommendation is well above the level for optimum performance but eliminates a significant amount of the surplus phosphorous required to maximize bone strength.

The impact of formulating to dietary P levels which result in maximum bone strength and adhere to the regulatory minimum as specified by the Canadian Food Inspection Agency (CFIA) is illustrated in the following comparison:

CONTINUED ON PAGE 54

BUILD A BETTER PIG
with Magnum Force
the A.I. Solutions Company
CELEBRATING 15 YEARS
www.magnumswine.com
1.888.553.4844
MSG
GET MORE BOAR

Table 1: Comparison of CFIA, CVB (Dutch) and NRC (US) recommendations for dietary P

	Growing pigs 50-75 kg					Finishing pigs 100-135 kg		
	CFIA Min	CVB 2003	NRC 2012			CFIA Min	CVB 2003	NRC 2012
Total P (%)	0.50	0.37	0.44		Total P (%)	0.50	0.33	0.36
Digestible P, %	0.32	0.21	0.27		Digestible P (%)	0.32	0.19	0.21
Added inorganic P required, kg/T	7.00	0.00	3.43		Added inorganic P required, kg/T	7.00	0.00	0.00
Cost of added P, $/T	5.03	0.00	2.47		Cost of added P, $/T	5.03	0.00	0.00

Reducing P levels from current CFIA minimums to current NRC recommendations would reduce the amount of inorganic P (Monocalcium phosphate) by 50% in grower diets and eliminate it entirely from finisher diets, saving up to $5.00 per tonne in feed costs. In addition, P excretion rates in manure would be greatly reduced since pigs retain only 40 to 50 % of their daily P intake. Adoption of the guidelines from the Netherlands (CVB, 2003) would result in further savings and reductions in P excretion. The final amount of added inorganic phosphorous will depend on the ingredients used in the diet.

Deciding the criteria on which to formulate target P levels for a population of pigs depends largely on the feed intakes being achieved as well as the rearing and handling environment to which they are subjected. If symptoms related to bone weakness become prevalent as lower P diets are fed, then dietary P target levels must be adjusted. However, the Dutch experience coupled with current NRC recommendations would suggest that there is room to lower these targets in typical Western Canadian diets. Formulating to levels below the CFIA minimum is legally possible in Canada by having

Book your space NOW for

HOG & POULTRY DAYS 2012

This is your chance to meet Manitoba's PORK & POULTRY producers

December 5 & 6 – WINNIPEG CONVENTION CENTRE

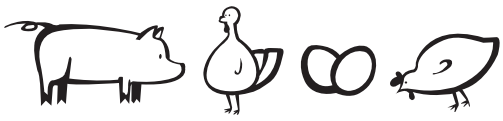
- More than 50,000 square feet of display space
- Canada's largest pork quality competition
- New for 2012 – **ON-LINE REGISTRATION!**

Exhibitors registering by **November 5** qualify for the **EARLYBIRD DRAW!**

For exhibitor information:

www.hogandpoultrydays.ca

info@hogandpoultrydays.ca



Reserve your space TODAY!

the diet end user sign off on the formula and wording the accompanying feed label accordingly.

Improving formulation accuracy

Early recommendations on phosphorous requirements of pigs were expressed as the total P level in the diet without differentiating the sources providing the P. This approach failed to consider that a significant portion of the total P in typical diets comes from plant sources. Plants store 50 to 90 % of their phosphorous in a complex form (phytate). Monogastric animals such as pigs are unable to utilize phosphorous in this form as they lack the appropriate digestive enzyme (phytase) to liberate the P from the phytate complex. Based on this knowledge, total phosphorus recommendations were elevated to compensate for the unknown availability from dietary plant ingredients, thereby overstating requirements.

> **"Available P is currently the most common method used in North America to formulate swine diets for phosphorous content"**

As more became known about phytate P, the concept of 'Available Phosphorus' was adopted to more accurately formulate swine diets. Available phosphorus is defined as the difference between the total P and the phytate P, and assumes that all non phytate P is available to the animal. Although more accurate than total P, this concept still forces formulators to employ a large safety margin to compensate for the possibility of non phytate P being less than 100% available. Available P is currently the most common method used in North America to formulate swine diets for phosphorous content.

Most recently the concept of Standardized Total Tract Digestibility (STTD) has been developed for phosphorus and is defined as:

STTD P = Total P – Faecal P + Basal Endogenous P Loss

where faecal P is the amount of excreted phosphorous measured in the faeces of animals in an ingredient feeding trial, and basal endogenous P is the amount of P excreted by animals that comes from sources other than feed (digestive juices, intestinal cells, etc.). STTD P values have been determined through feeding trials for most plant and non-plant ingredients used in swine diets, giving formulators a much more accurate method of determining the amount of P retained by the pig regardless of the ingredients used. The 2012 Nutrient Requirements of Swine published by NRC contains a complete listing of STTD P values for various swine feedstuffs. These can be integrated into formulation programs that result in more accurate estimations of phosphorous retention, thereby decreasing the margin of safety commonly assigned to dietary P requirements.

CONTINUED ON PAGE 56

Using microbial phytase

Phosphorous digestibility from plant sources can be significantly increased by the addition of microbial phytase enzymes which break down the phytate complex and release a significant portion of the otherwise unavailable P. The routine addition of this enzyme to feeds allows the total P level of the diets to be reduced and results in a decrease in phosphorous excretion of 30 to 60%. The following comparison of typical Western Canadian diets with and without phytase illustrates how its inclusion can reduce or eliminate the need for supplemental phosphorous sources in the diet as well as produce a net savings in diet costs (Table 2).

Several factors can influence the efficacy of phytase, including the amount of phytate in the diet, the amount of phytase added to the diet, and the type of phytase. Consult a qualified nutritionist for detailed recommendations on its use.

Conclusion

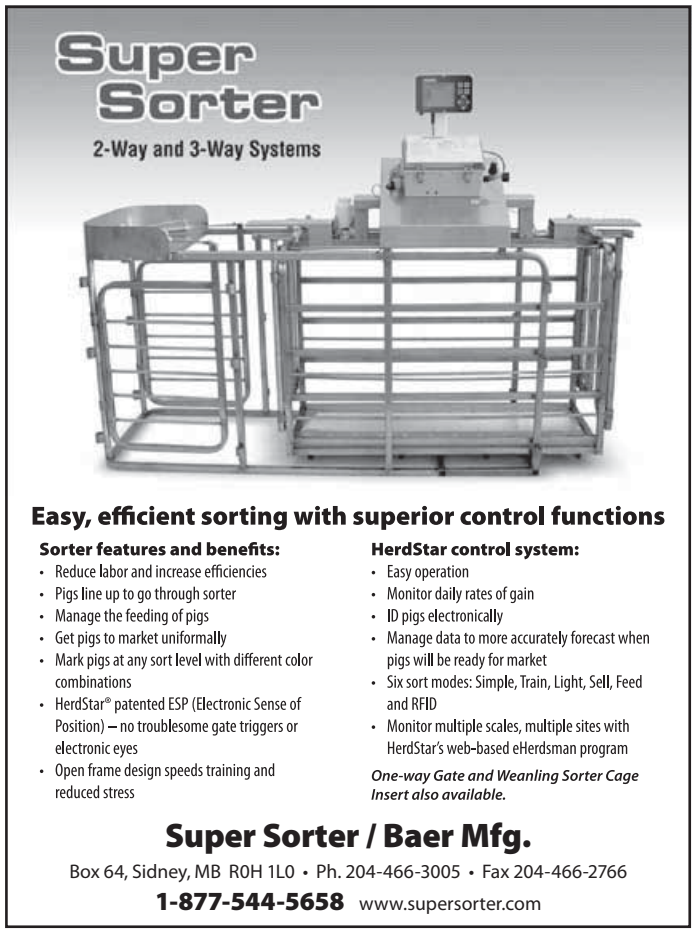
Great strides in technology and our understanding of phosphorous utilization and requirements have been made in the past two decades. The North American pig industry now has the tools to move toward lower phosphorous levels in swine diets and a reduction in phosphorous excretion levels.

Table 2: Comparison of diets with or without added phytase

	Growing pigs 50-75 kg		Finishing pigs 100-135 kg	
	Diet with no Phytase	Diet with Phytase	Diet with no Phytase	Diet with Phytase
Total P (%)	0.49	0.37	0.45	0.35
Digestible P (%)	0.21	0.21	0.19	0.19
Added P required (kg/T of mono-calcium phosphate)	6.00	0.00	5.00	0.00
Added Phytase (FTU/kg)	0	500	0	400
Net savings with Phytase ($/T)	-	$ 3.10	-	$ 2.45

To embark in this direction, the following steps are necessary:

1. Choose dietary P levels which target maximum performance rather than maximum bone mineralization and strength.
2. Formulate based on standardized total tract digestible phosphorus (STTD P).
3. Utilize well tested phosphorus digestibility values for ingredients, such as those listed in the 2012 edition of the NRC Nutrient Requirements of Swine.
4. Add microbial phytase to diets to reduce or eliminate the amount of inorganic phosphate needed to meet requirements. ■



Cracking down on non-productive days

The number of non-productive days (NPDs) is one of the most important influences on breeding herd efficiency. They represent the number of days in the breeding cycle or per year when the sow or gilt is neither pregnant nor lactating. Some recording systems also include the number of days from entry of gilts into the herd up to the time of breeding, but this varies considerably from farm to farm depending on gilt introduction procedures. Therefore, when making comparisons between farms, this figure should be deducted from the total.

> **"Successful management to reduce NPDs depends on accurate identification of non-pregnant sows"**

Data from herd recording systems show that differences in litters/sow/year (LSY) is the biggest reason for variation between farms in terms of pigs weaned/sow/year. Because gestation length and the lactation period are effectively fixed, NPDs are therefore the key to maximizing productivity. This is not to say that pigs born alive and pre-wean mortality are unimportant, but litter size is much more difficult to influence than NPDs.

NPDs directly affect unit profitability due to their influence on the number of pigs sold. If output is reduced, sales decrease and overhead costs per pig increase. Depending on the assumptions made for costs, each non-productive day is estimated to cost around $4.50. Comparing a herd with only 30 NPDs per sow per year, a relatively good figure, with one having 45 NPDs, the 15-day difference would reduce margin by $33,750 per year for a 500-sow unit.

Successful management to reduce NPDs depends on accurate identification of non-pregnant sows, a prompt decision on what to do with them and effective action to get them back in pig or sold. Key aspects of identification routines are:

- Observe sows from day 14-15 after service for signs of slight discharge or sticky mucus. Any sows in which this is seen should be marked, as they are likely to return.
- Provide intense nose-to-nose stimulation using a mature boar for heat checking at 18-24 days. Ensure enough time is spent on this task because 60%+ of all returns occur during this period.
- Continue daily heat checking up to the second pregnancy check (PD).

CONTINUED ON PAGE 58

- Carry out a first PD at 28-35 days and a second at 49-56 days. Re-check all doubtful or negative sows on the same day, then if still negative, a week later.
- Perform a visual PD at 70 days and check daily up to farrowing. If doubtful, carry out a further PD.

Detecting sows that return or are not in pig does not, on its own, reduce lost days. In too many cases sows are left hanging around and given the benefit of the doubt, so strict rules must be made regarding treatment of these animals. Sows returning to service for the first time should obviously be re-bred. However, the farrowing rate of sows served at second and subsequent returns is likely to be very poor. Ideally these sows should be culled immediately, assuming that the weekly breeding target can still be met. Sows found open during pregnancy testing should always be moved to an area with other "problem" sows and given intense daily stimulation with the boar. Often this will trigger a return to oestrus; if not, an injection of PG600 (Merck Animal Health) after 7 days will often bring a response. Should oestrus still not occur, a second injection should be given 10-12 days after the first. If the sow has not shown oestrus after 21 days of stimulation, she should be culled immediately, after a precautionary pregnancy check. PG600 will not cause any problems to pregnant sows if an error was made in the original pregnancy test.

The largest source of lost days, usually around 50% of the total, is the weaning to first service (W-S) interval. If this can be reduced by just 0.5 days per sow, this will make a worthwhile contribution to overall lost days because it applies to all sows. Also, W-S interval is closely correlated to subsequent farrowing rate and litter size so reducing it will improve these aspects of performance. The biggest influence on W-S interval is lactation feed intake and therefore increasing feed consumption during the suckling period will ensure a more rapid return to oestrus.

W-S interval is longest in weaned gilts and second litter sows. Feeding 0.5kg of a high protein top-dressing daily from 7 days prior to weaning up to the day of breeding has been shown to reduce W-S interval significantly in young females and increase subsequent litter size.

In some herds a significant number of NPDs arise from sows that have to be culled or which die during pregnancy. Ensuring that the sows' physical environment, especially flooring, is well maintained can minimize these losses. Also, prompt identification and treatment of sick, injured or disadvantaged sows and gilts will help to reduce culls and deaths.

NPDs drive breeding herd productivity in a number of ways, not only because of their influence on LSY, but through the effect of wean-to-service interval on litter size and farrowing rate. Focussing management effort on this vital area will reap worthwhile rewards in terms of pigs weaned per sow per year. ■

PEAK
SWINE GENETICS

Committed to producing pigs superior in the industry!

PEAK SWINE GENETICS
#217, 5906 - 50 Street
Leduc, Alberta Canada T9E 0R6
Phone: 780.986.4647
Fax: 780.986.4694
email: peak@peakswine.com
website: www.peakswine.com

Art Goelema 403-963-0171
Toll Free 1-888-235-7325

PEAK Durocs provide excellent color and marbling in pork loins.

Investigating the value of air filtration to herd biosecurity

Submitted by Prairie Swine Centre

What is biosecurity worth to your operation? Biosecurity is one of those things like insurance – you often forget about it in the day-to-day operation of your business, that is until you need it. At that point in time when it's required, you don't want to be left wondering if is good enough. A 2010 study conducted by the George Morris Centre and Prairie Swine Centre estimated the losses associated with an acute PRRS outbreak at approximately $30 per hog marketed. This loss primarily consists of greater inefficiencies within an operation: higher mortality, greater marketing variability, lower value/carcass and higher labour requirements to name a few. While PRRS is not the only transmissible disease that has the potential to create a huge economic loss to the Canadian Pork industry, it does provide a very real example of the importance of bio-security and why we should never lose sight of it.

Biosecurity is an integral part of the Canadian pork industry, however it does become more challenging to manage in pig dense areas – as disease outbreaks have still occurred despite biosecurity protocols being in place. One technology that is being given more consideration is the use of air filtration systems which filter incoming air through the inlets to eliminate potential pathogen exposure. This type of technology has been around for a while and incorporated in areas of higher pig density (Quebec, Ontario) as well as with breeding stock companies across the country.

What do we know about the effectiveness, function, adaptability, and longevity of these types of systems? A project funded through the Canadian Swine Health Board (CSHB) takes a four-pronged approach examining ways we can minimize the contamination risk and develop a bio-containment system in the event of a disease outbreak. These projects examine:

1. Minimizing the risk of contamination of Canadian hog barns fitted with air filtration systems

2. Design and development of an air filtration system for animal transport vehicles

3. Design and development of an emergency bio-containment system to isolate swine facilities following an outbreak of transmissible airborne diseases

4. Development of a bio-containment system utilizing air filtration at exhaust fans – combining different technologies to reduce filter clogging problems

Minimizing the risk of contamination of Canadian hog barns fitted with air filtration systems

This aspect of the project seeks to take stock of the current status of filtered swine barns throughout Canada. It will

CONTINUED ON PAGE 60

LOOKING FOR A HIGH-QUALITY, CONSISTENT PROTEIN SOURCE?

PepSoyGen®

PEPSOYGEN® OFFERS BOTH CONSISTENCY & QUALITY.

PepSoyGen is a functional soy protein ingredient from solid-state fermentation technology. Our all-natural manufacturing process significantly increases the protein content of PepSoyGen, patented strains of Aspergillus oryzae and Bacillus subtilis are utilized in the manufacturing process.

CONSISTENT

Our unique manufacturing processes and rigorous lab testing help to ensure a reliable, high-quality protein source.

EFFECTIVE

University studies evaluating the efficacy of PepSoyGen as a protein source for weanling pigs found that piglets fed PepSoyGen performed equal to or better than fishmeal-fed pigs in terms of ADG and feed efficiency.

PRO-AG

Available exclusively in Canada from: **Pro-Ag Products, Ltd.**
1051 Marion Street • Winnipeg, Manitoba, R2J 0L1 • www.pro-ag.com • 800.806.2737
MADE IN THE USA

examine key factors which include technical, technological and biosecurity improvements that can be applied to minimize the risk of airborne pathogens with filtration technology.

> **"Filter technology reduces contamination risk, it does not eliminate it"**

One of the components involves documenting and analyzing costs associated with five swine facilities that have recently installed filters and identifying ways to reduce these costs. While filter technology reduces contamination risk, it does not eliminate it. The project will analyze and compare causes of PRRS contamination of herds under air filtration throughout Canada and the United States, thus providing some guidelines on mistakes to avoid in design and operation of filtered facilities. Biosecurity and engineering audits will also be conducted with barns that are currently filtered in order to improve standards and audit lists which determine their risk of contamination, and identify and document those areas that need to be improved. The final phase focuses on the design, biosecurity, operation, maintenance and monitoring standards associated with air filtered barns.

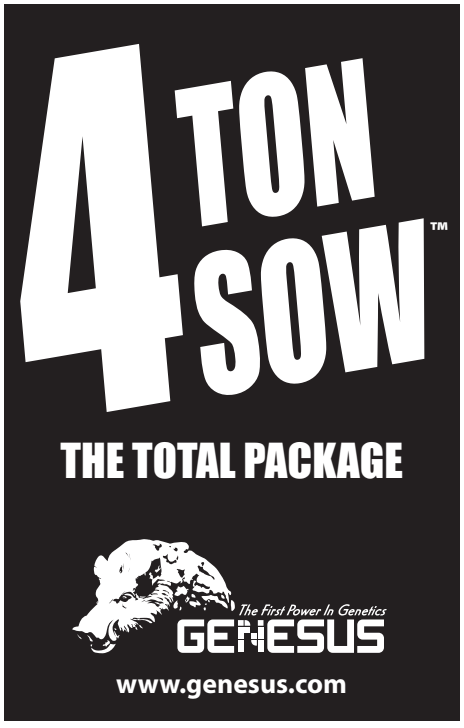
Design and development of an air filtration system for animal transport vehicles

Transporting breeding stock is a daily occurrence across Canada and individual farms have biosecurity procedures to ensure that the delivered animals are not introduced to the herd if infection was detected. However, the risk of infection of the breeding stock during transport can be significant, particularly during passage through pig dense areas, where disease outbreaks can still happen despite current biosecurity protocols in place.

In this project, an air filtration system will be designed and developed to filter the air entering and exiting transportation, to protect high-value animals from infection with airborne transmissible diseases during transport, or to prevent the spread of disease if infected pigs are being transported through a disease-free area. This will be accomplished through a survey of relevant resources (i.e., veterinarians, truckers, genetics companies, etc.) that examine existing and potential designs for an air filtration system for transport vehicles, followed by selection of best design and fabrication of a prototype system. The main outcome of this project will be a practical trailer air filtration design that can be immediately implemented by the swine industry.

Design and development of an emergency bio-containment system to isolate swine facilities following an outbreak of transmissible airborne disease

Quarantine protocols have long been in use in the swine industry to protect the health status of commercial herds. This study will focus mainly on developing or adapting bio-containment measures that can be deployed rapidly in a commercial production barn (not a permanent quarantine barn) in which a disease outbreak has been detected. These measures and protocols are intended for the protection of high-value swine facilities (e.g., genetic nucleus herds, boar studs) when local outbreaks of potentially transmissible airborne diseases are detected in the area. This concept is similar to established



local response protocols when communities are faced with disasters (such as fire or weather-related events), except that this work will focus on the local response to a disease outbreak in the area. Anticipated outputs from this project will include information on best practical measures that can be rapidly deployed to maintain bio-containment of a barn and a series of best management practices and protocols that must be carried out in emergency response to mitigate the spread of airborne disease in the local production region.

Development of a bio-containment system utilizing air filtration at exhaust fans – combining different technologies to reduce filter clogging problems

The installation of a quarantine barn has long been recommended to ensure the safety of herd health status. However, many operating quarantines do not take into account the fact that a herd contaminated with airborne pathogens may excrete virus through the air at the exhaust fan, risking contaminating other herds located within several kilometers. The installation of a filtration system or an efficient air treatment system at the exhaust fans would then allow this problem to be solved.

So far, the main problem with the filtration concept at the exhaust fans of a swine quarantine building lies in the filters' clogging rate and in their maintenance. There is an advantage to analyse quarantines first since these buildings will be installed with a permanent air filtration system at the exhaust fan in comparison to systems utilized in case of emergency, in a short period of time during a PRSS outbreak in a swine barn. Indeed, in a quarantine barn, the air will be filtrated around 50% of the time during the year, which is the required time to make sure the animals stay naïve following their entrance into the barn.

Biosecurity is an important part of every operation throughout Canada. Filtration technology has been successfully used in areas with high pig density throughout Canada and the United States, and in facilities that contain high value breeding stock. By studying ways to improve the efficiency of this technology and eliminate potential contamination risks it provides producers with another option to maintain a high health status. ■

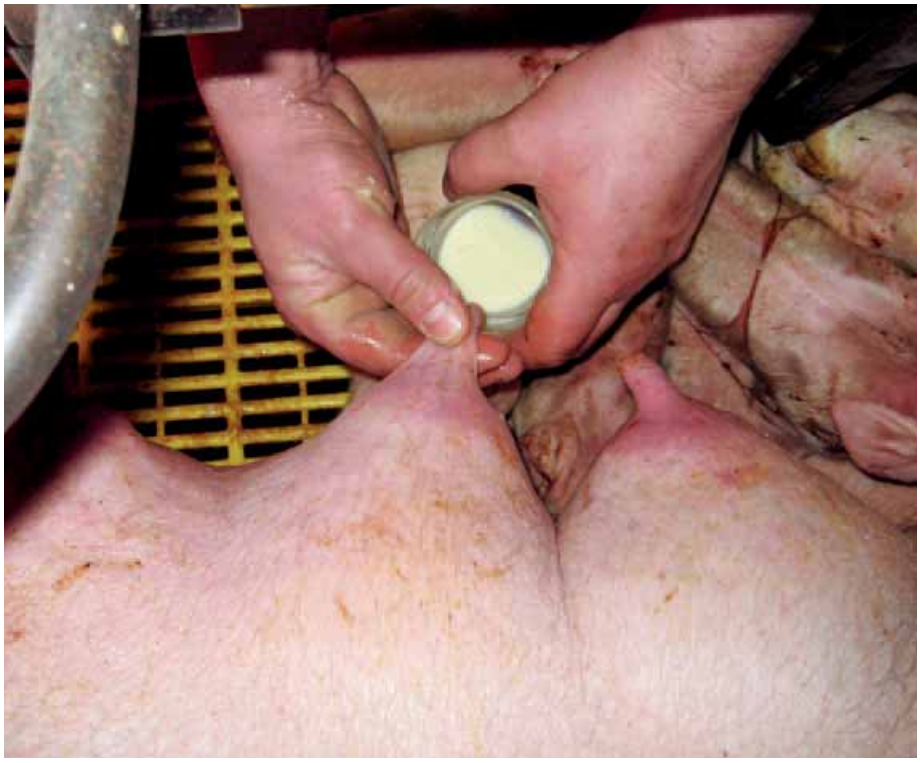
Stomach tubing: a valuable tool in colostrum management

By Bernie Peet

With average litter size increasing year on year and some farms now achieving 14 pigs born alive per litter, colostrum management is becoming more important in the battle to reduce losses between birth and weaning. Large litters not only tend to result in more competition at the udder immediately after birth but are also often associated with more variation in birthweight. The smaller piglets are the ones least likely to receive sufficient colostrum. In herds that have high litter size, split suckling is the one technique that is essential in ensuring that every piglet suckles colostrum. Done well, it may be all that is required. However, where litter size is very large, other techniques may need to be considered. Stomach tubing is one which, when used judiciously, can have a significant impact on piglet survival.

The bigger the litter size, the more likely it is that some piglets will either not have

CONTINUED ON PAGE 64



Milking colostrum from a sow prior to stomach tubing

Red Deer Swine Technology Workshop

Wednesday October 31st, 2012

Sheraton Hotel (formerly the Capri Centre), Red Deer, Alberta

Join us for an interactive technical workshop aimed at improving your swine herd performance and profitability. Speakers will be presenting a range of practical, hands-on topics of interest to everyone involved in pork production.

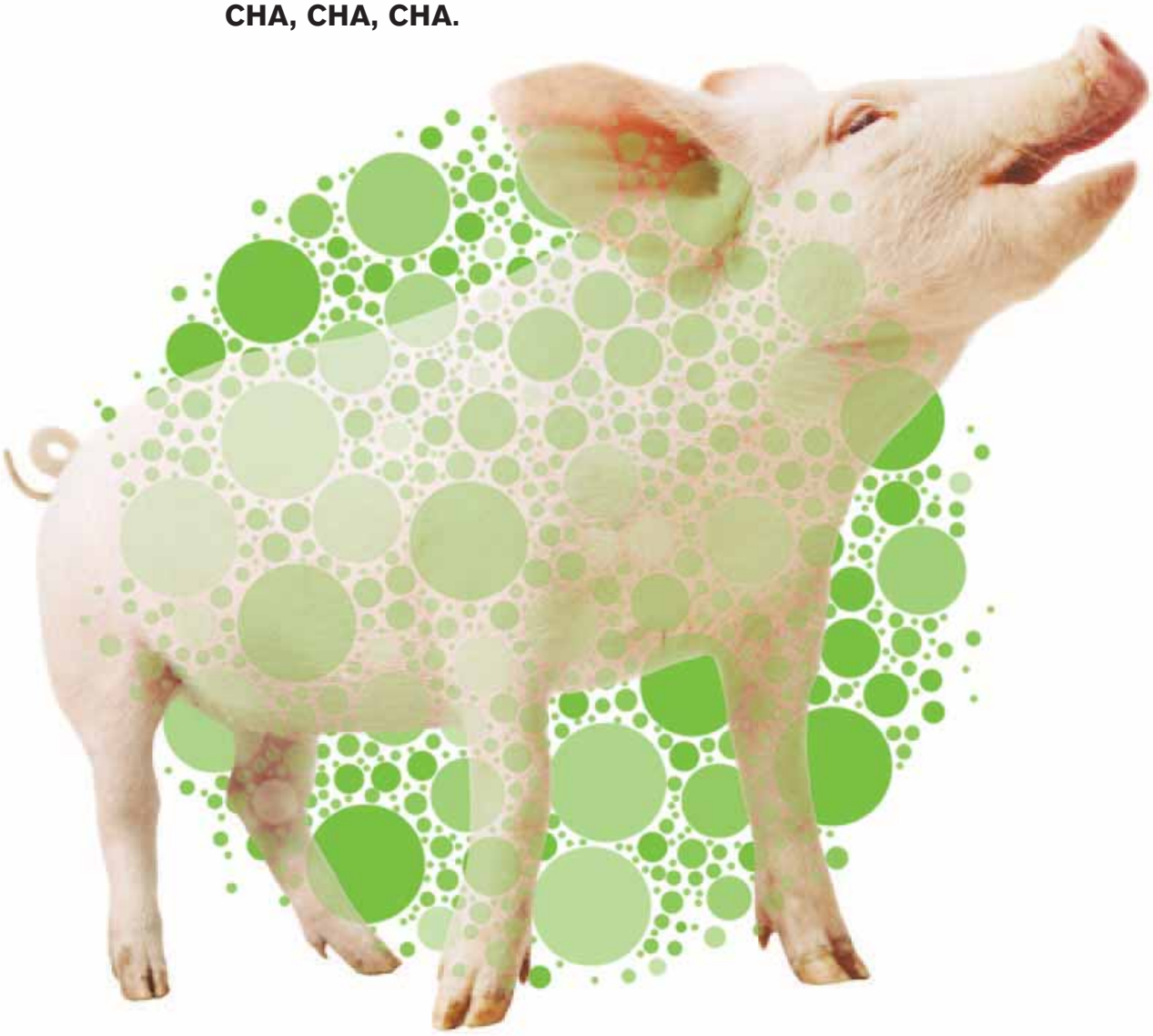
Topics include:

Getting Gilts off to a Good Start • *Using NIR Technology to Reduce Feed Costs* • *Optimizing Herd Parity Structure* • *Microclimate Management: Getting the Pig's Environment Right* • *Stockmanship: The Key to Individual Pig Care* • *Empowering the Team* • *Hot Feeding and Nutrition Topics - Panel Discussion*

For further information, or to register, please contact Bernie Peet on (403) 782-3776 or (403) 392-3104 or Email: bjpeet@telusplanet.net

ENZYMES.

HIGHER GAINS. LESS FEED.
CHA, CHA, CHA.



THERE'S A NATURAL WAY TO PROFITABILITY: CBS enzymes are researched, custom formulated and proven to boost the effectiveness of your feed. From aquaculture to animals – the result is higher gains with less feed. Ask about our natural enzyme combinations for productivity and profit: call 1-800-561-2474, email cbsinc@canadianbio.com or visit canadianbio.com.

CBS CANADIAN BIO-SYSTEMS

0606-2401

suckled colostrum at all or will not have ingested sufficient to give them adequate protection against disease. However, while the antibody protection that colostrum provides is essential, for many piglets the energy that colostrum provides is the most crucial component. This is particularly so for smaller piglets (< 1kg) and those born late during farrowing. Often, these late born piglets have suffered a shortage of oxygen during the birth process, so are lethargic and slow to get to the udder. For piglets in these two high risk categories, it is worth considering stomach tubing as a means of providing a quick energy boost.

"The timing of treatment is critical, because small and weak piglets rapidly lose body heat"

Administering colostrum into the piglet's mouth using a 20ml syringe body is an alternative to tubing, but requires the piglet to have a suckling reflex. It can also result in a proportion of the milk being spilled. Stomach tubing gets the colostrum directly into the stomach without spillage and is quick and easy to perform with the correct training. Most importantly, the results are almost unbelievably quick. Recently I taught this technique to stockpersons in the farrowing section of a local Hutterite Colony and they were amazed at how quickly lethargic piglets revived and headed for the udder.

The first stage in the process is to milk colostrum from a sow or several sows, ideally one that is farrowing and is parity 3-5. Gilts should not be used as they tend to be more nervous and the antibody level in their milk is lower than for older sows. It's also important not to take too much milk from an individual teat (10-15ml) so that there is adequate colostrum left for the piglet suckling that teat. Also, the teats to the rear of the udder have less colostrum and so, ideally, the back four teats should not be milked. If the colostrum is not to be used immediately, it can be stored in small, screw capped bottles (20ml per dose) either in a fridge for up to 48 hours, or in a freezer for up to 4 weeks.

The timing of treatment is critical, because small and weak piglets rapidly lose body heat, even if they are under a lamp or on a heat mat, unless they get colostrum very soon after birth. It is also important that the temperature of the colostrum given is as close as possible to the piglet's core body temperature of 39.2°C. Cold colostrum will cause the piglet to use up precious energy to bring it up to body temperature.

I prefer to use a disposable 20ml syringe, although when I took the photos for this article, one wasn't available, but we managed perfectly well. What is more important is the type of tube used, because regular plastic tube can damage the oesophagus and stomach. I use a soft silicone plastic tube of the type used for fuel lines in model airplanes. This can be purchased from a model shop. It needs to be 25cm (10") in length because it's a surprisingly long way down to the piglet's stomach!

Prior to stomach tubing an individual piglet, the stomach should be checked. If it is tight and distended, the piglet should not have colostrum administered by stomach tube. However, in the categories of piglets that are most likely to require colostrum, it is not common for the stomach to be full.

People are often intimidated by the process of inserting the tube into the stomach, but with the correct technique and a

Compident ESF
electronic sow feeding
WORLDWIDE # 1

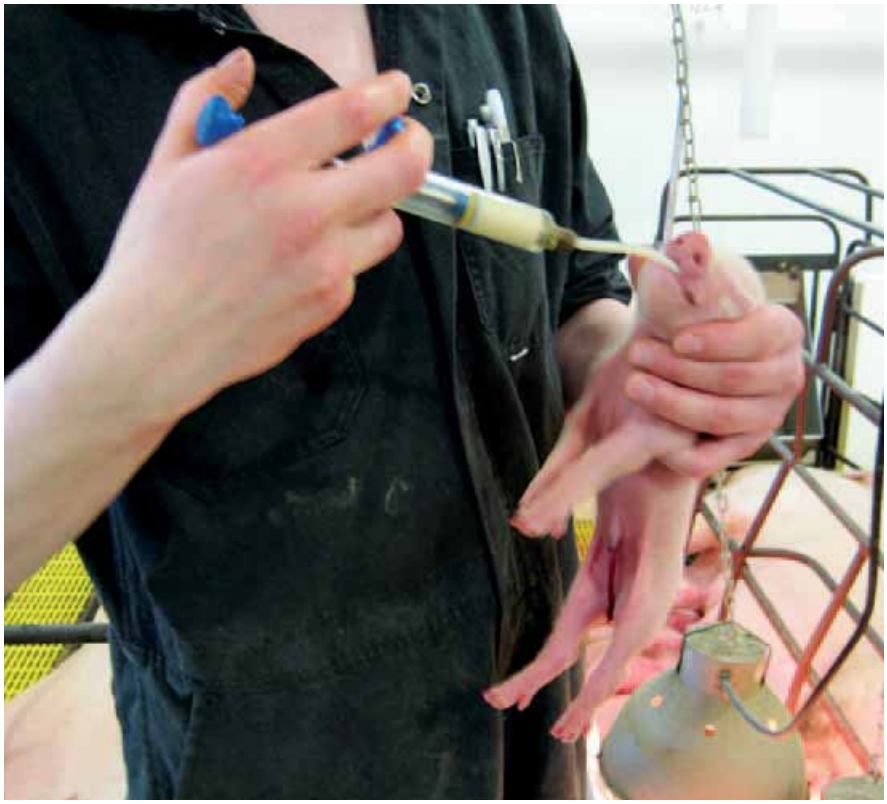
Grouphousing for sows

SCHAUER
PERFECT FARMING SYSTEMS
Schauer Agrotronic GmbH
4731 Prambachkirchen, AUSTRIA
Agent: Franz Bauer, -43-664-4337634
www.schauer-agrotronic.com
Prairie Systems
-1-306-460-7085

MILK-BITS™
PIG STARTER PELLETS
Professionally Designed Complex Formula
• Cold Processed • Milk Based *Pellet*
CANADIAN Nurs-ette DISTRIBUTORS LTD.
FOR PRODUCT INFORMATION:
Toll Free: (800) 667-6624
Phone: (780) 672-4757 Fax: (780) 672-6797
Camrose, AB
e-mail: info@nursette.com

little practice, this is simple. The key point here is to place the end of the tube in the piglet's throat and let its suckling reflex take the tube down the esophagus. Forcing the tube into the throat may result in it entering the windpipe, causing choking. The tube is pushed past the sphincter muscle at the top of the stomach and some resistance will be felt at this point. Once the tube is fully in, there will only be 75-100mm of tube left outside the piglet's mouth. The final stage is to pour the milk into the syringe (if it wasn't put in to start with) and push the plunger down, which can be done quite quickly.

Providing colostrum by stomach tube or even by syringe does take time, therefore it's essential not only to target the pigs most at risk, but also those that are most likely to survive after treatment. There is little point in attempting to keep pigs of less than about 750 grams alive in situations where litter size is large. Carried out on the right pigs at the right time, the result is nothing short of miraculous. ■



Administering colostrum by stomach tube – note how much of the 25cm tube is outside the piglet!

PRAIRIE SWINE CENTRE

Prairie Swine Centre's
Advancing the Science of Swine Production

held in conjunction with the Saskatchewan Pork Industry Symposium

Wednesday, November 14, 2012
Saskatoon Inn, Saskatoon, SK
1:00 – 4:30 p.m. - Presentations
4:30 – 6:00 p.m. – Reception

Sask PORK

Featuring the original team of research scientists that established the Centre's near-market and industry focus in 1992. The program addresses changes in technology that have impacted all the participants in the pork value chain, specifically areas affecting cost of production, environment, welfare and product quality.

Program

12:50 p.m.	**Mr. Lee Whittington,** *Welcome/Opening Remarks*
1:00 p.m.	**Dr. John Patience,** *Top 10 Developments in Swine Nutrition 1991-2012*
1:45 p.m.	**Dr. Kees deLange,** *Challenging Previous Assumptions in Nutrition; Game Changers Lie Ahead*
2:30 p.m.	**Dr. Harold Gonyou,** *The Evolution of Ethology as a Production Science*
3:15 p.m.	**Dr. Yuanhui Zhang,** *Reaching Further Afield in Engineering Science*
4:00 p.m.	Closing Comments
4:30 p.m.	Closing Reception

Celebrating 20 Years OF INNOVATION

Alternative approaches to sow care resulting in increased piglet survival

By Dr. Egan Brockhoff, Prairie Swine Health Services, Red Deer, Alberta, and University of Calgary, Faculty of Veterinary Medicine, Calgary, Alberta

How about that uterus? When was the last time you found yourself feeling pain and discomfort from post-farrowing uterine cramping and involution? For many of you this experience is a non-starter. For others, it may be a recent experience within your own life. If post-farrowing uterine cramping and involution hasn't happened recently to you, you can rest assured it is happening in your sow barn, and it is increasing piglet mortality. In women, it is well understood by the medical community that following child birth they may experience differing types of pain and discomfort.[1] Recently, there has been an increase in research around post-farrowing pain and the effects this discomfort may have on the sow's willingness to feed her piglets. An understanding of this relationship between pain and feeding is important since the amount of milk she makes available in those early hours is so critical to a piglet's successful start.

The effects of this pain arising from post-farrowing uterine cramping and involution has a significant impact on piglet survival.[2] Recently I attended the International Pig Veterinary Society Meeting and had the opportunity to listen to a research presentation from a veterinarian I met a number of years ago. We had last met up with each other at a Pig Veterinary Meeting in 2010 and at that time he had shared some positive anecdotal feedback from the pig producers he was working with, with respect to the use of Metacam® in sows post-farrowing. He speculated that this strong positive response was due to the pain relief afforded to these ladies associated with uterine involution. To bring credence to these observations, he initiated a research project to quantify any difference between sows given no treatment vs. Metacam®

Figure 1: Parity 1 sow showing pain and discomfort post farrowing. Note the depressed posture and desire to hide the teats from piglets

post-farrowing and to measure any significant differences. Interestingly enough, there were some important differences between treatment groups.

Metacam® is a Non-steroidal anti-inflammatory drug (NSAIDS) like aspirin or Anafen® and is used in both human and veterinary medicine to relieve pain and inflammation. Unfortunately there are not a lot of NSAIDs labelled for use in pigs in Canada resulting in underuse for conditions that would benefit from such a therapy. That brings me to the question as to whether all NSAIDS are the same. Will they all behave equally in similar situations? The quick answer is "No." Different NSAIDS in different research trials perform better or worse depending on the target condition. Response to different NSAID's will vary among differing conditions: what works for lameness management may not work for post-farrowing pain management. For example, in humans, paracetamol performs

CONTINUED ON PAGE 68

Now, more than ever,

Paylean® Pays

MEATIER PIGS, HEFTIER PROFITS

Since its launch, Paylean has delivered value to producers all across Canada. Today, Paylean pays more than ever. When fed an average of 28 days, Paylean can improve average daily gain and feed efficiency more than 10% and pay you back as much as $2 per pig.[1]

Eastern Canada: 1-800-265-5475
Western Canada: 1-800-661-6801
Web Site: elanco.ca

Elanco
Paylean®™

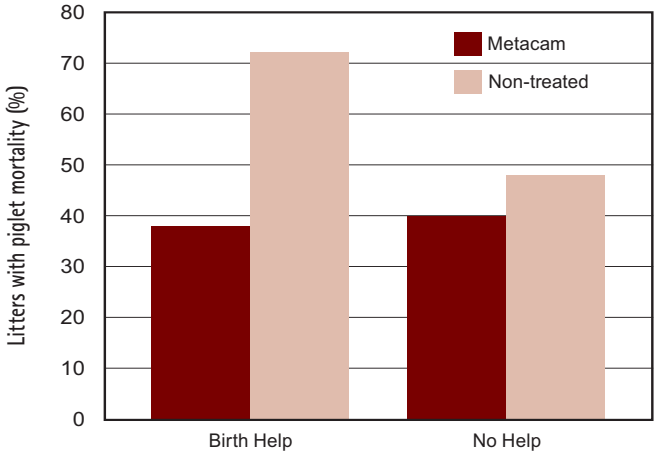
Get the Paylean Advantage

[1] Patience, J. et al. 2006. "Effect of Ractopamine in Finishing Swine Diets on Growth Performance, Carcass Measurements and Pork Quality." Prairie Swine Centre Inc. Data on file.

ELANCO®, Paylean® and the diagonal colour bars are trademarks of Eli Lilly and Company. Used under licence by ELANCO/Division of Eli Lilly Canada Inc.

11-11-0218-01212009

Figure 2: Piglet mortality the first five days after birth with and without NSAID treatment



Adapted from Keller. IPVS 2012.

significantly worse than another NSAID when pain intensity was assessed six hours after the study intervention.[3]

"After sow treatment the number of litters with piglet mortality was reduced from 62% to 48%"

In his research, Dr. Keller compared six Danish herds between 600 and 1500 sows. Sows were divided into two groups. Group 1 was treated with an NSAID (Metacam® 20 mg/ml, Boehringer Ingelheim) 1 ml/50 kg intramuscularly and Group 2 was not treated. The sows in Group 1 were treated on the day of farrowing and again on the following morning with the same dose. The results of the project were interesting: after sow treatment the number of litters with piglet mortality was reduced from 62% to 48%. Moreover, the improvement was even greater in sows that received help during birth. Figure 2 shows the dramatic difference in piglet survival in the group that received treatment after birth help versus those that did not receive treatment. Dr. Keller's concluding statements reinforced the idea that sows that receive birth help should be treated with an appropriate NSAID to "improve sow welfare and piglet survival".

CONSULTING SERVICES FOR THE PORK INDUSTRY

Over 35 years experience from farm to fork

For producers....
- Management advice
- Production troubleshooting
- Staff recruitment and training
- Barn design and remodeling
- Feeding and nutrition

For the industry....
- Customer technical support
- Product marketing & PR
- Technical writing & publications
- Brochures and leaflets
- Special projects & reports

Contact Bernie Peet at Pork Chain Consulting Ltd.
Phone: (403) 782-3776 Fax: (403) 782-4161
E-mail: bjpeet@telusplanet.net

Pork Chain PCC Consulting

There are many on-farm opportunities for the use of NSAIDS and, in many cases, they can be used in place of traditional therapies such as antibiotic administration. Sow lameness and syndromes such as Mastitis-Metritis-Agalactia (MMA) can also benefit from the addition of an NSAID. Revilla et al demonstrated that treating sows with MMA with meloxicam (Metacam® 20 mg/ml, Boehringer Ingelheim) plus antibiotic resulted in significant improvements in piglet health, average daily gain and mortality versus sows treated with antibiotics alone.[4] This protective effect was achieved through reduced incidence of hypogalactia. Moreover, the lower weight piglets in the litter were more likely to thrive compared to those in the control group.

Understanding pain and how pain affects the productivity and welfare of farm animals, including swine, is an area of increasing interest to the public, primary producer, processor, retailer and veterinary communities. There is an increasing body of evidence that compellingly underlines the economic and production benefit from targeted NSAID use. With increased scrutiny on antibiotic use the on-farm understanding and adoption of adjunct therapies such as NSAID usage is imperative. The time is now! In Dr. David Fraser's closing remarks of his opening address to the Congress of the 21st International Pig Veterinary Society he stated "Unless scientists and veterinarians can deal with the problems (animal welfare), then legislators and referenda may do so instead, and the outcomes may be less than ideal for the animals and for producers". [5]

References

[1] Deussen AR, Ashwood P, Martis R. Analgesia for relief of pain due to uterine cramping/involution after birth. Cochrane Database Syst Rev. 2011 May 11;(5):CD004908.

[2] Keller, F. Improved early piglet survival after Metacam® treatment of sows post farrowing. Proc International Pig Veterinary Society. 2012:249.

[3] Deussen AR, Ashwood P, Martis R. Analgesia for relief of pain due to uterine cramping/involution after birth. Cochrane Database Syst Rev. 2011 May 11;(5):CD004908.

[4] Revilla E, Ubiergo A, Martinez P, Ruiz J, Rubio S, Salleras JM. Post-farrowing treatment of sows with meloxicam on the preweaning weight gain and mortality rate of the low birth weight piglets in subclinical MMA. Proc International Pig Veterinary Society 2008.475.

[5] Fraser, D. Animal Welfare and the veterinary profession: 50 years of change. Proc International Pig Veterinary Society 2010.7-10. ■

Tackling tail biting problems

By Bernie Peet

Tail biting is a common problem in growing and finishing pigs kept under intensive conditions. It leads to a loss of performance, an increase in carcass condemnations and higher trim losses due to abscesses. Pig welfare may also be severely affected due to pain and distress. Outbreaks of tail biting start when one pig bites or chews another pig's tail, eventually leading to tissue damage and bleeding. The pig that initiates this activity is frequently smaller than other members of the group. This type of biting is not primarily aggressive but more a manifestation of some type of stress causing abnormal social behaviour, also known as vice. Once biting has started, other pigs are attracted to the blood and bite the affected pig, and then new pigs are bitten. In severe cases the tail can be chewed down to its root.

A severely tail bitten pig

Usually, tail biting is an indication of a deficiency in nutrition, the pigs' environment or management. However, the causes may not always be obvious and, in many cases, it will be a combination of deficiencies that triggers an outbreak. The problem is also often sporadic and may be related to seasonal factors or changes in the diet.

Structured approach required

Because there may be so many factors involved, it is essential to take a well-structured approach to identifying the causes of a tail biting outbreak. This means methodically going through all the possible influences, ideally using a written checklist (Table 1), and eliminating them one by one until a shortlist of likely causes is left. Often, these will require further investigation such as checking feeding or ventilation equipment is working correctly or taking measurements of temperature, air speed, water flow or other aspects of the pigs' environment.

> **"If pigs do not lie in the correct part of the pen, this indicates an environmental problem"**

The starting point for an investigation is observation of pig behaviour because this will often give clues to possible causes. Watching pigs for 10-15 minutes and making notes will usually show that they appear unhappy and there may be signs of stress, discomfort or abnormal behaviour. Observation can also identify the pigs that are doing the biting so that they can be marked and later removed. Lying behaviour is of particular importance because if pigs do not lie in the correct part of the pen, this indicates an environmental problem. Deficiencies in

CONTINUED ON PAGE 70

Table 1: Management and environment checklist

Environment	Feed and water
Is temperature too high/too low?	Is the diet appropriate to the size of pig?
Is temperature variable?	Is the formulation as intended?
Is there a draft in the pen?	Is feed quality up to standard?
Are gas levels too high?	Are feeders adjusted correctly?
Is humidity too high?	Are feeders blocked or fouled?
Is ventilation rate correct?	Is drinker flow rate correct?
Are air inlets adjusted correctly?	Are drinkers at the correct height?
Is lighting functioning correctly?	
Is the lying area wet?	
Is stocking density correct?	

feeding and drinking facilities can also be easily seen, usually when pigs are having to compete excessively to gain access to feed and water. This could be due to inadequate feeder provision, insufficient feed or water flow, stale or dusty feed, incorrect feeder positioning, too few drinkers or drinkers which are at the wrong height for the size of pig.

Environmental stressors

While deficiencies in the provision of feed or water may be relatively easy to identify, the complex of factors that make up the pigs' environment is often difficult to unravel. Pen space or stocking density is always at the top of producers' mental checklists. However, I have seen many situations where total pen space meets recommended requirements but where space is still a major factor. I prefer to assess what I call "desirable lying space" rather than total space. Pigs need a comfortable, undisturbed area to rest and if this is not available it causes severe stress. Where such space is restricted, it is the less dominant (usually smaller) pigs that are forced to lie in a "non-desirable" area and that is the reason why these pigs initiate tail biting. Let me give you some examples of this. The simplest of these is where there is a draft over part of the lying area, which effectively reduces the desirable lying space. Another is where part of the lying area is wet. Poor pen shape or incorrect positioning of feeders or drinkers can also lead to behavioural disturbances when pigs have to walk through the lying area to get to feed, water or the dunging area. In extreme situations, where several of these factors combine together, very serious tail biting can occur.

Predisposing factors in tail biting can be inappropriate temperature for the weight of pig, variable temperature, extremes of temperature, drafts over the lying area and high contaminant gas levels. If deficiencies are identified, the operation of fans, inlets and ventilation controllers should be checked. Sometimes tail

biting is seen seasonally, usually in the spring or fall when there are large diurnal (day-to-night) temperature fluctuations. This may also be associated with high humidity. Although modern ventilation systems minimize variations in temperature within the barn, this seasonal effect may still be observed. In situations such as this, other trigger factors should be investigated, assuming the ventilation system is operating as it should.

Correct adjustment of air inlets is essential to avoid drafts that can lead to tail biting

Nutritional factors

A number of factors relating to the diet have been implicated in outbreaks of tail biting. It is always worth checking whether the correct diet for the type of pig was manufactured on farm or delivered and whether the formulation was as intended, particularly the inclusion of vitamins and minerals. Sudden ingredient changes have also been implicated in tail biting and it is always best to phase in major changes in raw material inclusion. A low fibre level (<3%) in the diet has been associated with tail biting in some studies. Perhaps the most widely known dietary cause is low salt levels (<0.5%) and it is often recommended to increase salt content of the diet to 0.9% when tail biting occurs. However, this should only be done where low salt inclusion is thought to be a significant factor and other causal factors cannot be identified. If salt level is increased, pigs need to drink more and if water availability is inadequate, this will exacerbate the situation.

Treatment

Where the outbreak of tail biting is limited to a relatively small number of pigs, the affected pigs should be removed to a separate pen immediately and the affected area treated with a topical antibiotic spray to reduce the chance of infection. Early identification, removal and treatment will minimize the impact of the problem. If larger numbers of pigs are affected and isolation is impossible, the worst cases should be removed and the other affected pigs should have Stockholm Tar painted on their wounds. The use of an anti-biting spray may be effective. The inclusion of Magnesium Oxide in the feed has been used in outbreaks of tail biting because it makes pigs calmer, but veterinary advice should be sought on this.

The length of docked tails should be checked because in many situations I have investigated, tails cut too long have been a factor. Generally, the recommendation is to remove at least half the tail, although it may be necessary to shorten it by two-thirds. While long or variable-length tails may be a factor in tail biting, the most effective approach to solving a problem will be to investigate all the possible factors and rectify any shortcomings in the pigs' environment. ■

NUTRI A-Z C DRY

ARE MYCOTOXINS AFFECTING YOUR ANIMAL PERFORMANCE?

TALK TO VERUS ANIMAL NUTRITION OR NUTRIAD TO FIND A SOLUTION

CONTACT YOUR LOCAL FEEDMILL TO LEARN ABOUT THE $10 BONUS GIFT CARD

VALID SEPTEMBER 1 - DECEMBER 31, 2012

VERUS ANIMAL NUTRITION

Andy Humphreys - andy@verusalliance.com
Rhett Arnason - rhett@verusalliance.com
204.414.9400
www.verusalliance.com

nutriad applying nature
www.nutriad.com

International Round-up

Pfizer renames Animal Health Division

Following a strategic review process of its Animal Health business, Pfizer Inc. has announced its intention to make it a standalone company called Zoetis. Preparations are underway to file a registration statement in the US for a potential initial public offering (IPO) of a minority ownership stake in the new company.

Zoetis, will build on the leadership of Pfizer Animal Health in the discovery, development, manufacture and marketing of a diverse portfolio of animal vaccines, medicines, biopharmaceuticals, diagnostics and genetic tests to prevent and treat disease in livestock and companion animals, says the company. With more than 9,000 employees, the business markets its products in more than 120 countries with operations in developed and emerging markets and provides comprehensive animal health solutions to veterinarians and the livestock farmers and companion animal owners they support. It has an extensive research and development network and holds leading market positions across major geographic regions, including North America, Europe, Africa, the Middle East, Latin America, and Asia-Pacific. Revenues in 2011 were approximately $4.2 billion.

"The name Zoetis has its root in zo, which is familiar in commonly known words such as zoo and zoology," explains a company news release. "It derives from zoetic, meaning "pertaining to life," and signals the company's dedication to improving the health of animals across species and around the world based on the fundamental understanding that animal and human health are inextricably linked."

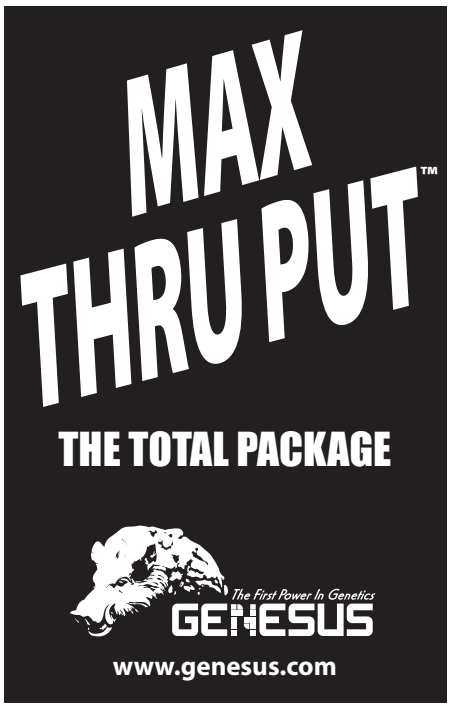
Revised edition of Nutrient Requirements of Swine released

The National Academies of Science recently released the 11th Revised Edition of *The Nutrient Requirements of Swine*, also known as the Swine NRC. Hans Stein, professor of animal sciences at the University of Illinois, along with nine other swine nutritionists from universities and the Agricultural Research Service of the US Department of Agriculture, served on the committee that worked for 18 months to produce the new edition. The volume has been expanded to include 400 pages, 17 chapters, and detailed information on 122 feed ingredients.

New content includes:

- Updated energy and nutrient requirements for pigs in all phases of production,
- Information on new feed ingredients from the biofuels industry and other new ingredients, such as novel soybean products,
- New chapters on lipids, carbohydrates, potential feed contaminants, and on the digestibility of nutrients and energy,
- A new evaluation standard for phosphorus: standardized total tract digestibility, (STTD). Requirements for STTD phosphorus by all categories of pigs and STTD phosphorus content of feed ingredients,
- Information on the effects of feed processing (e.g., pelleting, extrusion, and reduced particle size),
- Strategies to increase nutrient retention and reduce nutrient excretion,
- Expanded feed composition tables,
- An updated computer model to estimate nutrient requirements for pigs,
- Identification of future research needs.

Nutrient Requirements of Swine is available from the National Academies Press at a cost of $149.95 by calling 888-624-8373, or online at http://www.nap.edu.



British producers fight biomass plant proposals

British producers are up in arms about two proposed biomass plants that will consume large quantities of straw to produce electricity. Both will be located East Anglia, one of the country's most important pig producing regions, leading to an increase in the price of straw used by producers.

Producer organization the National Pig Association expressed disappointment that the nation's food supply was not given adequate consideration by planners when they granted planning permission for a plant in the county of Norfolk. NPA fears the plant will cause straw to become a scarce commodity in East Anglia where pig producers are already having difficulty sourcing sufficient for their high-welfare pig production systems, which rely on deep-straw bedding for pigs. The association is also calling for a national strategy to ensure subsidised biomass plants do not jeopardise Britain's domestic food production.

The proposed plant will burn up to 240,00 tonnes of straw a year, producing 40MW, enough to power 68,000 homes. "This vast amount of extra straw for the plant is just not available regardless of price," said local producer Jimmy Butler. "Many jobs will be in jeopardy and whole industries will suffer ... and for what? Is energy production really more important than feeding the nation?"

A decision on another biomass plant in the neighbouring county of Suffolk was deferred by planners after representations by pig producers, who raised nearly £3000 in just a few weeks to fund the case. Lawyers representing producers warned that there were serious shortcomings in the way the application had been handled and said that if approval was granted on the evidence currently available, the decision would be vulnerable to a Judicial Review.

Organic compounds offer alternative to antibiotics

Natural compounds may offer an alternative to certain antibiotics in the future for treating young animals that are susceptible to bacterial infections, according to work carried out by US Department of Agriculture (USDA) scientists.

Researchers at the Agricultural Research Service (ARS) have invented a new method that involves using chlorate and nitro compounds to significantly reduce or eliminate intestinal bacterial pathogens in animals such as piglets and calves. Nitro compounds are organic substances that contain one or more nitro groups, which consist of three atoms - one of nitrogen and two of oxygen - that act as one.

Chlorate and nitro compounds have proven to be effective against the food borne pathogens *Salmonella* and *Escherichia coli* O157:H7. *Salmonella* alone causes more than 1.3 million cases of human food borne disease each year, at a cost of $2.4 billion. *Salmonella* and certain *E. coli* strains also cause considerable losses to the swine and cattle industries due to enteric or intestinal diseases.

Microbiologist Robin Anderson and his colleagues at the College Station unit demonstrated the effectiveness of a chlorate-based compound in earlier research by mixing it into water or feed and giving it to cattle. The compound, which was highly effective in reducing *E. coli*, has been licensed by a private company. Chlorate also reduced *Salmonella* in turkeys and broiler chickens.

In addition, scientists looked at using certain nitro compounds as a method to control food borne bacteria. *Salmonella* or *E. coli* bacteria were treated with or without chlorate and with or without nitro compounds. Chlorate was found to have significant bacteria-killing activity against *E. coli* and *Salmonella*. However, chlorate has not been approved for commercial use in food animals by the USDA. When the nitro compound was added, the activity was enhanced 10- to 100- fold. Nitro compounds alone had significant bacteria-killing activity, which was more persistent than that of chlorate.

Dr Anderson and his team concluded that nitro and chlorate compounds together were the best treatment - a combination that could offer an alternative to certain antibiotics that are commonly used to treat diarrheal infections in young animals.

Eating pork may assist with weight reduction

Recently reported research from the University of South Australia suggests that substituting lean pork for other meats in the diet of humans can lead to a reduction in weight. High protein meat-based diets are commonly promoted for weight loss, supposedly by increasing satiety and energy expenditure (because the breakdown of excess protein burns up energy). Pork is a good source of protein, however little information on the metabolic effects of pork consumption exists.

The pilot study aimed to examine whether regular consumption of fresh lean pork could improve body composition and cardiovascular risk factors in a six-month trial. In total, 164 overweight adults were randomly assigned to incorporate up to 1 kg pork/week by substituting for other foods or maintain their habitual diet (control).

A total of 144 volunteers completed the trial and volunteers in the pork group increased their intake tenfold by substituting pork, mainly for beef and chicken. After three months, there were significant reductions in weight, Body Mass Index (BMI), waist circumference, percentage of body fat, fat mass and abdominal fat in the pork group relative to controls, which persisted for six months.

There was no change in lean mass, indicating that the reduction in weight was due to loss of fat mass. There were no significant effects on other metabolic parameters.

CONTINUED ON PAGE 75

Saskatchewan Pork Industry Symposium
November 13-14, 2012
Saskatoon Inn, Saskatoon, SK

Join us for the 35th annual Saskatchewan Pork Industry Symposium. New and returning speakers offer practical information on improving profitability, preparing for emerging trends and barnworker safety.

David Smith, Vice-President, Sustainability, Sobey's Inc. offers a retailer/foodservice perspective on animal care assurance and sourcing of sustainably produced agricultural products in the 'webinar' *"Trust Me Doesn't Cut it Anymore"*.

Steve Meyer, President, Paragon Economics, returns to provide his ever-popular analysis of the economics and world outlook for the N. American pork industry.

Dr. Sue Burlatschenko of Goshen Ridge Veterinary Services in Ontario, will help you prioritize daily activities with *"Unforgettable Knowledge: What Forgetting Can Cost You"*.

Florian Possberg and Dr. Harold Gonyou, *Pig Code Development Review,* will discuss recent changes to the *Codes of Practice for Raising Pigs* and what it means for producers.

Dr. John Patience, Iowa State University, will address *integrated nutritional management of grow/finish pigs.*

Dr. Laurie Connor, University of Manitoba, compares different *sow housing systems* currently available and which ones are best!

Dr. Catherine Trask, Canadian Centre for Health and Safety in Agriculture, will focus on *injury prevention in the pig barn*.

Michael Young, Canada Pork International, will demonstrate how the Canadian pork industry *adds value, growth and differentiation to a commodity driven category*.

2012 Concurrent Sessions

Management Breakouts
Employee Retention *(Mark Chambers)*
Building a Hedging Program that Works! *(Tyler Fulton)*

Breeding Breakouts
Post Cervical Insemination *(Mark Wilson)*
Optimal Litter Size *(Miranda Smit)*

Grow/Finish Breakouts
Moving to Heavier Market Hogs *(Eduardo Beltranena)*
Disease Challenges in the Barn *(Matheus Costa)*

We are are pleased The Honourable Lyle Stewart, recently appointed Saskatchewan Minister of Agriculture, will attend and speak at the evening banquet on November 13th.

In recognition of the *Prairie Swine Centre's 20th Anniversary*, we're featuring "**Advancing the Science of Swine Production"** on November 14th with presentations by Drs. John Patience, Harold Gonyou, Kees deLange and Yuanhui Zhang.

Full Symposium program and registration form are available on-line at *www.saskpork.com*. A block of rooms has been set aside until October 17th at the host hotel, **Saskatoon Inn Hotel and Conference Centre**, 2002 Airport Drive, Saskatoon. Reservations can be made by calling direct at (306) 242-1440 or Toll free: 1-800-667-8789.

For additional information contact:
Kim Browne, Symposium Coordinator
Sask Pork, 2 - 502 45th Street W., Saskatoon, SK
Tel: (306) 343-3506
Email: info@saskpork.com

Gut toxins linked to MMA and piglet scours

Two recently reported studies have indicated a link between the presence of bacterial endotoxins in the gut and the incidence of Mastitis Metritis Agalactia (MMA) in sows. The same studies also suggest that piglets receiving high levels of endotoxins via colostrum - produced by pathogenic E. Coli in the sow's gut - are more likely to suffer from neonatal scours.

The first study, carried out by Lallemand Animal Nutrition, looked at the possible effect of live yeast (Levucell SB) in the sow diet on the reduction of mild MMA incidence in a farm with chronic MMA incidence over the two previous years. It also investigated the impact on neonatal diarrhoea in piglets.

Although the number of sows in the trial was limited, there appeared to be a good relationship between colostrum endotoxin levels and clinical signs of MMA (fever of sow and neonatal diarrhoeas in piglets). Live yeast had a positive effect on the incidence of MMA in this high-risk farm. There was also a positive correlation between endotoxins in the colostrum and in the blood plasma.

The second study looked further at the effect of endotoxins from the sow's colostrum on the piglet. It has been observed that neonatal diarrhoea is common in farms with high incidence of MMA, especially in litters from young sows.

In this trial, seven litters from sows in parity 1 or 2 were studied, none of which were affected by neonatal diarrhoea. Endotoxin levels were assessed from the colostrum sampled during the farrowing process, and from piglets' blood sampled at 24 hours of age.

The results showed overall low levels of endotoxin contamination in colostrum, with a huge variability between piglets in the same litter, which, suggest the authors, might reflect individual differences in colostrum intake, blood volume, or gut permeability. A positive correlation was also found between colostrum contamination and endotoxins in the piglets' blood contents, they note.

The authors concluded that these results indicate a transfer of endotoxin from the dam to the piglet through the colostrum. However, as the endotoxin levels were low, they were not able to link them to neonatal scours.

TOPIGS sows average 28.8 pigs weaned per sow

Pig farms in the Netherlands that use TOPIGS genetics produced an average of 28.8 weaned piglets per sow per year in 2011. The top 10 per cent 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 332,0000 sows.

Compared with the previous 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, says the company.

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.

Feeding milk replacer helps both sow and piglets

Recent trials in the Netherlands and Germany have shown that supplying milk replacers to piglets during lactation is not only beneficial to piglets but also to breeding sows. There is increasing interest in this topic due to the rapid increase in litter size in Europe, which means that the sow's milk production is now a limiting factor in piglet growth.

The results of two experiments suggest that sows lose less weight where milk replacers are being fed to piglets during lactation. As the piglets grew faster through the provision of an extra energy source, they put less pressure on the sows, resulting in the sows having to mobilize less body fat and fewer proteins.

CONTINUED ON PAGE 76

Sun-North
SYSTEMS LTD.

Save up to 75% of your energy costs with *Altra-Seal* insulated sliding panel. Tested and Proven!

Ventilation Design - Natural, Fan or Dual
Big projects or small - all done with care
Several panel and screen options
Basic or customized panel systems
Insulated chimneys

Tel: 519-527-2470
Fax: 519-527-2560
www.sunnorth.com

P.O. Box 668, 92 Railway St.
Seaforth, On N0K 1W0
sunnorth@sunnorth.com

In one of the trials, carried out by animal nutrition company Provimi, a milk replacer was fed through RescueCups to suckling piglets. An experimental group received milk replacer until day 16 and performance was compared with a control group. Both groups also received creep feed.

Piglets consuming milk replacers were observed to grow faster than the control piglets leading to higher weaning weights and lower mortality rates. In addition, the sows whose piglets were fed milk replacer lost 6.4 kg less weight than sows from the control group. Comparable results were found recently by the University of Bingen in Germany.

Research has shown that if sows lose more than 10% of their weight during lactation, subsequent reproduction is compromised.

Hypor first to market with Genomic Selection

Hypor, the swine breeding arm of Netherlands-based Hendrix Genetics, has announced its first-to-market full Genomic Selection breeding program that enhances accuracy in genetic selection for pig breeding. Having been an industry "hot topic" for some time now, Hypor says that it is now routinely able to offer customers breeding stock selected on Genomic Breeding Values.

In close cooperation with the Hendrix Genetics Research and Technology Centre, Hypor has successfully implemented Genomic Selection into its breeding program. "Genomic Selection gives us the ability to predict with far greater accuracy what the genes of each pig are and what they are worth for our breeding programs. We can now offer accelerated genetic progress as a result," says Benny van Haandel, the company's Director of Research and Development.

Hypor has been collecting DNA samples from pigs in its nucleus farms for the past several years. Routine sampling, shipping and processing of samples has been set up and professionalized. Now, all samples of the different nucleus farms around the world are shipped and processed centrally within Hendrix Genetics in Ploufragran, France. "This is a valuable asset to the breeding programs of Hendrix Genetics and truly a one of its kind in this industry," comments Gerard Albers, Director of the Research and Technology Centre.

Will "social" pigs lead to improved genetic progress?

The Danish swine breeding organization, DanBred, is about to investigate whether selecting pigs on the basis of their social behaviour could lead to improved genetic progress. It suggests that "social" pigs could reduce aggression in pen groups, and could even allow all pen-mates to better realise their genetic potential. The study, which starts in 2013, will involve the offspring of specially-selected breeding boars.

Selecting for social pigs is unique as it can potentially identify pigs that are "team players", says DanBred. "These pigs are expected to create a good atmosphere through their behaviour," notes a news release. "They could allow easy access to feed, enabling fast and increased daily weight gain in all of their pen-mates."

The method has ground-breaking potential because it does not require the normal recording of genetic traits. Instead, DanBred will use the growth rates of pigs in each pen, together with the genetic relationships between the animals, to evaluate the effect pen mates have on each other. If an increase in daily weight gain is observed, this will not only be an expression of a pigs' genetic potential, but also of the "social" performance of its pen mates, DanBred suggests.

Not only could social performance generate higher daily weight gain, it could also have the added benefit of less aggression and a lower incidence of tail biting, concludes the news release. ■

Are you reading someone else's copy of the Western Hog Journal?

If so, why not sign up for your own subscription?
Just call **Barb Brimmage** on **1.877.247.7675** or email your contact details to **info@albertapork.com**

Subscription is free!

Get the latest technical information and pork industry news sent direct to your mailbox – sign up now!

Western Hog JOURNAL

The only Disposable Boots with *Bite!*

ITSI Select™ TREADER - Disposable Boots with *BITE!*

- Elasticized top
- Textured bottom to reduce slipping
- Cost-effective
- XL or Jumbo size
- US and other patents pending

Main Office Ontario: 1-800-692-4874
Sales Office Manitoba: 1-866-563-2360
e-mail: info@itsi-ai.com • www.itsi-ai.com

Questions to ask breeding company salespeople

By John Gadd

Some twenty years ago I published a list of ten questions to ask the breeding companies about their pigs. This went down well - rather to my surprise - as they seemed to welcome the challenge. Twenty years is a long time, and over this period, with the help of some seedstock houses, I have added another ten.

In no way is this list a criticism of what the commercial geneticists have done for us in the meantime – a fine achievement – although in my experience they have a bit more to do in the areas of legs, marbling and special lines better suited to hot, humid climates and again, outdoor production. But those are subjects for those who are concerned about them, and for another day.

I publish my revised list below because I always try to talk to the salespersons on their booths at Expos across the world. "Why should I buy your gilts?" I ask. Rather too often the replies seem bland along the lines of "Because they are the best available!" which, even if said jocularly, seems a lame opening gambit to me. But instead of taking the obvious route of "So tell me why" I ask three of the questions starred** below, which seems to stump most of them.

Hence the need for the twenty questions from which you can choose, and maybe should be in the car glove-pocket of every breeding company salesperson, together with the answers from his employer. It should help the company, their sales staff and especially the customer.

Which breed to choose?

I am often asked "Which breed do you think is best?" There is no best breed; the right breed for you is the one which best suits your market and method of production. Getting answers to the questions below starts you off on this trail.

The 20 questions

1. Damlines: What is your claimed current performance for numbers born alive and ideally for numbers weaned - this latter helps support docility and good mothering traits.

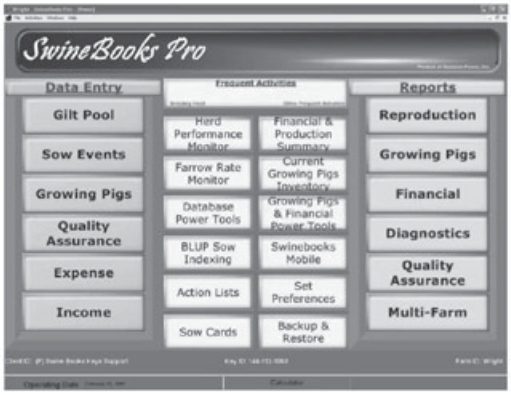
2. Sire lines: Growth (check from when to when), fatness, FCR (permissible as they can measure it properly) but **MTF – Saleable Meat per Tonne of Feed eaten on the same carcase yield – is a good cross- check and a reliable breeding firm should have this figure too.

3. Some carcase and meat quality figures are useful. For meat quality, take marbling genes, for example. 0.7% is common - it should be 1.3% at least. My wife, a skilled cook, and I, sent some cuts to our Meat Research Institute for dissection because they were so juicy and flavourful. They had as much as 3.8% intramuscular fat. Any producer should get a whopping premium for such delicious pork, overriding the so-called fatty look of the pork when sufficient marbling is promoted vigorously on eating quality grounds. Fatty? Not the prominent, thick surface fat which we see far less of now, but the tiny, but still visible, ribbons of fat lacing the lean - marbling. Buyers think that is 'fat'. It is not, as it cooks beautifully and tastes superb. European pork and bacon has become far too lean, dense (the knife squeaks when you cut it when cooked) and has little flavour. It looks lovely but too much of it is of dreadful eating quality compared to what is possible.

4. How have these meat characteristics of theirs changed over the past 5 or 10 years? This will give you some idea of phenotype development – where the profitable muscle is on their carcases.

5. Please tell me of your estimate of current genetic progress. This should be in the region of 10g/day growth rate (25-105kg) per year and 0.2 pigs born alive, so rapid is current progress. Treat claims well above these figures with caution - even today this is unlikely.

CONTINUED ON PAGE 78

SwineBooks Pro®
Complete Pork Production Records System


• Breeding herd
• Gilt pool
• Growing pigs
• Financial records
• Feed mill data import
• Database Power Tools
Call our toll-free support line:
800-575-7139
www.swinebooks.com

BANFF PORK
seminar

Banff Pork Seminar

January 15-17, 2013

Banff, AB, Canada

Over 26 Internationally Recognized Experts
12 Hot Topic Issues
All sectors of the Pork Industry
Meet Canada's Pork Industry Leaders
450,000 Sows Represented

Sessions include:

- ***Measuring Success***
- ***New Partnerships***
- ***Digesting the Latest on Swine Nutrition***
- ***Speaking Up, Speaking Out***
- ***Competing for Markets at Home & Abroad***
- ***Competitive Canadian Pork Production***
- ***Conversion of Gestation Stalls***
- ***Reducing Antibiotics: A Matter of Dollars & Sense***
- ***Limits and Measures of Biological Potential***
- ***Healthy Pigs Mean Healthy Profits***
- ***Unlocking Genetic Potential***
- ***Impact of Genomics on Farm In The Near Future***

For information and to register, contact:

Website: www.banffpork.ca ***E-mail:*** info@banffpork.ca
Phone: (780) 492-3651 ***Fax:*** (780) 492-5771

6. What is the size of your nucleus populations? The larger the better.

7. ** Please outline your testing regime. A clear explanation is needed, not an attempt to 'blind you with science.' Ask questions as to what it means.

8. ** What analyses do you do on this, how often and why? Clear answers to these two last areas will give you confidence even if you don't fully understand the jargon. Waffle should warn you off.

9. Do you use any additional technology to aid your genetic progress? Look for things such as marker gene use, molecular techniques, advanced scanning methods etc. A well-trained salesman can be most interesting to listen to in these areas.

10. What is the rate of inbreeding in the nucleus populations? I'm told this figure should be 0.5%-1.0% per annum; any larger then it becomes a problem; any smaller then they may not be pushing the genetic program hard enough.

Questions 6 to 10 tend to identify the serious players in the subject and gives an idea of how well-trained their salespersons are – who will often be influential in choosing the right lines for you and the front-end persons you can trust rather than just some employee under pressure to sell as many gilts as possible.

11. In this latter area, if I am to receive my gilts from a multiplier, I need evidence from him of the selection intensity he works to, the higher the better. A conscientious multiplier will record how many rejects he has had to suffer and not just parade his successes.

12. Could I have a list of, say, four of your producer - customers with a roughly similar set-up to myself so that I can select one of my choosing, call him and have a chat.

The vital subject of health

13. Can my vet speak to your (preferably independent) vet about the health of your nucleus/ multiplying farm?

14. What was your last date for monitoring 'x' disease. Insert the one(s) that most concern you.

15. What diseases do you monitor as routine? These will vary across pig industries but to give you an idea, JSR Genetics in Britain in 2011 had a list of 16, plus our Notifiable Diseases.

16. What has been the length of time between your last monitoring/vet visit and the date that my stock would be leaving your care? As short a time as possible for the first few animals, but once you become more familiar with the source this precaution can be relaxed to allow more freedom for the pigs to be supplied.

17. Are any drug treatments administered as routine? You should be told.

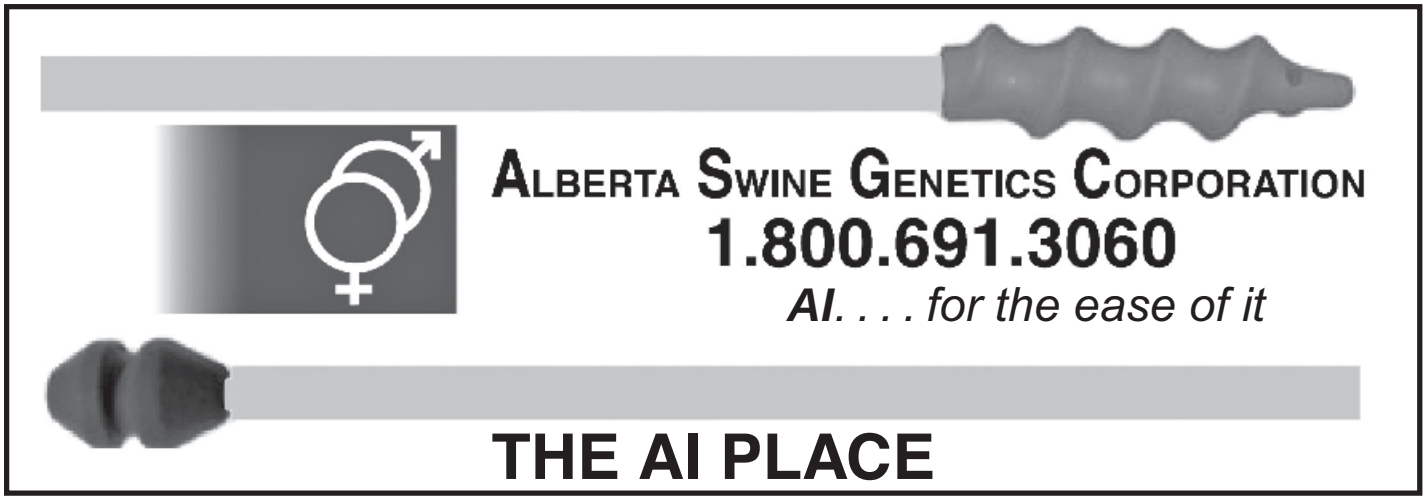
Further useful questions when comparing suppliers

18. Leg strength and appetite potential are in my opinion essential after dealing with problems in hot countries, especially hot/wet countries.

19. Ask the breeding company to give you their views on the feed protein/ amino-acid needs of their growing pigs in the last month before their recommended shipping weight. This is because I am sure the progeny of some lines can be taken on to 120 kg without excess fat and still yield more lean meat per tonne (MTF) from the extra feed needed. It is essential to have sufficient space available as overcrowding completely negates this advantage.

20. Is there any evidence of loading or haulage stress? Some breeding companies are sensitive to this and have taken steps to ameliorate it in their finished pigs - important if the delivery route is a long one as it can be in your continent.

Acknowlegements: I am grateful to JSR Genetics for advice on this subject, as well as PIC, Topigs and Hypor. ■



Free access stalls for sows allow individual feeding to be carried out for trial work

British agricultural college goes from strength to strength

By Stuart Lumb

Sadly over the last 15 years there has been a decline in the provision of agricultural education in the UK, but fortunately many institutions are still doing a good job, one of these being Harper Adams University College, or "Harper" as it's affectionately known by many. Located in Newport, Shropshire, Harper was founded in 1901 as Harper Adams Agricultural College although now goes under the name of Harper Adams University College, an indication of its degree awarding status. John Luscombe was pig lecturer at Harper for many years and his book on pig husbandry first published in 1962 still makes interesting reading today. I quote: "We therefore require good pigs, good houses, good food and, last but not least, a good pigman." Fifty years on not much has changed, although the many able members of the fairer sex working in our industry today would be upset that they didn't get a mention.

In his author's preface Luscombe emphasised the need to improve efficiency "so that we may be in a better position to meet the Continental challenge." Fifty years on, that has definitely changed, but in the 1960s the Americas and Asia were just considered as places that the wealthy could travel to for a relaxing vacation. Luscombe was also in charge of the Harper Pig Husbandry Experimental Station. I visited Harper in 1972 and the assorted collection of pig huts and other paraphernalia was not quite what I was expecting. However, I'm delighted to say that the current 240 sow unit is very impressive, well run and tidy. The buildings are a combination of new and old and have been well maintained over the years. The unit sits literally in the middle of the campus and is remarkably odour free. Since UK colleges went commercial they have had to expand to survive. When colleges were first established, the farmstead would be some way from the college buildings, but over the years with expansion the farm buildings have become surrounded and in some cases have been relocated or sadly just closed.

"Another benefit of the milk line is that our sows are in much better condition at weaning"

The Harper unit is naturally used for training students in pig skills but also has a major function carrying out contract research. "Originally the 100 sow unit was stocked by PIC but since doubling up we also have JSR genes, producing Camborough 23s and Genepacker 90s from the respective company's GP purebreds," commented livewire unit manager Richard Hooper, who is also a former Nuffield scholar.

Sierens Equipment Ltd.

☑ EXCELLENT SERVICE
☑ EXCELLENT RELIABILITY
☑ EXCELLENT RESULTS

Standard Features Include:
• "XLE PLC" scale system
• Robust construction
• 2 level alarm system
• G-diamond grit non-slip floor
• Fail safe system default
• Easy exit air
• 2 x LED lights
• Locking gates
• Maximum sort feature
• Super Quiet Operation
• PC compatible electronics
• Identifies 5 weight ranges
• Nylon bushings at all wear points
• Shipping weight: 583 lbs

Model # SSGEN2-3

Optional Features Include:
• 2 or 3 pen destination
• Safety release system
• Wheel option
• Double entry gate option
• 2 colour dye marker
• PC Software "Sortrite"

Products Avaiable in Powder Coated Stainless Steel

Box 10
Swan Lake, MB
R0G 2S0

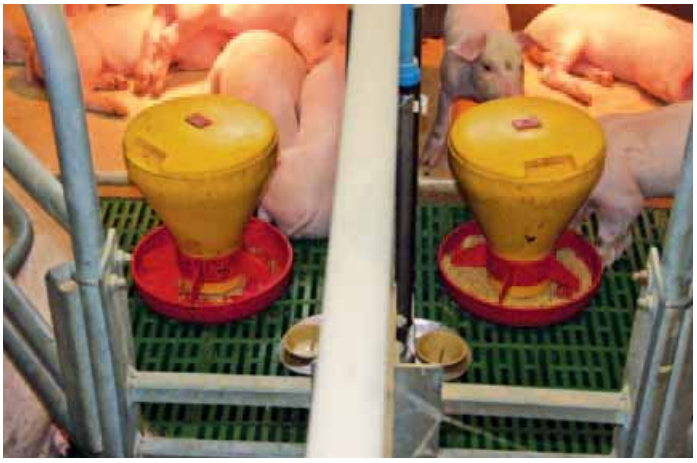
Proudly Designed & Manufactured in Canada

www.sierensequip.com

Toll Free: 1-877-836-2243
Ph: (204) 836-2243
Fax: (204) 836-2892

Healthwise we are PRRS and EP negative. We took advantage of the BPEX PCV scheme but when the subsidy ran out we stopped vaccinating our sows. Performance hasn't suffered plus we save £6000 per year, which is not to be sneezed at."

To get sufficient pigs for trials Richard operates a 3-week batch system weaning 32 litters every 3 weeks. Wednesday is weaning day and weaning weights average 8.5kg at 26/27days. Lamps with dimmers are preferred to pads at farrowing. The sows are fed using the Stotfold Scale and a creep diet containing 1.5% lysine is fed from 14 days, which gives a post – weaning boost in growth rate. After trying many different creep feeders Richard finally has opted for a nice neat feeder from Spanish equipment company Rotechna. Richard is a great advocate of supplementary milk for piglets rather than getting involved in a lot of time-consuming cross fostering. When the MLC research station at Stotfold closed down Harper bought quite a lot of the equipment including the farrowing house milk lines and installed them in their farrowing houses. Richard has some strong views on the management of supplementary



The supplementary milk cups and Rotechna creep feeders in the farrowing pens

milk lines. "Many producers find that piglets scour and put it down to the milk. In my opinion they let stale milk build up and this leads to scouring, so we just give enough milk to satisfy the piglets on a daily basis. We switch off the milk 4 days before weaning and naturally clean the lines etc. very thoroughly between batches. Another benefit of the milk line is that our sows are in much better condition at weaning and for a cost of 40p/pig weaned the milk line is a godsend."

Most of the farrowing accommodation has slatted flooring but one house, which contains 16 crates, has solid floors and has to be cleaned out manually which is not ideal. Richard wants to gut this house and replace the 16 crates with 10 or 12 free farrowing pens, as this type of penning is creating a great deal of interest, given the welfare implications.

Sows are weaned on a Wednesday and have boar contact until the following Monday. Inseminations are carried out on Monday and Tuesday morning, with scanning taking place 28 days post service. Sows and gilts are housed in free access stalls. The houses are sold floored and the dung passages are scraped through on Mondays, Wednesdays and Fridays. Individual feed troughs are needed for trial work and so an ESF system was not an option. Much of the nursery accommodation was made by Mark Pittaway, who is based in East Yorkshire and who makes top quality accommodation from reconditioned refrigerated truck container trailer units.

The small pens are ideal for trial work and Richard was keen to point out that no zinc oxide is fed in the nursery rations. Tail biting is an ongoing problem worldwide and trials are being carried out with mineral blocks from Vitfoss which contain added magnesium. Richard was very proud to show off his specialist £80,000 feed equipment manufactured by Roxell, which is designed especially for split sex feeding along with phase feeding trial work.

One of the finisher houses has a Skov exhaust air scrubber unit fitted to it as a bolt-on unit. Whilst this equipment adds an extra 70p/pig to production costs the house is situated next to a busy college road and as there have been no complaints about smells from passers-by Richard contends that investing in the scrubber was money well spent.

Finishing pigs average 140 days to105kg and some of the pigs end up on the students' plates as Richard supplies pork to the college refectory. Slurry from the unit along with that from the College dairy unit is piped to a huge £3 million anaerobic digester which operates as a separate stand-alone company and generates 75% of the college's electricity requirements. Household waste is also used to feed the digester and this is trucked in from Wales. Transport costs are ever-increasing and vehicle emissions need putting into the "green mix", but on balance digesting this waste is probably better than simply just sticking it into a big hole in the ground.

The Harper Adams Pig Husbandry Experimental Station has certainly come a long way since 1971 and long may it continue. ■

drySTART™
READY-TO-USE DRYING POWDER FOR LIVESTOCK PRODUCTION
HELPS ABSORB MOISTURE & CONTROL ODOURS
the STARTline™
™ Trademark of Kenpal Farm Products Inc
Tel 1-866-810-1286 • Fax 519-228-6560
info@drySTART.com • www.drySTART.com

Ad Index

EastGen Your Canadian IMV Distributor

imv TECHNOLOGIES

EastGen

Our focus is on the SMALL THINGS that make a BIG DIFFERENCE.

john.wiebe@eastgen.ca Phone: 226-820-1633

www.eastgen.ca

Gleptosil

Iron that's Good as Gold

Most producers will wean 7 more piglets per 10 bottles than with iron dextran.
In fact that's an investment better than gold.

For more information ask your veterinarian/distributor or call 1.800.456.5758 or Click: service@championalstoe.com

CHAMPION ALSTOE

Gleptosil® is a registered trademark of Alstoe Ltd., Champion Alstoe Animal Health Inc., authorised user. Copyright 2005

ASK YOUR VETERINARIAN ABOUT **NEW PRICING** ON **CIRCUMVENT® PCV M!**

FEED SHOULD BE USED TO FUEL GROWTH – **NOT TO FIGHT OFF CIRCOVIRUS AND MYCOPLASMA**

Help reduce the nutrient-robbing impact of circovirus and mycoplasma, and prevent their negative effect on average daily gain,[1, 2] with **Circumvent® PCV M.**

- The only ready-to-use vaccine against BOTH diseases
- Unique, no-mixing-required formulation for greater convenience

CONVENIENT, "NO-MIX" FORMULATION

Greater convenience. No compromise.

Circumvent® PCV M

1. Colditz IG. Effects of immune system on metabolism:
implications for production and disease resistance in livestock Livest Prod Sci. 2002, 75(3): 257-268.
2. Pointon AM, Byrt D and Heap P. Effect of enzootic pneumonia of pigs on growth performance. Aust. Vet. J., January 1985, 62(1): 13-18.

® Registered trademark of Intervet International B.V. Used under license.
Merck Animal Health, operating in Canada as Intervet Canada Corp., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA.
MERCK is a trademark of Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA.
Copyright © 2011 Intervet International B.V., a subsidiary of Merck & Co., Inc., Whitehouse Station, NJ, USA. All rights reserved.

CIR001-11E-AD

MERCK Animal Health

4 TON SOW

Genesus 4 TON SOW -BECAUSE- 30.58 hogs sold per sow x 276 lbs per market hog = 8,440 lbs sold a sow. 1.85 A.D.G. wean to finish - 2.489 feed conversion. Genesus global leader in total lbs and profit produced per sow per year.

H P C

The First Power In Genetics

GENESUS

www.genesus.com

Genesus produces more pigs, better pigs and more profit for you.

*Genesus customer record on file – Genesus Duroc bred to Genesus F1 females