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## Cover Photo

Sows root around in the farrowing paddocks at Dingley Dell Pork in Eastern England



# Farrowing intervention

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## Editor's Notes

So far this year, there have been a literal flood of announcements by companies in the food industry that, at some point in the future, they intend to source their pork from systems using group sow housing. These include Compass group, which is the largest food service company in the world, serving 4 billion meals each year. It recently said that it will eliminate all pork from production systems using sows stalls from its US supply chain by 2017. McDonalds, the world's largest restaurant chain, also announced in February that it will require its US pork suppliers to outline their plans to phase out the use of gestation stalls. There is no doubt that the momentum for change has accelerated in recent months

The EU, Australia and New Zealand are in the process of phasing out stalls within varying time scales, while some of the biggest US pork production corporations, notably Smithfield Foods and Cargill have set timescales for conversion to group housing. Here in Canada, only Maple Leaf Agri-Farms has announced that it will be phasing out sow stalls. With the increasing volume of messages from the market place, when will the Canadian industry bite the bullet on this issue?

Manitoba Pork has stated that it will encourage its producers to move towards group housing by 2025 which, while a laudable aim, is unlikely to happen without some mandatory requirement, perhaps from the province's major processor Maple Leaf Foods. The impetus for change in Canada is likely to come when the revised Code of Practice for the Care and Handling of Pigs is published in mid-2013 (the draft will be available for comment for 60 days from November 2012). The codes are likely to include a requirement to phase out sow stalls over a 10-year period, starting in 2014.

Such a move by the industry will not be popular in some quarters, but in the longer term it will be essential in order to retain export markets such as Australia and New Zealand. It will also effectively remove the likelihood of legislation as a result of lobbying by animal welfare pressure groups as has happened in a number of US states and which could potentially lead to a shorter phase out period. An industry-led initiative, driven by market demand, is far preferable to government intervention. ■

*Bonnie Peck*

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# News and Views

## Swine feed ingredient website goes national

Elanco Canada is expanding its 'Paylean® Pays in Manitoba' website. Originally developed as a pilot project for pork producers in Manitoba, the easy-to-use site is now being made available across the country.

"We developed 'Paylean® Pays in Manitoba' as a resource for the province's producers, to learn about and optimize their use of this particular production tool," says Scott Atkins, Manitoba sales representative with Elanco Canada, based in Winnipeg.

"The feedback we received on the Manitoba-targeted site was very positive," says Don Down, corporate pork accounts manager with ELANCO and also based in Winnipeg,

noting that the site is first and foremost an information resource that explains what Paylean® is, what it does and how to use the product to maximize its effectiveness. "It's a very simple site," Down says, "nothing fancy, but I can tell you that the questions we are most frequently asked about by producers relate to product use and administration – and it's a well-established fact that those are the biggest contributors to product performance."

Specific information included on the Paylean® Pays website includes trial results, product label and use directions, dosage information and frequently asked questions. Additionally, the site also includes a duration calculator that producers can use based on inputting anticipated or actual closeout data. The site is available in both English and French and can be found at [www.payleanpays.ca](http://www.payleanpays.ca).

## PSC webinar addresses feed efficiency

A recent webinar, organized by the Prairie Swine Centre,

focused on the many management decisions made on a daily basis that can have a significant impact on feed efficiency. Dr. Bob Goodband from Kansas State University addressed the topic "Feeding and barn management practices that improve feed efficiency." One question posed to him was: "Taking a look within your operation, if you could focus your efforts on one aspect to improve feed efficiency, what would it be?"

Dr. Goodband said that the area where greatest effort should be placed is feeder pan coverage. "It is ensuring feeders are properly adjusted and functioning on a routine basis, such that approximately 40-50% of the feeder pan has feed in it," he said. "Feeder adjustment is not as critical, as the adjustment will vary depending on diet type (pellet vs. mash) and coarseness of grind which impacts flow properties within the feeder. Feeder pan coverage greater than 50% increases feed wastage, and lower than 40% results in reduced pig performance."

Research has found that, if there is adequate access to

feeder space, opening the feeder will not improve ADG, and can result in poorer feed efficiency – especially after 70 kgs, according to Dr. Goodband. However, if pigs are restricted on feeder space, opening feeders will increase ADFI and ADG with little to no impact on feed efficiency. "It's easy to see how feeders need to be managed individually on a daily basis in order to maximize pig performance," Dr. Goodband observed. "Studies on commercial farms have found, on average, 10% of the feeders are not working properly at any one time due to plugged feed lines or feeders, broken hardware or bins bridging."

While proper feeder adjustment can have a huge impact on feed efficiency, Dr. Goodband advised producers to focus their efforts in a number of areas within the barn:

### Check and repair feed handling equipment

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- Leaking bins, broken feed lines, feeder adjustment rods, grease bearings

CONTINUED ON PAGE 8

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Silent auction success at Alberta Pork Congress

The silent auction in memory of Bruce Winkler, held at the Alberta Pork Congress, raised close to \$12,000 for the Alberta Cancer Foundation.

Spearheaded by Laurie Brandy, the auction chair and past president of the pork industry trade show in Red Deer, the auction arose out of an idea that Bruce had during the final weeks of his life. "Not long before he passed away, he said to me that we need to show that the industry can give back, despite all the hardship we had been through," said Laurie Brandy. "He didn't stipulate a cause, but wanted it to be for everybody, not just our own industry, so the logical beneficiary was a cancer charity."

Individuals, companies and colonies donated a wide range of items, ranging from a whole pig, a fly fishing trip, golf items, farm supplies and beautiful handmade quilts, blankets and slippers made by ladies from the Hutterite colonies. A pair of Westjet tickets for any destination encountered fierce bidding and eventually went for \$1700. Bruce was a big Westjet fan and, when he lived in Ontario, always travelled out west with the airline.

The auction proceeds are being donated specifically for the Linac- MR invention, which will allow doctors



Laurie Brandy, chair of the Bruce Winkler memorial silent auction (left) presents a cheque to Jane Weller, Development Officer for the Alberta Foundation (centre) and Amber Williams, the Foundation's Fundraising Event Specialist.

to see and treat cancer in real time, something not possible anywhere in the world before now. "This project was the brainchild of Dr. Gino Fallone and his team of medical physicists at the Cross Cancer Institute in Edmonton," explains Laurie Brandy. "The Linac-MR will drastically reduce the number of healthy cells and tissue that receive radiation. This prototype machine combines the technology of a MRI image and radiation treatment simultaneously."

The \$12,000 will be matched by federal funding and money from the province and private industry, which means that \$48,000 will be received by the project. Laurie Brandy was understandably extremely pleased with the outcome. "I was absolutely overwhelmed, it was a fantastic success and way beyond my expectations," she said. "The cause touched home for so many people and also people did it in memory of Bruce as he was such a popular person."

CONTINUED ON PAGE 10

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## Maple Leaf upgrades will improve competitiveness

From Farmscape.ca files

The federal government announced in March that it will provide just over 4.5 million dollars through the \$60-million Slaughter Improvement Program to help Maple Leaf Foods upgrade its pork processing plants in Brandon and Winnipeg, including the installation of new line processing, heat recovery, and packaging equipment, as well as new value-added production lines.

Maple Leaf's Chief Strategy Officer Doug Dodds says that, in an environment where cost competitiveness is extremely important, these investments will improve the company's cost structures, improve food safety processes and help maintain the competitiveness of Maple Leaf and the Canadian pork industry. However, he expressed concerns about the moratorium on new development, which reduces the supply of hogs, and the lack of a free trade agreement with Korea where the company has a strong presence.

Dodds says that in Manitoba, Maple Leaf has spent over 100 million dollars in investments in the last few years creating 1100 new jobs and, if it can get more hogs, total employment in Manitoba will soon grow to approximately four thousand.

Manitoba Pork Council Chair Karl Kynoch applauded the proposed investment, which he feels will be beneficial for the province's producers. "The producer is very dependent on these processing plants becoming world leading plants. They have to compete on a world market so they've got to be state of the art in both production and in food safety," he commented. "Any time they can make efficiencies to the plant to be able to improve that and stay on top of the leading edge technology, then hopefully it will turn into more profits for us."

the Genetiporc Management Team, Dr. Hamilton will be involved with the international head office. As Director of International Technical Services, Dr. Hamilton will be integrally involved in the direction of research and development of genetic lines and progress across all markets.

## Genesis signs new deal in China

Canadian swine genetics company Genesis has signed a cooperation agreement with Best Genetics, a Chinese genetic company which involves the purchase of pedigree pigs and ongoing genetic support. The contract was signed in the presence of Canadian Prime Minister Stephen Harper and Minister of Agriculture Mr. Gerry Ritz at the 5th Canada-China Business Forum.

Minister Ritz also visited Genesis client COFCO, a \$22 billion per year corporation mainly involved in food and ingredient procurement for the Chinese market. COFCO has many holdings, including approximately 5% of

## Genetiporc appoints Director of International Technical Services

Genetiporc has appointed Dr. Dan Hamilton as Director of International Technical Services. Dr. Hamilton joined the company as Genetics/Meat Science Manager in 2002 and was promoted to Technical Services Director for Genetiporc USA in 2004. As a key part of



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Smithfield Foods. Recently, the company has expanded into pig production within China. Their goal is to produce several million hogs per year. Genesus purebred stock is used in COFCO's two nucleus herds, which have a combined capacity of 4800 sows.

## Prairie Swine Centre takes on new management team member

The Prairie Swine Centre has appointed Barb Stefanyshyn-Cote as Manager of Contract Research. In her new capacity she will be responsible for liaising with industry partners to assist in their confidential research needs. With an MSc. in animal nutrition, experience in communication and international agriculture Stefanyshyn-Cote brings a variety of skills to this position. She is keenly interested in assisting companies with their research needs to help move the industry forward.

"I look forward to the exciting results that are going to come from research conducted here," says Stefanyshyn-Cote. "Innovation is our key to feeding the world of the future and research trials do just that - they test out the innovative ideas. It's a great time for research."

## Ontario Pork pulls the plug on Enviropig project

Ontario Pork has decided to end its funding on the University of Guelph's first genetically engineered pig project, also known as Enviropig. The herd will be euthanized by the summer if an industry partner isn't found. Frozen semen will be saved so that the herd could be recreated if a future interested company is found.

The University of Guelph developed the Enviropig in 1999. The Yorkshire breed pig has a gene that allows it to better digest phosphorus (P) in its feed, therefore reducing the amount of P in the manure. It was created by using the genetic material from a mouse and an E. coli bacterium.

The university's Enviropig herd contains 16 animals, with some representing the

tenth generation. Cecil Forsberg, an emeritus professor of molecular and cellular biology at the university, and in charge of the project, said he agreed with Ontario Pork's decision.

Referring to the start of the project in 1999 he told the Toronto newspaper The Star: "I had the feeling in seven or eight or nine years that transgenic animals probably would be acceptable. But I was wrong. It's time to stop the program until the rest of

the world catches up. And it is going to catch up."

The university made further ground when Environment Canada determined Enviropig does not harm the environment under the Canadian Environmental Protection Act

CONTINUED ON PAGE 12

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and accepted the University of Guelph's notice of significant new activity, an indication that the genetically engineered pig could be farmed commercially.

## Olymel quality awards presented at banquet

Olymel's "Reach for the top" quality awards were presented during the banquet at the Alberta Pork Congress, held March 28/29. Don Brookbank of Olymel presented \$500 to each of four category winners, selected from 153 suppliers that shipped more than 2600 hogs to the Red Deer plant during 2011. Winner of the Food Safety Award was Blue Sky Colony of Drumheller, Alberta. "This award is for low brisket contaminations, which reduces the bacterial load in the plant," Brookbank said. "Also, it is for the producer that has the highest percentage of clear tattoos over the year."

The High Health Award is awarded to the producer who has the lowest score when total demerits, arthritis, adhesions, abscesses and low arrival mortality rate are combined. The winner of this category was Pine Hill Colony near Red Deer, Alberta.



Olymel's Don Brookbank (second left) congratulates John Entz (far right) of Britestone Colony, who won the Grand Champion Award. Also in the photo are Mike Mandel, Britestone Colony (second right) and Adam Rutherford, President of the Alberta Pork Congress

The third category, the Core Lean Award, goes to the producer with the highest number of hogs with a loin measurement in the 62-69mm range. Category winner was Holt Colony of Irma, Alberta.

Athabasca Colony, Athabasca, Alberta was the winner of the Core Weight Award. "This award is for the highest percentage of hogs hitting our core weight range of 93-103kg," Brookbank noted.

The Olymel Grand Champion receives a prize of \$1000. "The winner must score the highest in all of the individual categories based on a weighted point system," Brookbank explained. The award was made to Britestone Colony, of Carbon, Alberta.

## Workshop will focus on improving efficiency through technology

This year's Red Deer Swine Technology Workshop is being held on Wednesday, October 31st at the Sheraton Hotel (formerly the Capri Centre) in Red Deer. The workshop will bring a program of hands-on, practical topics aimed at

helping delegates improve productivity and profitability. Following the success of last year's panel discussion - *Your influence on cost savings in the barn* - the workshop will feature a panel of nutritionists discussing the latest hot topics and answering questions. Another nutritional topic will be the use of Near Infra-red Reflectance Spectroscopy (NIRS) technology to analyze feed ingredients and how it can help to reduce feed costs. There will also be presentations on hands-on barn management topics.

"Last year saw the highest attendance ever at the workshop with about 240 delegates and we also had record sponsorship," says Bernie Peet, the workshop manager. "About 80% of delegates are involved in production and the program content is directly aimed at the needs of this sector of the industry."

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](mailto:bjpeet@telusplanet.net) ■

A black rectangular advertisement with white text. At the top, "4 TON SOW" is written in large, bold, white letters. Below it, "THE TOTAL PACKAGE" is written in smaller, bold, white letters. At the bottom, there is a small illustration of a pig's head and the word "GENESUS" in a stylized font. Below the pig's head, it says "The First Power In Genetics" and "www.genesus.com".

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# 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.*

## Stability in the Canadian swine herd

The January 2012 Hog Statistics indicated very little change in overall pig numbers compared with the previous year. While prices remained relatively good throughout 2011, there seems to be very little appetite for expansion, except for some modest growth in Saskatchewan and BC. Total pig numbers in Canada increased by 1% year on year, while the number of sows and gilts was almost identical at 1.293 million.

In the east, total pig numbers and breeding stock numbers in both Quebec and Ontario were down marginally. In the west, Manitoba had exactly the same number of sows in the January

2012 census as in the previous year, at 318,600, however the number of pigs over 60kg increased by 13.8%, indicating that more pigs are being finished in the province. Saskatchewan, which suffered a 30% drop in sows numbers during the 'industry crisis', has seen somewhat of a recovery over the last 12 months, with 5% more sows and gilts and 15.5% more pigs overall. In the under 20kg and 20-60kg categories, hog numbers were up 22.7% and 26% respectively. Neighbouring Alberta showed little change in numbers, with 1000 less sows - 145.6 thousand - and 1% more pigs in total. There are currently signs of some expansion in BC, where sow numbers increased from 8,500 to 9,400 and pigs over 60kg shot up by 27.6%.



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The stability in pig numbers is also reflected in the number of farms with pigs, which has fallen by nearly 40% over the last five years. In the year to January 2012, the number of hog producers fell by just 175, or 2.5%, the slowest annual decline for some while.

Domestic hog slaughter totalled 21.3 million head in 2011, down 0.1% from 2010, however hog slaughter in the fourth quarter was 2.4% higher than the same quarter in 2010. Hog exports increased by 1.3% compared to 2010, to a total of 5.8 million head. This was the first annual increase since the peak in exports in 2007. Exports in 2011 were still 8.4% below the number of hogs exported in 2009 and 41.8% lower than the number in 2007 prior to the introduction of COOL legislation.

### Productivity drives US numbers upwards

The US pig herd totalled 64.9 million head on March 1st, according to the USDA Hogs and Pigs report published at the end of March. This was up 2 percent from March 1, 2011, but down 2 percent from December 1, 2011, it said. Breeding inventory, at 5.82 million head, was up 1 percent from last year, and up slightly from the previous quarter. Market hog inventory, at 59.1 million head, was up 2 percent from last year, but down 2 percent from last quarter. The December 2011-February 2012 pig crop, at 28.7 million head, was up 3 percent from 2011.

While sow numbers have increased only slightly, overall output from the US herd continues to be driven upwards by improved productivity. "The average pigs saved per litter was a record high 9.97 for the December-February period, compared to 9.80 last year," says the report. "Pigs saved per litter by size of operation ranged from 7.30 for operations with 1-99 hogs and 10.00 for operations with more than

5,000 hogs and pigs." Despite slightly lower farrowing intentions for 2012, higher numbers weaned will continue to result in 2-3% more market hogs annually, which combined with higher slaughter weights, will drive pork production significantly higher. Fortunately for Canadian producers, there are no signs of expansion, with high feed prices curbing any appetite for growth.

The US continues to increase export volumes, which underpins hog prices in both the US and Canada. The total value of pork muscle cut exports in 2011 was \$5.321 billion, up 30.4% compared to 2010. Of this total amount, Japan accounted for \$1.9 billion, with Mexico second at \$815 million and Canada third, importing \$712 million of pork from the USA. The US Meat Export Federation (USMEF) estimates that 27.5% of the value of total carcass weight, including variety meats and casings, is exported, indicating the importance of exports to the US industry.

### Trade agreements boost exports

A Free Trade Agreement between the USA and Korea came into effect this March and will give the US a competitive advantage in this market. "Duties in the more commonly traded items, which are frozen pork muscle cuts, are currently 25 percent, and upon implementation will be reduced to 16 percent and completely eliminated by 2016," explains USMEF Economist Erin Borrer. "So by next year we'll see duties of 12 percent, then 8 percent, then 4 percent, and then zero." Borrer explains that this schedule will provide the United States with an advantage over most competitors and eventually put the US industry back on a level playing field with Chilean pork, which currently faces the lowest duty rates in the Korean market.

South Korea's plans to import 70,000 tonnes of pork belly tariff-free in the second quarter of 2012 have angered the

CONTINUED ON PAGE 16



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## Industry Viewpoint *continued*

country's pig producers, who are still recovering from the devastating effects of the outbreak of foot and mouth disease last year, which resulted in millions of pigs being slaughtered. The Ministry for Food, Agriculture, Forestry and Fisheries said it has no choice but to stick with its plan in order to prevent pork prices from skyrocketing.

Canada is also working to open up trade with a number of other countries, with an announcement being made on March 25th that Canada and Japan will begin negotiations on a bilateral trade agreement that would eliminate tariffs on most products. Prime Minister Stephen Harper announced the negotiations during an official visit to Japan, while on the same visit to Asia he also announced exploratory talks towards a free trade agreement with Thailand.

Of the announcement regarding Japan, Michael McCain, president and chief executive officer of Maple Leaf Foods said: "We congratulate both governments on taking the important first steps towards this historic partnership. Maple Leaf Foods has had a strong presence in Japan for many years, serving many valued Japanese customers with high quality fresh chilled and frozen pork."

"This agreement could unlock tremendous opportunities to increase the supply of Canadian pork products to a priority international market for Canada's agri-food sector," McCain added. "We encourage and are hopeful for a timely and ambitious outcome of these negotiations."

Canada's expression of interest in joining the Trans-Pacific Partnership (TPP) trade negotiations has met with opposition from the US National Pork Producers Council (NPPC). Last November, leaders of Australia, Brunei Darussalam, Chile, Malaysia, New Zealand, Peru, Singapore, Vietnam and the United States announced the achievement of broad outlines of a trade partnership. NPPC opposes Canada's participation in the TPP because of its alleged large subsidies to the Canadian pork industry. NPPC says these large subsidies negatively affect the US pork industry and are in violation of World Trade Organization rules and a US countervailing duty law.

An analysis by Iowa State University economist Dermot Hayes estimates within 10 years of the implementation of Canada's

new Ontario Risk Management Program, which offers income supplementation to Canadian pork producers, US pork production value could decrease by \$162 million and 1,300 jobs could be lost.

## US to appeal COOL decision

Canada's pork producers have expressed disappointment with a US decision to appeal a November 2011 World Trade Organization ruling that found Mandatory US Country of Origin Labelling violates the United States' international trade obligations. Speaking to Farmscape, Manitoba Pork Council Chair Karl Kynoch said: "Now that the US has appealed the ruling, that is basically going to add a lot longer time period to get the resolve to it," he said. "It's going to add another three months right now just to go through the appeal process and then we'll have to wait to see what the US does after that." He notes that the US and Canadian pork industries have enjoyed good relations in the past and that US pork producers have never supported COOL.

Both the National Pork Producers Council (NPPC) and the National Cattlemen's Beef Association (NCBA) expressed concerns about the appeal, fearing retaliation from Canada and Mexico against US pork and beef imports. "NPPC is urging the Obama administration and Congress to resolve the issue to avoid damaging retaliation from Canada and Mexico against US pork products," said an NPPC press release. NPPC opposed the country-of-origin-labelling law (COOL) when it was being considered by Congress because of potential trade implications as well as costs, which far outweigh any benefits, according to NPPC.

## Chinese-owned pork plant for Montana?

Montana's Governor, Brian Schweitzer announced in February that Chinese investors were interested in developing a facility capable of processing 800,000 pigs, according to a number of newspaper and trade reports. The announcement was made after he returned from a trip to China. He said that

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## Industry Viewpoint *continued*

Chinese officials are interested in financing a \$150 million pork processing plant in Shelby and transporting the product back to their country. The facility would be built by American labour and would employ 400-500 workers when completed, officials said. Five years ago an attempt to persuade Danish investors to build a plant at Shelby was unsuccessful.

Schweitzer said that several of the state's approximately 50 commercial-scale producers are planning to expand if the facility is built. Currently the state's pork producers send most of their hogs to California and Utah for processing. "These producers would become much larger, much more cost-competitive," Schweitzer said.

Alberta producers would also benefit from a plant located just 60km south of the border. "Anybody south of Claresholm would be closer to a plant in Shelby than they would to Red Deer, for instance," says Alberta Pork's chairman, Jim Haggins.

### More corn used for ethanol than feed

For the first time in US history, ethanol refiners are consuming more of the US corn crop than livestock producers and this trend is set to continue to at least 2014 as government mandates and exports boost fuel demand.

Corn use for ethanol has risen almost fourfold from 1.32 billion bushels in 2005 to 5.02 billion in 2011, exceeding 40

per cent of the total harvest last year. Feed, which previously accounted for the biggest share of the crop, fell by almost 22 per cent during the period to 4.79 billion bushels as livestock and poultry farmers in the US turned to alternative feeds, including dried distillers grain, an ethanol by-product.

Feed demand is forecast to drop to 4.6 billion bushels, the lowest since 1990, after the US cattle herd inventory on January 1st 2012 fell to the lowest number recorded since 1973. Chicken producers also curbed output due to poor profit margins from high corn costs.

Corn prices in the US have risen since December 2011. Despite this, US ethanol production is expected to reach record 13.7 billion gallons this year, exceeding mandated levels by 1 billion gallons. With high petroleum prices, ethanol production remains a very attractive proposition.

### EU pig herd in decline

The end of year EU pig census data, which covers 92% of the total EU 27 pig herd, shows that the total pig population fell by 2% during 2011, with sow numbers down by 4.7%, according to a report by Britain's Agriculture and Horticulture Development Board (AHDB).

"Over the last year, there have been two main drivers behind the decline in the pig population," the report says. "In much of the EU, the key factor has been the difficult



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financial situation facing the industry. High feed costs have meant that many producers have been in a loss-making position for most of the last year.” This has particularly hit smaller, less efficient producers, many of whom have quit the industry, it notes.

In addition, a large proportion of pig breeders in most Member States have faced the challenge of complying with new welfare regulations which come into force in January 2013, including the partial ban on the use of sow stalls. Many have decided to leave the industry or scale back production rather than make the necessary investment in group housing. Others have decided to move from breeding to finishing.

“These two factors have been partly offset by further improvements in sow productivity,” continues the report. “This means that the number of finishing pigs has declined less than the breeding herd and the number of piglets under 20kg in weight was actually slightly higher than a year ago.”

Some of the sharpest declines in the breeding herd were recorded in Member States of Eastern Europe which have suffered from long-term declines due to poor profitability. The Czech Republic lost 19% of its sows, Poland more than 15% and Slovenia 14.6%. “Large falls have also been recorded in some smaller Member States which appear to have made particular efforts to comply with the new welfare regulations,” points out AHDB. “Examples include Lithuania (16.8% less sows), Luxembourg (-21.1%), Malta (-26.6%) and Finland (-8.3%).”

Changes in the larger Member States of Western Europe have generally been more modest, says the report. Most recorded small declines in their breeding herds, of up to four per cent, with the total number of pigs little changed. Denmark had 3.7% less sows, Germany 1.8% less and France 2.5% fewer sows. Only a few countries, including the Netherlands, Estonia and Romania have recorded increases in their breeding herds.

### Confusion over EU sow stall progress

With just months to go to the partial ban on dry sow stalls in the EU, it is still not clear which countries will have completed the conversion to group housing for sows. However, it appears that a high proportion of the 27 Member States will not fully comply with the legislation when it comes into force on January 1st 2013. A recent report quotes figures for the percentage of sow places that have been converted, with Denmark standing at 80%, Italy and the Netherlands at 70%, while France and Spain are only at 50%.

Twelve member countries have told the EU Commission that they will be fully compliant with the partial stalls ban when it is introduced in January 2013. Seven say they will be at least 90 percent compliant, five say they will be 70-89 percent

CONTINUED ON PAGE 20



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## Industry Viewpoint *continued*

compliant and three will be 28-60 percent compliant.

Whatever the true figures, it is clear that a significant proportion of EU producers will be breaking the law after the January deadline. The UK, which has not used sow stalls at any stage of pregnancy since 1999, is urging the EU to ensure that firm action is taken against non-compliant producers. Britain's National Pig Association

(NPA) has challenged the European Commission to identify pig units that won't be complying with the January partial stalls ban and ensure they stop inseminating by July. As a result of this intervention at a stakeholders' meeting in Brussels, the Commission has indicated it will be talking to vets to see if such a ban could be implemented.

NPA Chairman Stewart Houston called on the European Commission to

launch "robust and rapid" infraction proceedings against non-compliant countries, as it has with the Welfare of Laying Hens Directive. He also called on the Commission to be more transparent in the way it proposes to handle non-compliance with the partial stalls ban. The Commission has asked all member countries to supply an action plan outlining their likely level of compliance by January 2013 and the actions they propose to take over non-compliant producers.

Stewart Houston is calling on the Commission to share the information contained in these action plans and to explain what actions it plans to take in the light of information contained in the action plans.

Laurence Bonafos of the Commission's health and consumer department has promised that the Commission is ready to launch infringement proceedings. He said the main category of non-compliant holdings was 10-99 sows and significant effort would be needed to upgrade these units.

The European Commission infringement process is complex and can take up to two years before it begins to bite. Bonafos said that he hoped it would not be necessary to start mass infringement proceedings as it would not be good for the European Union's image if it was seen to be taking the majority of its member countries to court. He admitted that if a member country really wanted to, it could drag out infringement proceedings for three or even four years "but we will do everything possible to ensure they do stick to the deadlines".

Looking at the supply of pork after January 2013, the Commission's agriculture department said the European Union was 110 percent self-sufficient and whilst the sow herd would continue to shrink, more meat was being produced from fewer sows. ■

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# Manitoba Swine Seminar

## Piglet survival a matter of dollars and cents

By Myron Love

Every piglet that comes out stillborn – or dies prior to weaning – costs the producer potential income. While it is not possible to save every piglet, Ron Ketchum, speaking to an audience of hog producers at Manitoba Swine Seminar 2012 in Winnipeg on Wednesday, February 1, outlined a number of steps that producers can take to increase the survival rate of their piglets. Ketchum, a partner in Swine Management Services, LLC, out of Fremont, Nebraska, first listed a number of conditions that may pre-dispose a piglet to be stillborn. These include environmental stresses such as summer heat, feed intake, facility design or lack of water, the condition and living conditions of the sow, inducing labour too soon and the misuse of Oxytocin.

Among his recommendations during farrowing to decrease the odds of stillbirths is to have workers present in the farrowing houses for longer periods of time. “Sows that are farrowing should be checked every 15-30 minutes and more often near the end of farrowing,” he said.

He also recommended that producers and their workers spend extra time with high risk sows. He reported that his organization’s research has shown that 20% of sows are responsible for 80% of stillbirths.



Ron Ketchum

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“You need to get the right person for the job,” he said. “You will want someone who is self-motivated and shows responsibility. “You may need to offer incentives to get people to work late shifts. You may want to add a second, evening shift – or go 24/7.” He also suggested putting together a written job description.

As to dealing with pre-weaning mortality rates in piglets, Ketchem noted that the first thing to do is dry off the newborns. Hypothermia is a major cause of piglet mortality, he noted. “Never use dirty towels,” he advised.

It is vitally important to get the newborn piglets onto a teat as soon as possible. Piglets need colostrum – mother’s milk – right away in order to survive. Swine Management Services studies show that the mortality rate is 83% in piglets that don’t get any colostrum within the first few hours of life.

Ketchem noted that the amount of colostrum available to a newborn depends on birth order – as in first come, first serve, size (smaller piglets don’t consume as much as their larger litter mates) and the affects of chilling. Chilled piglets also consume less colostrum.

To ensure equal access to colostrum for all, Ketchem recommended split suckling for the first day. He suggested marking the first six or seven pigs in the litter with a magic marker, clipping their navel cords to 2 - 3” and putting them in a box for 1-1.5 hours. This allows the later arrivals to suckle first without having to compete with the first group. Then you put the younger piglets in the box and put the first born on the teats for 1-1.5 hours. When all have had their first turns, the whole litter can be placed with the mother. The second day, he said, repeat the procedure – but with three hour intervals.

He also cautioned producers to watch out for sows accidentally rolling over onto the piglets. ‘Studies show that 50-70% of piglet deaths in the first 48 hours are due to crushing,’ he said.


## Proactive approach can reduce accidents and illnesses

By Myron Love

Agriculture is considered one of the most dangerous occupations in Canada but, noted Manitoba hog producer James Hofer, a proactive approach to health and safety by hog producers can result in healthier workers and reduced absenteeism and lower employee turnover. Hofer spoke on the subject to fellow hog producers attending the 26th annual Manitoba Swine Seminar on Wednesday, February 1, in Winnipeg.

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James Hofer

Injury categories, Hofer noted, include cuts, strains, sprains, back and neck pain and being stuck by a hypodermic needle. Cuts, he pointed out, can lead to infections. Gloves, proper footwear and better tools can prevent cuts. “The importance of needle sticks in the pork industry appears to be a problem that warrants further prevention efforts,” he said. “Accidentally injected medication can cause reactions or possible infections.”

To prevent needle-sticks, Hofer recommended keeping needles capped until use, using single dose syringes if possible, changing needles frequently and considering needleless injections. “Always make sure the animal is properly restrained – particularly when dealing with hogs or sows – when giving an injection,” he said. “And don’t carry loaded syringes in your pocket or your mouth.”

To avoid back injuries and strains, Hofer emphasized the importance of training employees in proper lifting techniques. Wherever possible, he added, use tools that make lifting easier. And keeping aisles dry and clear of objects will reduce the risk of people slipping or falling.

A hog barn is a noisy place and employees without hearing protection risk permanently losing their hearing. “Rubber or plastic ear plugs that fit well can be inserted into the ear canal to protect your ears,” Hofer noted. “Ear muffs are ideal in workplaces where loud noise is intermittent. They can be put on or removed quickly. You get used to using ear protection and won’t want to be without it.”

Hofer also touched upon the issue of respiratory problems from the dust in hog barns. Twenty-three percent of hog industry workers, he reported, suffer from respiratory problems, with chronic bronchitis and asthma-like symptoms the most

common. “The best defence is to decrease exposure to dust,” he said. “Using an extra 1% of oil or fat in the diet or reducing the distance between feed drops and feeders can help reduce feed dust.” He also recommended that farm workers wear well fitting masks or air-purifying respirators in the barns.

There is also danger in the barns from build-ups of poisonous gases such as ammonia, hydrogen sulphide, carbon dioxide and methane in confined areas. The best solution is to have good ventilation.

“In most areas of the country, Workers Compensation providers are eager to work with you and are a great source of safety and health information,” Hofer said. “They can provide training materials and references to safety consultants. Employers should provide periodic, structured worker training. Workers trained in proper techniques and procedures will have fewer occupational safety and health problems and will also likely be more productive and efficient.”

## Results of manure processing technologies evaluation

By Myron Love

As a result of increasing concerns of rising phosphorus levels in Lake Winnipeg, the provincial government has amended the Livestock Manure and Mortalities Management Regulation (LMMMR) regulation. The amendment, which becomes law on November 10, 2013, includes Phosphorus reduction as a criterion in manure application, whereas current manure application practice is nitrogen-based. The new amendment requires the introduction of soil phosphorus thresholds for regulating livestock manure applications. Under the new rule, no manure will be allowed to be spread without written government consent if the soil P threshold is at or above 180 ppm.

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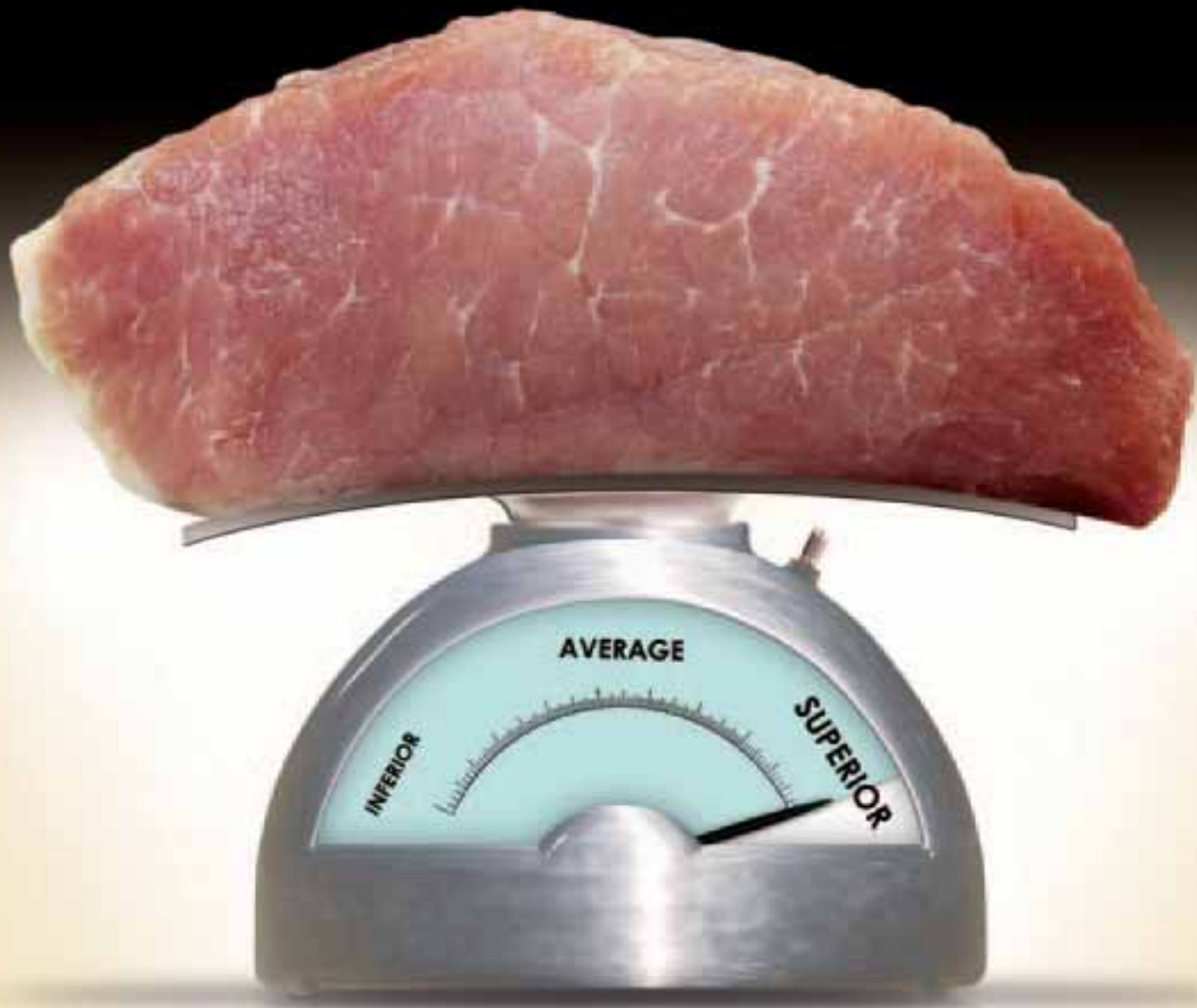
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In response to the new rule, the Prairie Agricultural Machinery Institute (PAMI) has conducted tests of two commercially available technologies for solid-liquid separation systems, currently being used in municipal applications, to determine which is more effective in reducing phosphorus concentrations in liquid swine manure. PAMI conducted the evaluation in partnership with the Manitoba Livestock Manure Management Initiative, Manitoba Agriculture, Food and Rural Initiatives, Agriculture and Agri-Food Canada, the University of Manitoba, the National Centre for Livestock and the Environment and the Puratone Corporation.

Lorne Grieger, PAMI Agricultural Projects Manager, was in Winnipeg on Thursday, February 2, at the 2012 Manitoba Swine Seminar, to update producers on the progress of those studies. The two systems that PAMI selected for evaluation were a decanter centrifuge manufactured by Alfa Laval Inc. and the Fournier Rotary Press system manufactured by Fournier Industries Inc. The systems were evaluated at a commercial barn site in Manitoba, that's owned and operated by the Puratone Corporation, last summer and fall.

"We first had to determine what systems were commercially available to meet the 2013 regulation requirements," Grieger said. "We wanted systems that have proven to be commercially successful, that have a readily available distribution and parts network and good technical support."

The centrifuge was an ALSYS 20 model which turns liquid sludge into solid form. The rotary press – a single channel 1-900/1000CV model – separates the water from the sludge. In the former system, an electromagnetic flow meter feeds the sludge into the centrifuge. Polymer is simultaneously fed into the decanter bowl to aid flocculation of the sludge. The high centrifugal force causes instantaneous sludge sedimentation. A conveyor carries the sludge cake to the cake collection point while a pipe at the bottom of the module eliminates the liquid.

With the rotary press, sludge is fed into a rectangular channel and rotates between two stainless steel, chrome-plated screens. The filtrate passes through the screens as the flocculated sludge advances within the channel. The sludge continues to de-water as it travels around the channel, eventually forming

a cake near the outlet side of the press. The frictional force of the slow moving screens, coupled with the controlled outlet restriction, results in the extrusion of a very dry cake.

The two systems were evaluated using manure from the same barn. They were run consecutively for a minimum of four weeks with liquid manure slurry at varying solids concentrations. The use of flocculants to assist in the removal of phosphorus was also evaluated. Capacity measurements were recorded daily and consisted of measuring the total quantity of manure processed as well as the mass of solids produced.

Grieger reported that the centrifuge was not designed to remove phosphorus and flocculent needs to be added for that purpose. "While it is simple to operate and minimal maintenance is required," he noted, "it is very loud. The operator will need hearing protection.

"Adding flocculent adds complexity to its operation. You have to be aware of how much flocculent is going in." The rotary press also requires minimal maintenance, Grieger said. It does require flocculent to operate effectively. Its lower speed is a big advantage, he added. And the modular design allows for increased capacity at minimal additional cost.

The single channel rotary press also costs a little less than the centrifuge, Grieger noted. The latter will set you back between \$230,000 and \$270,000. The press is about \$210,000.

Grieger noted that there is also a health and safety issue to do with manure management involving hydrogen sulphide which is present in stored manure. Increased emissions coming off the centrifuge, due to agitating the manure, can be countered with a good ventilation system.

Grieger reported rates around up to 50 - 60 percent for phosphorus removal and even higher with the two technologies depending on the manure concentration of phosphorus going into the systems. The technologies also reduced water content in the manure thereby making it easier to transport.

Among the drawbacks are the cost of the systems, the need for a dedicated facility for the equipment, increased training in operation and maintenance and some health and safety concerns.

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## Practical finisher care - Do you care?

The stockperson is the the most important factor in providing the pigs' three basic needs of food, water and good environment, but the fourth and most essential ingredient for successful finisher management is individual pig care, according to Dennis Robles of Swine Health Professionals, based in Steinbach, Manitoba. Speaking at the recent Manitoba Swine Seminar, he described stockmanship as the ability to the understand the pigs' needs and to care for them with empathy so that these needs are met. "It is that special touch that skilled pig care people bring to their job," he suggests. Contrary to popular belief, he says that it is not something you are born with or are trained to be, but a choice. "Human beings are the only creatures on earth that have the ability to choose, either good or bad," he notes. "We can choose to care or to neglect. My goal is to spark something in you that will light that fire to care for the pig and show you that caring brings profit."

Caring for an individual pig is synonymous to caring for your pig production business, Robles argues. "One might say that this is not necessarily true because often a swine enterprise is viewed as a large building full of pigs and looking after a single pig is not worth the time and effort. But where do you think the caring part starts?" he asks. "If a person neglects a sick animal, they will tend to neglect another, then another and it will snowball into a culture of an uncaring environment. During these times of extremely high production costs, isn't it logical to exert all efforts to optimize output by saving as many hogs as possible?"

### Pig Care Specialist Program

Robles described a program developed by Swine Health Professionals Ltd, in conjunction with Pfizer Animal Health, which helps producers deliver better care to individual pigs. Based on Pfizer's Individual Pig Care Training Program, The Pig Care Specialist Program is an on-farm training tool that aims to promote individual pig care, optimize production and improve pig performance.

"The main focus is on affecting daily farm choices and actions of barn personnel towards profitable and caring hog

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production,” says Robles. “These daily farm choices and actions are based on the fundamentals of caring enough to provide food, water and a good environment.” A Pig Care Specialist is assigned to work in specific barn facilities to help staff focus on these basics and to help management point out areas of improvement and set specific goals for planning and implementation. “In addition, the PCS will train the barn staff to identify, quantify and communicate any disease symptoms in the barn,” points out Robles. “Another role is to train staff to focus on the pigs that need care, treatment or removal from the group.”

### Caring is as easy as ABCE

The Pig Care Specialist training program involves teaching staff to quickly identify pigs that need intervention and to take the required actions. Pigs are classified into “A”, “B”, “C” and “E” to describe acute, sub-acute and chronic condition and also those pigs needing euthanasia.

“A pigs have very high treatment success rate and finding these pigs before they progress into B or C pigs is crucial,” explains Robles. “These pigs can be found by closely watching and observing behaviour and pointing out specific characteristics – slightly gaunt in the flanks, dull eyes, depressed or feverish.” In this case, he advises appropriate treatment and moving the pig to a less competitive environment.

“B pigs are those that have rougher hair, more defined gauntness, flesh loss, uncomfortable posture, exudates around the eyes, or are depressed and feverish,” Robles continues. “Immediate treatment of these pigs will yield a moderate success rate of 50-75%. Also, move these pigs to the sick pen.”

Robles notes that C pigs are those that have been sick for some time and missed the appropriate care they need. “They have severe gauntness, don’t keep up with the rest of the group and lie alone by the sidelines, and are weak with a rougher hair coat,” he says. “Success rate is only 25-30% at this stage and they easily progress to E class pigs. Treat them immediately and move them to a sick pen.”

E pigs are classified as those that need to be killed humanely as per Canadian Quality Assurance (CQA) guidelines. “They are clearly suffering and every minute you wait prolongs it,” Robles points out. “These pigs are non-ambulatory or injured pigs that will not recover and sick pigs that show no improvement after two days of intensive care.”

### Feed, water and good environment

In addition to daily pig care and treatment, the stockperson’s role is to ensure that feed, water and a good environment are provided for the pig. “We can never overemphasize the importance of providing these three basic needs of pigs,” stresses Robles. “These are the first things that a stockperson should look for upon entering the barn. The pigs will grow to their full potential only if these basics needs are met.”

It is also important to clean, disinfect and dry the rooms properly prior to entry, to know the number of pigs moving into the room, establish sick pens and to follow good biosecurity protocols, he added.

Robles is clearly passionate about the importance of the stockperson and stresses that a positive attitude is key to providing a high level of pig care.

CONTINUED ON PAGE 30

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## Importance of finisher benchmarking

By Greg Bilbrey, Agri Stats, Inc., Fort Wayne, Indiana

Much has been published regarding the importance of thorough record keeping and utilization of production records in swine finishing enterprises. In fact, Gary Dial, Brad Freking and Mark Weaver provided an excellent summary and guide for using finishing production records in a paper from a previous Manitoba Swine Seminar (“Diagnosing Problems in the Grow-Finish Phase of Production”, Dial, Freking and Weaver, Manitoba Swine Seminar, 2002; available on MAFRI website). One additional way to use records to improve finishing performance and profitability is to benchmark or compare company or farm finishing data to data from individuals or groups of fellow producers.

### Benchmarking

Benchmarking is simply the act of comparing data to a contemporary group with the goal of improving performance or results. Modern formalized benchmarking is credited to the Rank Xerox Corporation though the practice dates back to ancient times. Japan sent teams to China in 607 AD to learn best practices for business, government and education (Zimmerman, 2003). Zimmerman also mentions that “economic Darwinism” (meaning business evolution) will lead to more companies participating in and utilizing benchmarking to improve production and profitability. Since modern agriculture and swine production should certainly be considered business enterprises, benchmarking should be a tool used by swine producers to improve their bottom line profitability and performance.

A key benefit of benchmarking is that it contributes to the ability to see outside personal or professional practices. The term “paradigm blindness” refers to the situation when individuals or businesses become so focused on or entrenched in the operation of their respective activities they fail to see what is going on outside their world. This blindness may be a source of stagnation and an impediment to progress. Benchmarking allows visualization of what individuals, companies and/or competitors are doing and how one compares to them. Effective benchmarking breaks this paradigm blindness and leads to creation of practices or processes that improve performance.

### Production and financial benchmarking

Most swine producers use some type of record keeping to measure finishing performance. Common measurements include Percent Mortality, Average Daily Gain (ADG) and Feed Conversion Ratio (FC). Some others utilized are Average Daily Feed Intake, Facility Turnover, Days in Finishing and Days to Market. Each of these measurements has its place and can be used to effectively measure specific aspects of performance in a finishing program. These measurements can also be used in an effective benchmarking program to obtain a better gauge or evaluation of finishing performance. For example, an ADG of 1.8 lbs/day, a Feed Conversion of 2.8 or Percent Mortality of 3.0 may all seem good and indicate acceptable performance. However, if these records are compared to a contemporary group of producers with better ADG, FC and Mortality the first measurements do not seem that impressive.

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This is the benefit of benchmarking. Without comparing to other producer or contemporary group data one would not know if real opportunities exist or not.

Obviously if data is to be compared between producers there needs to be some standardization of the way performance measurements are calculated. A common criticism of benchmarking efforts is that each producer may calculate their numbers a different way and therefore the numbers are not comparable. This is discussed to some degree in the Dial, Freking and Weaver article referenced earlier. The same article provides suggested calculations for key performance measurements. These are relatively simple calculations that can be used to establish the basis of an effective benchmarking program. Really, all a group needs to do is agree on how the measurements will be calculated and then proceed with the calculations.

The addition of financial data greatly increases the value of a benchmarking effort. While most producers can come up with and are more willing to compare performance measurements, the real strength of benchmarking comes from comparing profit, sales and cost data. Correctly recording actual cost data and ensuring the numbers are comparable between producers certainly requires more work but the effort is worth it. Best in performance (best ADG, best FC, etc.) does not necessarily mean best in cost or profit. Annual Agri Stats data on approximately 2,000,000 sows and 40,000,000 pigs has repeatedly shown operations with great advantages in performance but much higher production cost. Conversely, operations showing lower cost may or may not have superior performance.

### Agri Stats

Agri Stats is a privately held company providing professional benchmarking services to the commercial livestock industries.

Since 1985, it has been working with production companies in North and South America to help improve their profitability by identifying opportunities to lower cost and improve production efficiencies through comparative analysis or benchmarking.

Agri Stats collects participant financial and production data electronically each month. Internal auditors convert the data, prepare it for comparison and perform the monthly audits. Each company's financial data is reconciled to their general ledger to help ensure actual costs are reported. Raw numbers are used in Agri Stats' standardized calculations so all company numbers are calculated the same way.

Finishing data from the Agri Stats swine benchmarking program will be used to show the importance of benchmarking finishing performance and cost.

### Finishing benchmarking importance and examples

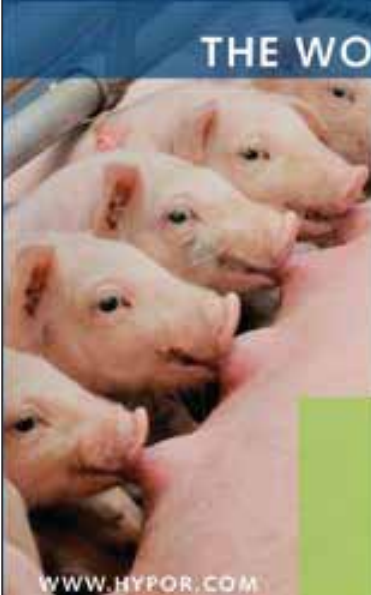
*Example 1: Finishing performance data*

Company: **Demo**

Performance	Rank (n=47)
ADG: 1.95	#5
Feed Conversion Ratio: 2.50	#3
Mortality: 2.73%	#7
Calories /lb Gain: 3929	#10

In Example 1, Demo clearly has attractive performance numbers and rankings. A producer with these numbers but no contemporary group comparison may conclude everything is fine with production. These numbers could easily be measured and calculated by swine producers and included in a benchmarking comparison. By comparing

CONTINUED ON PAGE 32



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against other swine finishing flows or locations, Demo can now find some opportunities in performance. Let us look further into Demo to see if a benchmarking comparison yields additional information.

*Example 2: Finishing cost data*  
Company: **Demo**

Cost	Rank (n=47)
Total \$/cwt: \$52.25	26
Pig Placement \$/cwt: \$17.50	16
Facility \$/cwt: \$4.70	20
Feed \$/cwt: \$27.58	35

Demo cost data in Example 2 shows us that great performance may not result in competitive production cost. Demo had a total cost /cwt that was \$5.57/cwt or \$15.21/head higher than the Top 25% in cost. Obviously in a real life situation further analysis and investigation would be used to identify reasons for Demo's disadvantages in the

costs listed above and actions to take. For our purpose here, we can clearly see the value of benchmarking and comparing both cost and production. Furthermore, when we consider the average performance of the Top 25% in cost – 1.87 ADG, 2.85 FC, 4.62% Mortality and 4098 Caloric Feed Conversion – we see that comparing only production information may produce some unsatisfactory outcomes.

*Example 3: Profit data*  
Company: **Demo**

Profit	Rank (n=62)
Farm profit \$/cwt: -\$0.44	42


Now we see a company that ranked #3 in FC, #5 in ADG and #7 in Mortality ranked #26 in cost and #42 in overall farm profit /cwt. Without benchmarking Demo company may have been satisfied with good finishing performance. Clearly there are opportunities in cost and profit.


**Conclusion**

Most swine producers today are measuring finishing performance. Using this information to participate in an effective structured benchmarking program can produce results and help improve profitability. By comparing to a peer group swine producers can get a more open, thorough and detailed evaluation of their finishing business. Without a benchmarking comparison swine producers may not be aware of opportunities that exist for their operations.

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## Farrowing intervention more dependent on human element than technology

By Myron Love



Dennis Robles of Swine Health Professionals

With new technology seemingly coming at us at an exponential rate, it can be easy to forget the human element. But, noted Dennis Robles in his presentation at Manitoba Hog Days in Brandon last December, human intuition is exactly what producers need to trust when determining when to intervene in the farrowing process.

Robles, a production specialist for Sheridan Heuser Provis Swine Health Services, based in Steinbach, noted that in pig

care, while technology is good and fine, producers still need to focus on the basics. "It is important to keep doing the small things well," he said. "You can't afford to cut corners."

The most important input in pig care, and especially at farrowing time, is the human element, he said. "To be a good stockman, you need to feel empathy for your pigs," he noted. "It is that special touch we bring to the barn."

Robles walked his audience through the farrowing process from beginning to end. The first step, he pointed out, is to prepare the space by cleaning, disinfecting and drying it. "Pregnant sows should be handled with great care," he said. "You need to exercise patience. The sows should be moved in a calm manner – without electric prods. Pathways should be well lit, without obstruction or slippery parts."

He recommended scraping the manure out of farrowing crates on a daily basis. The scrapers should be cleaned and

disinfected after each use. "There should be a designated scraper for each room," he said.

How do you know when it is time to intervene manually in the farrowing process? Among the signs that Robles noted: if there are no piglets produced after 20 to 30 minutes; if there is persistent straining and no piglets coming out; if there is a smelly discharge from the vulva; or if the sow is showing obvious signs of being in distress. After farrowing, Robles noted, the producer should make sure that the sow is getting up and eating well.

"Newborn piglets are subject to environmental stress and need special care," Robles said. "They have no antibody protection and are vulnerable to pathogens. They also have low body temperature and need protection from chilling. Up to 50% of piglet deaths occur within two days of birth."

Robles identified getting enough colostrum as the most important factor in a piglet's survival and long term health. He recommended splitting the litter's feedings to make sure that every piglet gets an adequate amount of colostrum (at least 30ml or one ounce).

To prevent chilling, Robles suggested the use of heat lamps. "Make sure the heat lamps are placed away from the sow to prevent accidents," he said. "Also check the lamps frequently, observe the piglets and adjust the lamps as needed." He noted that heated mats are an alternative to heat lamps. The mats should be cleaned and disinfected after each usage.

He further suggested drying the piglets off often with absorbent paper. "Some producers use drying powder," he said, "but that isn't as effective." It is very important to prevent drafts, he added. Fans should be adjusted as needed and cardboard can help cut down on drafts, he noted.

Teat performance is another area that needs to be checked, Robles said. The producer has to make sure that all of the sow's teats are fully functional. He also spoke about cross-fostering to help feed larger litters so that all piglets have access to a teat. Piglets should suckle on their own sow for the first 24 hours though, he cautioned, and the litter should be kept intact at least 70% of the time."

Now, even with the best of care, not all newborn piglets are going to survive. Robles recommended that producers establish a cut-off birth weight below which you let the piglet go. "It is a question of economics and space," he said. "If you have more space, you can operate with a lower cut-off weight."

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Successful piglet care comes down to basic processes, Robles said. Producers need to be constantly reviewing standard operating procedures for their barns. All workers in the barn should be trained to know when and how different processes are to be done. Cleanliness should be emphasized at all times for the barn workers as well as the sows and piglets. Clothes should be washed and gloves changed after each use.

Of course, there is also a place in the process for technology. One of the most important uses for technology, Robles noted, is in keeping accurate records. "Accurate records help the producer to measure performance and make appropriate decisions," he said. "There are many different software options out there."

CONTINUED ON PAGE 36



The most important input in pig care and especially at farrowing times, is the human element, says production specialist Dennis Robles



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This bio-digester on a Danish farm produces methane, which is burned to provide electricity for the farm and also for sale into the grid

## Biogas digesters increasing in popularity

While anaerobic digestion of liquid manure has become commonplace in some European countries such as Denmark and Germany, it has been less widely taken up in North and South America. But with increasing environmental pressures and the opportunity to earn income from selling carbon credits for reducing greenhouse gas emissions, the technique is receiving more attention of late.

In North Carolina, a pilot waste-to-energy system constructed by Duke University and Duke Energy has received the endorsement of Google Inc., which invests in high-quality carbon offsets from across the nation to fulfill its own carbon neutrality goals. The system, on a hog finishing facility 25 miles west of Winston-Salem, converts hog waste into electricity and creates carbon offset credits.

By capturing greenhouse gases from hog waste and burning them to run a turbine, the system produces enough electricity

to power 35 homes for a year. It is expected to be able to prevent the release of greenhouse gases equivalent to nearly 5,000 metric tons of CO<sup>2</sup> per year, which is like taking 900 cars off the road.

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**"Open waste lagoons currently in use on most North Carolina hog finishing farms are prolific producers of methane gas"**

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The \$1.2 million prototype system was built at Loyd Ray Farms, a 9,000-head hog finishing operation northwest of Yadkinville, North Carolina. It is intended to serve as a model for other hog farms seeking to manage waste, reduce greenhouse gas emissions, and develop on-farm renewable power. Though this is an established farm, the system meets North Carolina's environmental standards for new and expanded hog farms.

CONTINUED ON PAGE 38



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It was built mostly with off-the-shelf technology and is an 'open source' design that others may freely adopt. The system includes a lined and covered anaerobic digester and a lined aeration basin. Methane gas is collected under a thick plastic dome over the digester. Gas which isn't burned in the turbine is burned in a flare to prevent its release.

Open waste lagoons currently in use on most North Carolina hog finishing farms are prolific producers of methane gas, which is 21 times more potent than carbon dioxide, pound-for-pound, as a greenhouse gas.

In Manitoba, an anaerobic digester is currently being piloted at a dairy

farm by Manitoba Hydro, reports WHJ correspondent Myron Love. Speaking at the annual Manitoba Hog Days last December, Jeremy Langner, Manitoba Hydro Customer Engineering Services Representative, presented the pros and cons of the project, noting that although he was talking about a digester in operation on a dairy farm, there are a number of hog operations that are trying the technology as well.

The digester turns liquid manure – and other organic waste materials (also known as biomass) into energy. “Our goal with the pilot project is to try to encourage producers to consider using waste materials as an energy source,” Langner said. “We try to encourage the use of different sources of renewable energy. Biomass can be stored easily and available for energy as needed.”

He reported that Hydro is working on the project with PlanET Biogas Solutions, a southern Ontario company that has done work in Germany. The system that was installed is a complete mix, mesophilic digester consisting of a concrete tank, 16 metres in diameter, with insulated hot water tubes embedded in the concrete walls and with wooden boards inside to decrease hydrogen sulphide build-up which would corrode the concrete. “The wood also acts as a substrate,” Langner explained. “The microbes on the wood combine with a small amount of air to do their work on the manure.” Other substrate materials that could be used to enhance output, he noted, are potato leavings, left over straw or hay, fats, oils or greases.

Langner noted that the trial digester will have the capacity to produce up to 200 kilowatts of heat and 70 kilowatts of electricity.

While biomass may not be as “nice” to handle as gas or oil, Langner pointed out, Hydro’s digester short circuits the creation of methane gas – a greenhouse gas – from the manure sitting in lagoons over the hot summer months and reduces odour and pathogens.



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Among the operational challenges that Langner noted in operating the digester in Manitoba is our cold winter climate, operational complexities and the lack of understanding of the new technology among government authorities and policy makers.

The capital cost of building a Hydro digester – a cost in the \$800,000-\$850,000 range – may also discourage some producers, he suggested, particularly in light of the low cost of electricity in Manitoba. But Hydro is prepared to help with the technical support and cost, he says.

“We will do the first pre-feasibility study for you and pay up to 50% of the first \$10,000 for a feasibility study and 25% of the remaining cost to a maximum of \$15000,” he said. “We will also help with up front incentives to build the digester and we will monitor it for five years.”

In South America, biogas digesters are being increasingly adopted by Brazilian livestock farms, with major players like Marfrig, JBS SA and others embracing an investment in on-site waste treatment that can translate into thousands of dollars a year in added revenue, according to Brazil’s *Globo Rural* television program.

Paul Rossato, an attorney with BRF Brasil Foods that coordinates the company’s Sadia digester program, said the company has installed biogas digesters on 1,186 swine farms in five states since 2005. The farms are all either owned by or exclusive suppliers to the food processor.

“It is natural that pork production generates (environmental) impact,” Rossato said. “We feel committed to adapt and keep production environmentally appropriate. Also, we have a discerning consumer that demands the company be progressive in environmental stewardship,” the attorney added.

Biogas digesters appear to be gaining the most traction in western Parana state, where more than 400 farm and processing properties have reportedly installed the systems, says *Globo Rural*. “Farmers and property owners can profit by capturing and burning methane gas from the animal waste for on-site electricity, generated through portable generators beside the large digester, which often resembles a large pool, often the size of a basketball court, with a bubbled tarp on top.”

Businesses can also profit from selling UN-certified carbon credits, through approved documentation of their digester’s methane capture. A digester on a farm with roughly 2,000 confined animals could generate close to BRL15,000 (US\$9,397) per year from selling carbon credits, according to farmers quoted in the story.

Dried, concentrated fertilizer is also being collected from the digesters by farmers and utilized on their own local crops like soy and corn, which are often grown on-site for animal feed, reducing farmers’ costs for fertilizer, according to the *Globo Rural* story.

CONTINUED ON PAGE 40



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## Prairie Swine Centre turns 20 in 2012

By Lee Whittington, Prairie Swine Centre

The Prairie Swine Centre is a uniquely Canadian solution developed in 1992, which links university research pursuit with industry needs and funding to generate near-market science. When first proposed, this business model was a great leap of faith for both the industry and the university. Over the past 20 years new university/industry/government models have evolved in industries as diverse as computing, health care, mining and forestry and areas of joint business schemes between universities and the private sector are now responsible for a broad host of services such as language training in the UK and student housing in US universities. In these models typically the university remains responsible for educational quality while the marketing, financing and specialist management experience is provided by the private sector partner. In the case of language training in the UK, the partnership has developed over 21,000 students, an accomplishment that could not have been contemplated by either institution or business alone. When I investigated this phenomenon I discovered there were indeed many success stories using these hybrid business models.

In agriculture, in particular the pork industry, the examples are fewer but they do exist, for example the Australian Cooperative Research Centres (Pork CRC) have been a success

story and closer to home universities like Kansas State have long-term business relationships with commercial barns for near-market research purposes. New University/Private/Government partnerships are now common business structures that bring unique skills and assets to the training of young people, generating excitement among researchers and providing reliable return to government support.

During the past 20 years of operation Prairie Swine Centre, with its funding partners and research collaborators worldwide, has developed a reputation for practical solutions addressing global competitiveness through developing technologies, personnel and knowledge products. Since inception the research objectives for the Centre spoke a language that both the industry and researchers could embrace and pursue. For example, the first objective dealt with feed – *To define the optimum feeding and management procedures to reduce the cost of feeding out grower-finisher pigs by at least \$2.00.* Dr. John Patience, the Centre's original Director and first President had a shared vision with the industry that research should be accountable and live up to the rigours of business performance measures like attaching dollars and cents to research outcomes. This was an area that attracted a great deal of interest and support from industry. Two studies summarizing the economic impact of this approach to research have been conducted. By 2004 the added benefit to a producer applying these technologies was estimated to be nearing \$30/pig marketed. A second study, focused on the research from 2005-2010, concluded an additional \$20 in net income per pig marketed had been identified.

Part of the success in developing economically relevant research results can be attributed to the Centre generating new attention and enthusiasm which attracted young research scientists from around the world who wanted their contribution to make a difference in industry. These scientists have gone on to form the pillars of pork research in many

CONTINUED ON PAGE 42



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institutions, their work having an impact not just on the Canadian industry but around the world. Additionally students have been attracted from around the world to round out their education in an academic environment that worked to make that link to the industry part of their graduate studies experience. After nearly 20 years the Centre has trained dozens of students, summer students, post-doctoral fellows and employees that every day work in academia, commercial production, government and supplier industries.

The evolution continues as the Centre seeks to fill industry needs and match this with young talent looking for a place to start. The Gowans Feed Consulting Graduate Student Award is the most recent innovation, partnering industry need and funding directly with the selection and training of a graduate student. The customized graduate studies program will include



PSC's senior scientific and management team in 1994: Front row (left to right) John Patience, Brian Andries; back row (left to right) Lee Whittington, Kees deLange, Harold Gonyou, Yuanhui Zhang

specified amounts of time working in industry, with pork producers and mill operators, doing on-farm trials, trouble shooting and real-world problem solving. The result will be the development of the next generation of pork production experts who enter the field armed with a degree, experience and industry contacts ready to make a difference in assisting producers in their pursuit of lowering cost of production and finding ways to differentiate their product in a world of commodity pork.

Where is it all going? Prairie Swine Centre started at a very opportune time. Key production performance measures have exploded during this period with advancements in genetics, health, nutrition, and housing. It is important to stop and take stock - we have seen average daily gains increase by 33%, the sow herd increased by 30% while sow productivity jumped 30%, and market weights increased by 20%. What a fantastic period of growth and change to be involved in trying to fit the pieces together to optimize productivity, but more importantly maximize net income when the whole pork production system is

evolving so rapidly. When we recall the technological changes during this period it is a mixture of simple things like how much of the feeder pan needs to be covered by feed to optimize performance and minimize waste? Whether that feeder should be wet/dry or dry? Research told us unequivocally the answers to these questions and a sea change took place in feeder equipment and management which we take for granted now, but in the mid-1990's designs still resembled the traditional feeders of the 50's and 60's more than they resemble today's wet/dry single space feeder, and daily management of that feeder was a personal choice as no information existed which described best management practice. Today's feeder designs and management waste less feed, provide greater protection to the animal and support our goals to reduce production costs. The feed composition in those feeders has evolved even further. In 1992 for example we limited canola meal to 6% and then only in grower and finisher diets. Today we use 4 times that ingredient or more as price dictates, we measure energy and its effect using multiple scales



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(DE,ME,NE) and research has demonstrated the advantages of moving to newer energy systems and selection of ingredients not in terms of pennies but dollars saved per pig marketed.

The way forward will involve research continuing to stay linked to the commercial pork industry but changing with evolving needs. For example, some questions are best answered using formal research trials conducted under strictly controlled conditions, while on-farm studies involving larger numbers of animals and specific farm conditions speed the adoption of new ideas faster and more convincingly than a research report from Prairie Swine Centre. That makes sense and the two approaches need to work more closely together to speed adoption and give Canadian producers the advantage they seek in the world marketplace.

There are several dimensions to swine production research. In a recent strategic planning exercise it was concluded that the drivers of near-market research can be described as research projects that address: Supply, Demand, Environment, Risk and support of the Research Infrastructure itself. Briefly, supply is the area we think about most in production research. This includes, genetics, feeding, housing, health, labour, barn and equipment; Demand includes meat quality, processing, retailing, animal welfare as examples of factors which affect the demand for pork; Environment

and the impact of pork production on greenhouse gases, nutrient management and water quality are all covered in this section; the area of Risk really asks what can we do to reduce risk to the pork producer and the whole value chain?; Infrastructure includes considering what do we need in terms of people, facilities and technology transfer to ensure adequate capability to develop and assure the commercial uptake of these innovations.

Our compliments and thanks to those pork producers, university and government leaders who foresaw the need, attracted the necessary people, funding and leadership to make Prairie Swine Centre happen. Will the next two decades see the level of change we have experienced in industry growth and efficiency that we have seen during the past twenty years? Possibly not, but if history tells us anything it is to stay flexible, look for opportunities and move quickly to fill a need. I suspect twenty years from now we will look back on 2012 as being a beginning of phenomenal changes in productivity, wide fluctuations in economic conditions and shifting consumer demand. In other words we should be prepared for more of the same but thrown at us just a bit faster.

CONTINUED ON PAGE 44

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# Feeding expeller-pressed canola meal to weaned pigs

By Jose L. Landero<sup>1</sup>, Eduardo Beltranena<sup>1,2</sup>, and Ruurd T. Zijlstra<sup>1</sup>

<sup>1</sup>University of Alberta and <sup>2</sup>Alberta Agriculture and Rural Development

## Take home message

*Have you checked your feeding math recently? Expeller-pressed (EP) canola meal can be sourced locally at the same or slightly higher price than conventional solvent-extracted canola meal, but it has a higher energy value than conventional canola meal due to its residual oil content (10 to 15%). Therefore, EP can be far more valuable as an energy rather than as an amino acid source in growing pig diets. We evaluated feeding increasing levels of EP canola meal (0, 5, 10, 15 or 20%) by replacing soybean meal to weaned pigs (7.3 kg) for 28 days. Pig performance was not reduced by feeding up to 20% EP canola meal inclusion, starting 1 week post-weaning. Producers may reduce feed costs approximately by 10% when 20% of EP canola meal is included in diets for weaned pigs. In conclusion, cost per Mcal of net energy from residual oil content in EP canola meal has changed our paradigm from considering canola as a traditional protein meal to a novel dietary energy source. Diets should be formulated based on net energy and standardized ileal digestible amino acid content, and should include other highly digestible protein sources other than canola in nursery diets.*

## The case for expeller-pressed canola meal

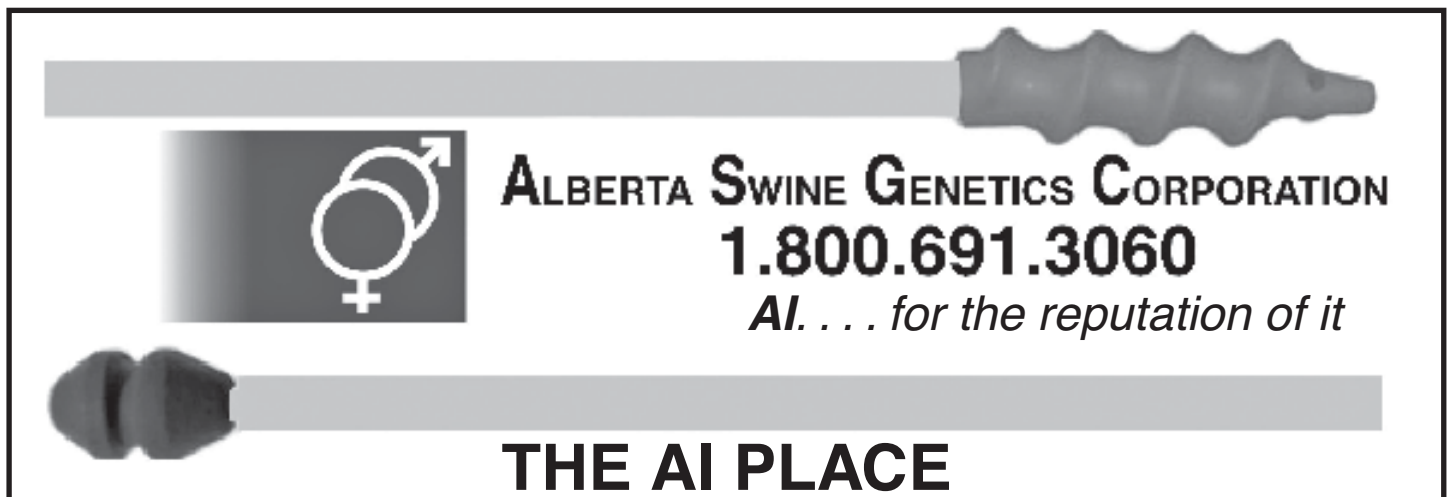
Processing of expeller-pressed (EP) canola meal is similar to conventional canola meal but without the last step: solvent oil extraction. In western Canada, a small portion of the canola seed is expeller-pressed, but this meal contains more residual oil (10 to 15% as fed) than solvent-extracted (SE) canola meal (2 to 4%). It therefore provides more net energy (NE) than soybean meal (SBM) or SE canola meal to propel hogs to grow. However, the nutrient composition of EP canola meal might be more variable because it is locally-produced in lower infrastructure plants and may include heated and (or) green seed that would be otherwise rejected by canola crushers producing oil for human consumption.

Pork producers continue experiencing increasing feed cost. Cereal grains, the main source of energy in pig diets, have recently exceeded \$210/tonne in southern Alberta. Therefore, alternative energy-yielding feedstuffs such as EP canola meal

could mitigate feed cost, increasing the producer's profit margin. The residual oil in EP canola meal may sell at a substantial discount price (<\$0.25/kg) compared to adding it as regular canola oil (\$1.3/kg) or from other fat sources like tallow (\$0.9/kg) or restaurant grease (\$0.8/kg). In addition, EP canola meal is also a cost-effective amino acid source. Despite its lower amino acid content compared to SBM and the perceived risk of feeding it to young pigs, producers come ahead if purchased at a higher price than regular SE canola meal.

Limited information exists regarding the feeding value of canola meal for young pigs. Results from a previous study conducted at the University of Alberta showed that EP and SE canola meal could replace SBM in the diet by including up to 15% EP canola meal without reducing body weight gain in weaned pigs. More recently, our group demonstrated that SBM can be replaced with up to 20% SE canola meal without reduction in growth performance. Therefore, EP canola meal could also substitute SBM in weaner pig diets at

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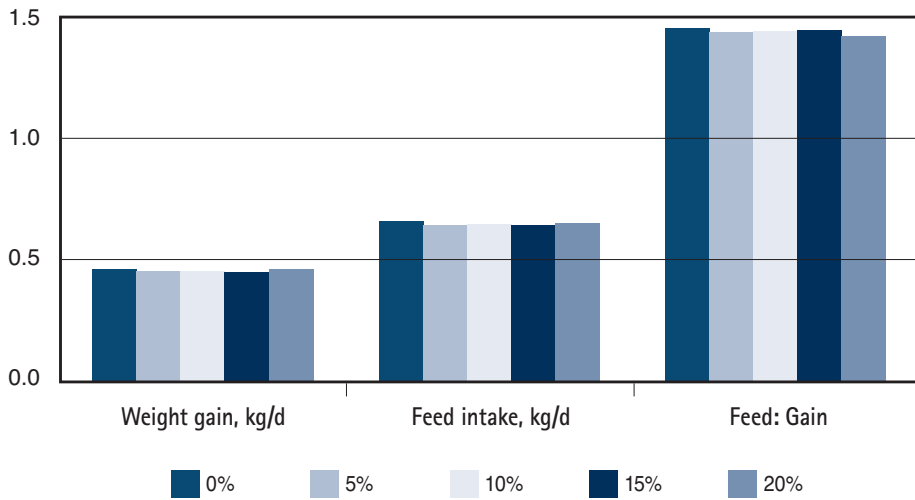
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Figure 1: Overall growth performance of weaned pigs fed increasing levels of EP canola meal in the diet for 28 days, starting 1 week post-weaning



higher inclusions. The main concern with young pigs was the glucosinolate content of EP canola meal that may add a bitter taste to the meal and thereby reduce feed intake, requiring limiting its inclusion level in nursery diets.

### Nutrient profile of EP canola meal

The EP canola meal sample fed in our trial was sourced from Associated Proteins, now Viterra-Canola Processing in St. Agathe, MB. The sample

contained (as-is) 36.0% crude protein, 10.3% crude fat, 6.9% crude fibre, 2.0% lysine, 1.7% available lysine, 1.5% threonine, 0.7% methionine, 1.1% phosphorus, and 10.9 µmol/g glucosinolates. This glucosinolate content in EP canola meal was 2 to 3-fold greater than values reported for SE canola meal, likely due to differences in seed and processing conditions.

### The weaned pig trial

We used weaned pigs because these are a more sensitive model for feed ingredient evaluation than grower-finisher pigs. Furthermore, young pigs are in the energy-dependent phase of growth where their appetite limits feed intake and thus weight gain, compared to older hogs that voluntarily consume more feed and thus energy intake does not limit lean gain. The trial was conducted to evaluate the effects of feeding increasing levels of EP canola meal (0, 5, 10, 15 or 20%) on growth performance and diet nutrient digestibility. It was carried out at the Swine Research and Technology Centre at the University of Alberta in Edmonton.

The diets fed were formulated to provide 2.38 Mcal NE/kg and 5 g standardized ileal digestible lysine per Mcal NE, with other amino acids formulated as an ideal ratio to Lys. Inclusion of EP canola meal progressively replaced soybean meal in the diets, which were balanced for energy and amino acids using canola oil and crystalline amino acids, respectively. Lactose, soy protein concentrate, and herring fishmeal were each included at 5% in diets as specialty carbohydrate and protein feedstuffs. In total, 240 weaned pigs with an initial weight of 7.3 kg were housed in 60 pens, 4 pigs each, and had free access to the assigned pelleted diet for 4 weeks.

### Trial results

For the entire 28-day trial, feeding increasing EP canola meal did not affect body weight gain, feed disappearance,

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or feed conversion (Figure 1). Final weight of pigs on trial was 20.1, 19.8, 19.8, 19.7 and 20.1 kg for 0, 5, 10, 15 and 20% EP canola meal, respectively, and was not affected by the level of EP canola meal in the diet.

Increasing the dietary inclusion of EP canola meal linearly decreased total tract digestibility of crude protein from 81.1 to 78.8%, energy digestibility from 84.9 to 82.5%, and diet digestible energy value from 3.92 to 3.77 Mcal/kg for 0 to 20% EP canola meal dietary inclusion. The reduced nutrient digestibility was expected based on a gradual increase in dietary fibre content. These reductions in nutrient digestibility were of small magnitude and evidently did not affect pig performance.

**Cost/benefit analysis**

Assuming these prices (\$ per tonne): wheat grain, 207; EP canola meal, 250; soybean meal, 420; canola oil, 1,300; and L-lysine-HCl, 2,550, increasing dietary EP canola meal inclusion from 0 to 5, 10, 15, and 20%, reduced feed cost by \$7.5, 14.9, 22.3, and 29.8 per metric tonne (MT), respectively. At 20% EP canola meal inclusion, feed cost per kg of body weight gain was thus 4.2 cents lower.

**Conclusion**

The results of this study indicate that feeding up to 20% EP canola meal starting 1 week post-weaning, as a replacement for soybean meal, did not affect growth performance of nursery pigs. Expeller-pressed canola meal is both a high energy and protein feedstuff that provides additional flexibility in diet formulation for pigs in the energy-dependent phase of growth. Inclusion of EP canola meal with 10 to 15% residual oil in nursery diets concentrated the energy provision of the diet at a lower cost. The glucosinolate content of EP canola meal did not reduce feed disappearance, indicating that weaned pigs tolerated well 2.2 µmol/g of diet without reducing performance. According to commodity prices for this

study, producers may reduce feed costs approximately by 10% when 20% of EP canola meal is included in the diet.

**Common sense recommendations**

Because off-grade canola seed is generally crushed and equipment and pressing conditions vary among local plants, expect greater variability in EP compared to SE canola meal. Producers should establish a relationship with the supplier and progressively increase dietary inclusion, first in old, then in young pigs, to gain confidence in the product of each supplier. Initially often and then sporadically fat, protein,

and fibre analysis of the product is recommended to properly calculate its energy value and gauge economic advantage. In contrast to finishing hogs that generally exceed feed intake for lean deposition, young pigs exhibit limited appetite. Therefore EP canola meal inclusion returns the most when included in late nursery and grower pig diets instead of finishing hog diets.

**Acknowledgments**

Funding from Alberta Pork, Agriculture and Agri-Food Canada, and the Canola Council of Canada through the Growing Forward program is acknowledged.

CONTINUED ON PAGE 48

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# Keeping up with workforce changes and challenges

By Marvin Salomons, Salomons Group Solutions, Red Deer, Alberta


The labour shortage situation in the pork industry has not changed much over the past few years. In parts of western Canada employers continue to struggle to find help. The “sucking sound” that continues to be heard are the young adults from our farms being drawn into the lucrative jobs in the construction and oil sectors. The same can be said for many of the food processing businesses who also struggle to find workers and see their workforce move out of the plants to the better paying jobs in the oil patch. The movement does not appear to be slowing at all with people moving in and out of the agribusiness sector as the price of oil and construction jobs fluctuate. Agriculture and food processing jobs continue to be low-priority career choices – something these industries need continue to address, take seriously, and somehow turn around.

## The current situation

Recent reports by Statistics Canada and Alberta Human Services indicate the current trends in labour shortages will not change. Alberta Government sources are now quoting that for the next few years shortages could be worse than those witnessed back in 2006. Alberta employers have been feeling the pressure for a few years but the lack of qualified labour seen in Alberta is now becoming a similar problem in neighbouring Provinces. This will add to the problems right across Western Canada. Canada is not immune as other developed countries are having similar labour concerns – perhaps the reason we see Australia recently conducting job fairs in Canada - looking for the same skills we need.


What’s driving it all? The main reasons continue to be the economic growth seen in Western Canada. The issue is combined with a declining birth rate that is seen right across the country for the past number of years. Fewer young people are available and even fewer will be available in the next decade. On top of that the baby boomers are beginning to retire. Domestically, less people will be available or willing to work long into their planned retirement years, although many may have to. Canadian demographics show that in the next 10 -20 years the majority of domestic labour will likely come from people that are over 60 years of age. Employers may have to adjust their tactics and expectations as these individuals can bring the needed skills they need but they can’t do the physical work of a 25 year old.

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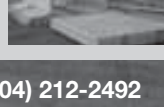
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## New figures released

Over the past couple of months some new job figures have been released. Statistics Canada published some interesting figures in a *2011 Labour Force Survey* and Provinces like Alberta have been busy analyzing industries to get a handle on wage rates and future labour force needs. For 2011 the labour participation rate in Canada was 66.8%. Alberta topped all the Provinces with a labour participation rate of 73.7%. In Alberta the unemployment rate in 2011 was 2.1 percentage points lower than its recessionary peak of 7.5% in April 2010. A recent Alberta labour survey showed the average hourly rate increased by 42 cents in 2011 to \$25.45 per hour. Alberta has maintained the highest reported wage rates in Canada since 2006, when it was just over \$16.00 per hour. For the Agriculture sector jobs in 2011, the average rate was \$17.43 per hour compared to the Utilities sector where the 2011 wage averaged \$36.20 per hour.

Surveys show the average employment growth in Alberta for the period of 2011-2015 is forecasted to be 0.4% for agriculture whereas the construction sector is forecasted to see a 4.0% growth rate. On average the Goods Producing Sector is forecasted to see a 2.0% growth while the Goods Services Sector is to see 2.1% growth. This means things will not change much when it comes to sourcing your workforce. Table 1 forecasts the cumulative workforce shortages Alberta will experience out to 2021. If you are doing business outside Alberta it means you



**Table 1: Alberta Occupational Demand & Supply Outlook 2011-2021 (Source: Alberta Human Services)**

	Overall Occupational Demand and Supply Outlook for Alberta, 2010-2021											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Demand (000s)	2,016	2,071	2,123	2,176	2,232	2,294	2,360	2,415	2,472	2,522	2,568	2,623
Supply (000s)	2,157	2,196	2,241	2,288	2,337	2,392	2,449	2,496	2,543	2,580	2,611	2,650
Annual Shortage*		15,814	6,397	6,997	6,746	7,279	8,638	8,100	9,909	12,419	15,145	16,834
Cumulative Shortage		15,814	22,211	29,208	35,954	43,233	51,871	59,971	69,880	82,299	97,444	114,278

\* Annual shortage = (Demand [year t+1] - Demand [year t]) - (Supply [year t+1] - Supply [year t])

will also experience the effects. The net Provincial migration is expected to pick up due the increasing job opportunities and higher wages seen in places like Alberta and Saskatchewan. In all, the effects will be felt right across Western Canada.

### Making things easier?

Industry and governments are scratching their heads in trying to deal with the job shortages and issues employers are experiencing trying to fill vacancies from both domestic and foreign sources. On March 30, 2012 Federal Immigration Minister Kenney announced plans to create a global job bank to bring in more skilled foreign workers. Kenney said the overseas federal job bank idea, modelled after New Zealand's immigration system, is a major departure from the current system that will require legislation and at least two years to implement. Whether it will speed things up in the future remains to be seen. In the meantime employers will have to continue to deal with the current foreign worker recruitment processes, many of whom find it confusing, complicated, fraught with constant changes, and increasingly burdensome with newly added directives. To counter some of the concerns the pork industry has been aggressively advocating for changes in the TFW program on those issues that affect producers, such as LMO processing, high wage rates, and new program directives.

### Changes in the works to the HRSDC Foreign Worker Program

Human Resources and Skills Development Canada (HRSDC) and Service Canada are currently making significant changes to the temporary foreign worker program. Employers frustrated by many of the changes and mandates feel they have not had enough input regarding many of the new directives and subsequent negative impacts on their bottom lines. On January 31, 2012, HRSDC and Statistics Canada announced the release of the 2011 edition of the National Occupational Classification (NOC). This change resulted in considerable problems and frustrations for producers with respect to the NOC 8253 (specialized livestock worker) and 8431 (general farm worker) positions producers had traditionally used for the majority of LMO applications.

Changes on the HRSDC website saw the traditional NOC 8431 (low-skilled category) identified as *supervised* and NOC 8253 (skilled category) identified as *unsupervised*. On a positive note the increasing wage rates that had slowly crept into the system on the Labour Market Information (LMI) website were lowered from the \$17- \$19 per hour range posted rates to \$14.28 per hour for the new unsupervised category. Considerable discussion and dialogue ensued on the supervised and unsupervised wording and NOC level and its impacts on the LMO process.

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Table 2: TFWP - Available Streams and Required Forms

Stream	Occupations	NOC Skill Level	Available for Swine Positions	LMO Application Form Required
Agriculture Streams				
Stream 1	SAWP	C & D	Yes	EMP5389
Stream 2	Lower Skilled NOC 8431	C & D	Yes	EMP5519
Stream 3	Non Livestock NOCs	C & D	No	EMP5512
Stream 4	Higher Skilled NOC 8253	B	Yes	EMP5517
	SAWP Skilled	B	Yes	EMP 5389
Low Skilled	Non Agriculture NOCs	C & D	No	EMP5512
High Skilled	Managers	0, A, B	B only	EMP5517

The changes raised other questions, as an example they appeared to jeopardize a worker's ability to access the Alberta Immigrant Nominee Program (AINP) as a means of retention and getting permanent residence. Placing the positions under a *NOC C & D Stream* posed a concern as the positions were now considered low skilled. The AINP (at least in Alberta in the case of

primary agriculture) requires workers who apply to be classed as skilled. The industry voiced its concerns and the message was heard. Down the road HRSDC indicated the NOC 2011 system would now be phased in slowly to 2015. For the pork industry like other livestock sectors, HRSDC noted that employers applying for LMOs under the TFW Program must continue to use the occupational codes from the NOC 2006 version using the *Working in Canada* website <http://www.workingincanada.gc.ca/home>. Employers can search the site using the NOC 8253 or NOC 8431 code inputs in the search menus.

current requirements are by checking the HRSDC website prior to advertising and submitting LMOs.

### Applying for LMOs for agriculture workers

The new stream "Agricultural Stream of the Pilot Project for Occupations Requiring Lower Levels of Formal Training (NOC C and D)" has four separate sub-streams as follows:

#### 1. Seasonal Agricultural Worker Program

The Seasonal Agricultural Worker Program (SAWP) is limited to specific primary agriculture commodity sectors:

- Sectors include farming operations like: fruits, vegetables, greenhouses, nurseries, apiary products, tobacco, sod, flowers, Christmas trees and a list of livestock farms (bovine, dairy, duck, horse, mink, poultry, sheep and swine).
- For swine, in the past Quebec producers had the only access to SAWP. HRSDC has now expanded SAWP across Canada (except Newfoundland and the Territories).
- Under the SAWP, swine employers can hire agricultural workers for a maximum duration of 8 months between January 1 and December 15 of the same year.
- Workers come from a list of approved countries including Mexico and the following Caribbean

### Agriculture stream debuts

HRSDC continues making changes to TFW program including significant changes for agriculture workers. A new "Agriculture Workers Stream" has been created with four categories for lower-skilled and higher-skilled workers. At this time pork employers are required to apply under this new stream and use the appropriate LMO form: for Category 2 lower-skilled / NOC-8431 use *LMO Form #EMP5519* and for Category 4 higher-skilled / NOC-8253 use *LMO Form #EMP5517*.

[http://www.hrsdc.gc.ca/eng/workplaceskills/foreign\\_workers/fwp\\_forms.shtml#H01](http://www.hrsdc.gc.ca/eng/workplaceskills/foreign_workers/fwp_forms.shtml#H01)

Table 2 perceives how the program currently operates. It is critical to note that changes are still in progress and until settled it is best to verify what the



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- Although the SAWP is an option, swine employers are unlikely to make significant use of this program due to the 8-month rule.

**2. Agricultural Stream of the Pilot Project for Occupations Requiring a Lower Level of Formal Training (NOC C and D)**

The Agricultural Stream of the NOC C and D Pilot Project applies to temporary foreign workers (TFWs) entering Canada from any country to work in low skilled occupations.

- These low skilled occupations usually require, at most, secondary school education and/or on the job training.
- Like the SAWP, the Agricultural Stream C & D is limited to on-farm primary agriculture sectors including: fruits, vegetables, greenhouses, nurseries, apiary products, tobacco, sod, flowers, Christmas trees and for now these livestock sectors (bovine, dairy, duck, horse, mink, poultry, sheep and swine).

**3. Low Skilled Occupations - Pilot Project for Occupations Requiring a Lower Level of Formal Training (NOC C and D)**

Employers hiring low skilled agricultural workers in commodities other than the following sectors: fruits, vegetables, greenhouses, nurseries, apiary products, tobacco, sod, flowers, Christmas trees and the designated animal sectors noted in #2 must apply under the *Regular Stream of the Pilot Project for Occupations Requiring Lower Levels of Formal Training*.

- Low skilled occupations usually require, at most, secondary school education and/or on the job training (NOC skill level C and D).
- This would apply to sectors like grain farms and other livestock sectors not in the list under #2.

**4. High Skilled Occupations Stream**

Employers hiring high skilled agricultural workers (e.g. farm manager, apiary technician, or swine technician) can apply either under the SAWP (e.g. workers from Mexico or one of the included Caribbean countries).

- For non-SAWP longer term positions (i.e. swine technician) apply using this stream and appropriate LMO form.
- Pork employers are unlikely to use the SAWP skilled option due to the 8-month rule.

**The new wage structure**

The TFWP wage rates for positions in animal commodity groups can be accessed on the HRSDC website. Individual wage tables have been posted and can be accessed for the following commodity groups: bovine, dairy, duck, horse, mink, poultry, sheep, and swine. Table 3 shows the HRSDC posted rates required for positions in the Canadian swine industry [http://www.hrsdc.gc.ca/eng/workplaceskills/foreign\\_workers/commodities.shtml](http://www.hrsdc.gc.ca/eng/workplaceskills/foreign_workers/commodities.shtml)

Tables outlining the required minimum wage rates have been developed for each Province and for each livestock sector. For Alberta, the minimum wage rate for swine positions used in advertising and for job offers under the TFW program have been set at \$10.42 per hour (lower-skilled) and \$14.28 (higher-skilled). These rates are to be used in the application processes for LMOs and need to be the minimum rate used in the job advertising and job offers. Wage rate ranges can be used in ads but the range must include the minimum HRSDC posted rate.

**New directives also posing issues**

Producers are seeing many changes to the HRSDC website and its TFW directives. The pork industry in Alberta has asked HRSDC to review its newly mandated directives requiring farms to pay \$30 per week fee for housing, paying airfares for skilled workers, and requiring farms to provide Alberta Workers Compensation Board (WCB) coverage for TFWs. The new directives do not consider Alberta farm exempt status

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**Table 3: SAWP and Agriculture Stream Minimum Wage Rates for Swine Occupations**

Equivalent NOC: Lower Skilled = 8431; Higher Skilled = 8253

Province	Wage as of January 1, 2012	Expected minimum wage increase in 2012
AB	\$10.42 (lower skilled)	\$0.00
	\$14.28 (higher skilled)	
BC	\$9.64 (lower skilled)	\$10.25 on May 1st
	\$12.51 (higher skilled)	
MB	\$10.42 (lower skilled)	\$0.00
	\$14.28 (higher skilled)	
NB	\$10.42 (lower skilled)	\$0.00
	\$14.28 (higher skilled)	
NS	\$10.15 (lower skilled)	\$0.00
	\$12.00 (higher skilled)	
ON	\$10.42 (lower skilled)	\$0.00
	\$13.97 (higher skilled)	
PE	\$10.42 (lower skilled)	\$0.00
	\$14.28 (higher skilled)	
SK	\$10.42 (lower skilled)	\$0.00
	\$14.28 (higher skilled)	

for WCB, farms that provide equivalent or better plans in place of WCB, impact on the farm's overall workforce, nor that employers have traditionally been exempt from paying airfare for skilled workers. The industry sees these additional directives as adding more costs to a struggling and cash-strapped industry. Hopefully rethinking on these directives on HRSDC's part will see revised directives more in line with what industry can support.

### Update on Labour Market Opinions (LMOs) processing

Many employers can bring up frustrations they have had with the Labour Market Opinion (LMO) application system. Alberta Pork as an organization has been proactive trying to address the issues and provide positive input to Service Canada and HRSDC to improve the process and make the program less stringent to employers already hard-pressed to find local help. The focus of foreign recruitment is to fill labour shortages in a hog business or processing facility. Granted HRSDC and Service Canada require pork farm employers make every attempt to fill job shortages from candidates within Canada but in most cases the people with the needed skills are just not available and the ones that do come don't often don't stay. Jobs paying better wages in oil and construction hamper the process of hiring Canadians, as many potential candidates do not view working in a swine barn as a desirable job. Besides, today's Service Canada needs to know that the pig business has moved into a highly capitalized and technical business. The "average Joe" off the street may need the job, but the farm

needs to assess whether this person is the best fit for their current workforce and the position needs. I still believe it is OK to say 'No' if the fit is not right. Service Canada still insists the due diligence must be done so once you have ensured your occupation is eligible, you can apply to them for a LMO.

The *LMO expiry date*, that is the date by which a foreign worker must apply for a work permit remains the same, still being valid for six months. Industry has been advocating a 12-month open LMO validation period at minimum. This would reduce the workload for both employers as well as for Service Canada. The *LMO duration date* is based on HRSDC and Service Canada assessment of an LMO application and is the identified length of time a work permit could be issued for. On a positive note, HRSDC has now increased this time period from 12 months to 24 months.

Citizenship and Immigration Canada (CIC) determines the work permit expiry date when a foreign worker applies for a work visa or permit. This permit indicates how long a worker is allowed to reside or work in Canada. Generally 24 months is now granted at the point of entry into Canada by the CBSA. With the recent changes, inconsistencies have been observed regarding LMO processing. Employers are reminded to ensure new lower wage rates and the 24-month LMO duration dates under the new Agriculture Stream are being given by Service Canada.

Service Canada indicates LMO applications under the new Agriculture Stream will be assessed at a dedicated agriculture desk. Hopefully a dedicated desk at processing centers speeds up LMO processing, as officers should achieve some familiarity with the agriculture sector, its needs and the job profiles. Although general LMO processing in Alberta has currently been 8-10 weeks, having a dedicated Ag desk should see improvements. The realities of LMO and work permit / visa approvals is that they take time, and in foreign offices the time to get visa approvals varies widely. It is always best to plan now for your future needs six to eight months out to allow for processing and recruitment times.

### Getting industry's voice heard

Industry's messages on labour issues and processes need to be voiced. At the moment several positive actions are being undertaken to make sure input happens and are part of any program review and change. On the Alberta side, the primary agriculture sector has initiated an industry labour council with a mandate to provide a unified voice on agriculture labour issues, address labour needs, and influence government policies. At the national level labour issues continue to be front and centre with recent federal livestock Round Table meetings calling for the formation of a national farm labour council. Watch for news on these new groups and ensure you provide input where they need and want it. These programs affect all of us and we need to be part of the driving process in making things better for all of the industry.

# Swine Innovation: What does it mean for producers?

Ken Engele, BSA., Manager Information Services, Prairie Swine Centre

The pork industry is no stranger to change. While the change in the industry has garnered most of the headlines in recent years, Canadian pork producers have always been on the leading edge of incorporating new technologies and management practices that enhance the competitive position of their business. One of the roles researchers play is ensuring producers have all the tools available to remain competitive.

One of the ways in which research is addressing some of the questions facing the pork industry is through the Canadian Swine Research and Development Cluster. Now rebranded as Swine Innovation Porc, this is a multi-year \$9.6 million program established within the Growing Canadian Agri-Innovation Program – Canadian Agri-Science Initiative of Agriculture and Agri-Food Canada, in addition to receiving financial support from private sector and provincial government organizations.

Swine Innovation Porc objectives are to facilitate research, technology transfer and commercialization initiatives designed to enhance the competitiveness and differentiation of Canada's pork industry; it is aligned with the Canadian Pork Value Chain Strategic Framework and its four pillars are:

1. **Competitive environment:** We facilitate research designed to help reduce the costs of production; hence improving competitiveness.
2. **Market penetration:** We foster research that assists the Canadian Pork Value Chain differentiate its products in its key markets.
3. **Value chain integrity:** We promote and encourage research that assists the Canadian Pork Value Chain to demonstrably strengthen the integrity of the value chain.
4. **Innovation:** We put in place the organizational and scientific resources to permit innovation to flourish.

*(More information on the Canadian Pork Value Chain*

*Framework can be found on the Canada Pork Council website [www.cpc-ccp.com](http://www.cpc-ccp.com).)*

The research program conducted within Swine Innovation Porc consists of 14 research projects, of which 10 focus directly on increasing revenue or decreasing the cost of production, four focus on product differentiation, and three technology transfer initiatives. It is truly a collaborative project involving the coordination of 22 private partners, 100 researchers, 14 universities, and 13 research centres (16 organizations throughout Canada). Prairie Swine Centre and CDPQ have been given the task of developing a coordinated technology transfer program that effectively delivers the research results to pork producers and the industry.

Specific objectives of Swine Innovation Porc include:

1. Encourage the development and implementation of applied agricultural science plans, technology activities transfer and commercialization strategies.
2. Address the challenges of technology, organization and knowledge management in the pursuit of increased Canadian competitiveness and differentiation.
3. Facilitate the development of new Agri-products, practices and processes that will increase Canadian competitiveness and differentiation.
4. Coordinate the scientific and technical capacity of industry, government and academia
5. Validate opportunities and strategies to support increased competitiveness and differentiation.
6. Provide national leadership in the development of innovation initiatives.
7. Organize calls for proposals for the implementation, delivery and management of national industry-led applied science plans, technology transfer and commercialization strategies.

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### Benefits to the producer

The ultimate goal of Swine Innovation Porc is to ensure adoption of research results in the Canadian pork industry, and ensure measurable results by the completion of the funding agreement (March 2013). This will happen in a number of ways including the translation of research results in both official languages and the development of a lead users program (demonstration farms) that would implement new technologies or management strategies developed through Swine Innovation Porc. Research projects have identified short, intermediate and long term benefits to the Canadian pork industry in the areas of swine nutrition, genetic improvement, animal welfare and environmental and engineering management.

The kick-off of Swine Innovation Porc was held in conjunction with the 2012 Banff Pork Seminar through hosting a special breakout session *Breakthroughs in Canadian Swine Nutrition*. This session focused on delivering some of the expected research results in conjunction with three research projects:

- Sustainable precision livestock farming: A vision for the future of the Canadian swine industry, by Candido Pomar, AAFC Lennoxville, QC.
- Towards integrated nutritional management of growing-finishing pigs, by Kees de Lange, University of Guelph, ON.
- Novel swine feeding programs to enhance competitiveness and pork differentiation, Ruurd Zijlstra, University of Alberta, AB.

Looking at the material presented at the Banff pork seminar, preliminary results indicate that feed costs may be cut by as much as \$8/pig marketed. In today's world of above average feed costs this would have a significant impact on a producer's bottom line.

Table 1 provides a listing of the 14 projects funded through Swine Innovation Porc. For More detailed information regarding the research projects can be found at [www.swineinnovation.com](http://www.swineinnovation.com).

**Table 1. Swine Innovation Porc projects**

PROJECT TITLE	OBJECTIVES
<b>Food safety and microbial quality</b>	
Use of tools related to molecular characterization, systemic analysis of stakeholders and geomatics for identification of principal vectors and contamination sources by bacteria and virus indicators at the farm and slaughterhouse level.	To identify vectors and microbial contamination sources among herds and slaughterhouse using geomatic, systemic and genomic tools.
<b>Animal welfare</b>	
Sow Housing: risk factors and assessment techniques for lameness, productivity and longevity in group and individually housed gestating sows.	Assessment of risk factors affecting the productivity and longevity in gestating group housed sows, and over a variety of management systems, with a special focus on lameness.
Study of the efficiency of water sprinkling in the truck after loading and prior to unloading at two different environmental temperatures on core body temperature and carcass and meat quality in pigs.	To provide the pork industry with a clear procedure to employ on the truck in warm conditions, with the aim of limiting animal losses during transportation and improving pork quality.
A comparison of three animal welfare assessment programs on Canadian swine farms.	Compare the three on-farm animal welfare programs as they pertain to Canadian farms.



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Use of non-penetrating captive bolt for euthanasia of neonate, suckling and weaned piglets up to 9 kg.	Investigate the effectiveness of the modified design of the non-penetrating captive bolt for euthanasia of neonatal piglets as well as older piglets.
--	---

**Environmental changes**

Development of an innovative air cleaning system for swine buildings.	To improve the acceptability of swine facilities in rural areas by reducing their potential environmental impacts.
---	--

**Equipment standardization**

Development of an innovative precision farming system for swine.	Develop a commercial, fully automated precision feeder and acquire the required scientific knowledge to feed pigs individually with daily diets tailored for optimal management of both feeds and animals.
--	--

Development of standards for swine production systems.	To develop a methodology for analyzing the cost/benefit of system optimization and standardization that can be applied to commercial swine farms
	To ensure that concepts identified in this project can be translated to the farm, providing a competitive advantage to Canadian pork producers.

**Feed inputs and feeding**

New and innovative swine feeding programs to enhance competitiveness and pork differentiation: The Canadian feed & pork value chain	To develop a unique Canadian feed management strategy and feed ingredient data base for optimum productivity that also considers nutrient excretion, reduced antibiotic use during the growth phase, and pork quality. This unique database combines digestibility and bioavailability trials and novel feedstuff analyses.
---	---

Novel nutritional strategies for optimum sow and piglet productivity.	To develop unique Canadian feeding management strategies for optimum sow and piglet productivity, taking into consideration production efficiencies, including pig performance up to market weight, food safety, pig welfare and use of antibiotics.
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**Mycotoxins**

Efficacy of feed additives in mitigating the negative impacts of mycotoxin contaminated feed on performance and health of piglets.	Develop a protocol to evaluate the efficacy of feed additives available in Canada to attenuate the toxicity of naturally contaminated grains that may contain more than one mycotoxin and to mitigate the negative impact of mycotoxins on pig performances.
--	--

Mycotoxins contents evaluations of corn hybrids adapted to Quebec growing conditions.	To determine, under natural disease pressure, whether there are any differences between hybrids (Genotype effect, G) in their grain content levels for four different mycotoxin (Deoxynivalenol, fumonisin, zearalenone and T-2 toxin) in 3 different environments (Environment effect, E). G x E interactions will also be evaluated.
---	--

**Genomics**

Capturing genetic merit in differentiated pork production systems through genomics.	Demonstrate that alignment of the excellent genetic potential of Canadian dam-line sows and AI stud boars, with management strategies that recognize the origins of major variation in phenotypic traits of terminal line litters, provides major competitive advantages to Canadian pork producers.
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Development of new genomic tools to improve meat quality traits and production efficiency in pigs.	Develop new genomic tools to improve meat quality traits as well as enhance product differentiation and efficiency of pork production.
--	--

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# NIRS technology promises huge savings in feed costs

By Bernie Peet

Evaluation of feed ingredients using the technique of Near Infrared Reflectance Spectrometry (NIRS) promises to save western Canadian pork producers tens of millions of dollars through more accurate measurement of key nutritional components, especially energy. The Alberta Crop Industry Development Fund's Feed Evaluation Project, funded by ALMA to the tune of \$8 million, includes a feed utilization component aimed at improving the efficiency with which crops are used by the livestock sector. This provides a subsidy for producers, feed manufacturers and others in the livestock feed industry towards the purchase of NIRS equipment. At the same time, the University of Alberta and Alberta Agriculture and Rural Development are cooperating to assist the successful implementation of NIRS by the industry, including the development of a unique database of digestible energy values for western Canadian crops that are used by livestock producers.

## What is NIRS?

First, NIRS is not new, in fact the technology was developed in the 1950's by USDA to grade wheat according to its protein content. Dr. Phil Williams of the Canadian Grain Commission had the method approved in Canada in 1972. However, it is only fairly recently that the cost of the equipment has made it cost effective to use by livestock producers.

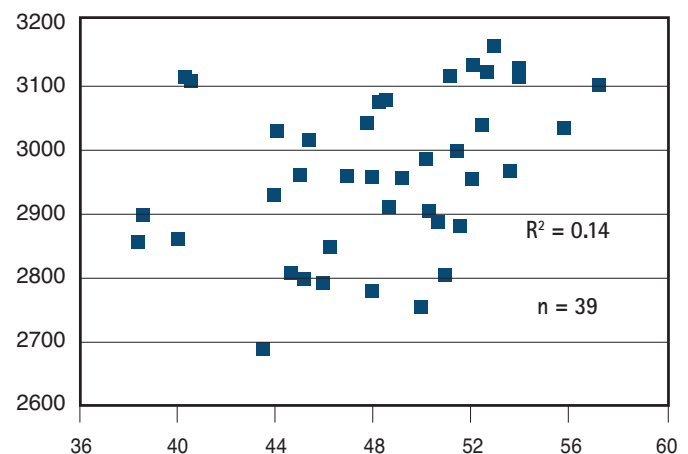
So how does NIRS work? "NIRS is based on light energy from a tungsten bulb reflecting off molecules in the grain or other

substrate and the light that is reflected back is measured," explains Mary Lou Swift, Research Scientist, Feed Quality, at Alberta Agriculture and Rural Development, who has worked on NIRS for many years. "It relies on establishing a relationship between the pattern of energy absorption by chemical bonds within the sample and an animal or laboratory bio-assay reference method." She notes that, in most cases, whole grains or other ingredients are used for the analysis.

## Calibration equations essential

Mary Lou Swift is working with Dr. Ruurd Zijlstra and Dr. José Landero at the University of Alberta, whose focus has been on developing calibration equations for the DE content of wheat and barley. "Energy is the most costly component of the diet and the digestible energy (DE) in barley may vary by as much as 20 percent," notes Dr. Zijlstra. "Assessment by bushel weight is inaccurate as it only accounts for 14% of the variation in energy content in barley, while chemical analysis is moderately accurate but costly and also takes a long time." As Figure 1 shows, the correlation between bushel weight and DE is extremely poor. Note that the lower the 'R' value, the lower the correlation.

Figure 1: Relationship of density with DE content in barley samples in grower pigs



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Dr. José Landero measures a sample of barley using an NIRS machine at the University of Alberta

The group has developed an NIRS calibration model for energy digestibility in wheat and barley, which is unique in North America. “NIRS technology requires reference samples with a wide variance in the component of interest in order to calibrate the instrument,” points out Dr. Zijlstra.

“The reference point for DE is faecal DE or in vitro DE measurement. You have to develop a relationship between the NIRS ‘fingerprint’ and faecal DE by regression analysis, in other words NIRS is not a direct measurement, it’s a secondary method.”

In total 221 barley and 99 wheat samples were selected based on genetic background and physical and chemical characteristics. Digestible energy was measured by feeding the grain to pigs and measuring faecal DE. It was also measured in the laboratory and scanned using an NIRS

machine. “The relationship between the NIRS values and the other measurements is very accurate,” Dr. Zijlstra observes. “Work will continue in our lab to add sample data to existing calibration models in order to increase their robustness in terms of sample variation.”

Forming the population of samples that you base the numbers on is very important, stresses Dr. Zijlstra. The U of A has a good database on cereals and also AARD and ACIDF have good information. In addition, there are now a number of good reference databases available from suppliers of the NIRS machines for a variety of feed ingredients. “We started with grains as they are a very large proportion of the diet, but also due to the degree of variation in energy content due to season, fertilizer application and variety,” he continues. “There are certain years when there is much more variability than in others.”

### Large variation in energy content

The large variation in energy content means that knowing the energy value is extremely important, not only to assess the feeding value of a grain source, but in order to formulate correctly. “For barley, the variation in DE may be from 2700 - 3500 kCals/kg at 90% dry matter, although the majority of samples will be in the range 2900 - 3400,” notes Dr. Zijlstra. “Each 100kCals is worth \$10 per tonne.” With higher ingredient prices the value of accurate measurement is high, he stresses. “Not only is it important to know the value of the energy in grain in order to avoid overpaying for it, but also making a wrong assumption about nutritional value has implications for pig performance.”

Being able to achieve the correct lysine to energy ratio in pig diets is very valuable, in order to optimize performance and the efficiency of feed use. “If energy is low relative to protein, then excess protein will be broken down, which is inefficient and also increases nitrogen content of the manure,” comments Dr. Zijlstra. “On the other hand if energy is higher than the value used for formulation, there will be insufficient protein relative to the energy value, resulting in slower growth, which is also costly.”

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By way of contrast, some ingredients do not have large variations in energy content, making it pointless to measure it. “We have learned that there are some crops that are variable and some that are less variable,” explains Dr Zijlstra. “For example, field peas are not as variable as we’d assumed and in over 3000 samples we found only 100kCals difference in energy value which is about 1.0 - 1.5% variation, so it’s not very significant.”

While the U of A’s focus has been on energy, NIRS can measure a wide range of nutritional parameters including protein, starch, fat and fibre in cereals and other ingredients. It can also measure the nutrients in complete feed, forage and manure. However, it is only capable of measuring organic components, not minerals, due to the way NIRS works. In addition to knowing values for nutritional parameters, knowing dry matter - which NIRS measures - is important, because water has no nutritional value, Dr. Zijlstra points out.

### Value of NIRS may be \$8 per hog

NIRS machines are being used by the feed industry, by nutrition companies and by an increasing number of individual producers, so far mainly in the beef sector, according to Mary Lou Swift. “The beef producers reckon they can pay off the cost in just 6 months on the basis of knowing the oil content of distiller’s grains alone,” she notes. “Beef producers are also using it for manure analysis so that they know the value of the nutrients, which can help them use manure more accurately and minimize the environmental impact.

If pig producers buy one, they will have access to the calibrations from the U of A, which is totally independent. NIRS can also be used by people who have grain to sell to evaluate its energy or protein content and hence its value, Mary Lou points out.

“It’s a tool and, like any tool, you have to use it properly,” adds Dr Zijlstra. “It’s easy to collect data but harder to turn data into money. But the use of NIRS will bring transparency between players in the animal feed industry.”

Ron Gietz, provincial pork specialist with Alberta Agriculture and Rural Development, says that based on the energy value of Alberta barley samples at current market prices, hog producers will frequently be paying up to \$17 per tonne too much for some barley loads and \$11 per tonne below energy value for others. “The difference from best to worst barley is worth at least \$8 per hog and that’s often the difference between profit and loss in this industry.”

### Accessing NIRS analysis

NIRS is not new technology, but in recent years it has become affordable, which has led to more widespread use in the feed industry. Now, with machines costing in the region of \$40,000, which can potentially be paid off within 6 months on a moderate sized beef or hog operation, their use is expanding

considerably. In Alberta, financial assistance is available through the Alberta Crop Industry Development Fund’s Feed Quality Evaluation Project and further information can be found at [www.acidf.ca/feeding/](http://www.acidf.ca/feeding/). A 50% subsidy up to the value of \$20,000 is available and there is currently sufficient funding for an additional 17 machines. Also, for producers who are not able to purchase a machine, the U of A offers an NIRS analysis service for \$10 per sample.

#### Send samples (500 grams or 1 lb) to:

NIRS Laboratory/Attn. Jose L. Landero  
Bldg. F-27 Metabolic Research Facility  
118 St. and 61 Ave. NW  
Department of Agricultural Food and Nutritional Science  
University of Alberta, South Campus  
Edmonton T6G 2P5

Samples should be submitted in a plastic bag, such as a Ziploc, ensuring that it is properly sealed. A brief description of the sample (type of grain, variety if known, year of harvest and location) should be written on a piece of paper placed inside the plastic bag. The sender’s name, address and telephone number should also be included.

Further information is available from Dr. Ruurd Zijlstra at 780-492-8593.

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## Fresh thinking required on farm animal care

Contributed by the Livestock Care Conference



Charlie Arnot, CEO of the Centre for Food Integrity, speaking at the Livestock Care Conference

A new culture of care is emerging around farm animal welfare that demands fresh thinking, partnerships, expectations and strategies for the livestock industry to define a successful future. And it's coming fast, say speakers at the Livestock Care Conference, March 21-22 in Red Deer, Alberta. The conference, hosted by Alberta Farm Animal Care (AFAC) was attended by over 170 including producers, other industry representatives and animal care stakeholders.

"We're in a completely different environment today," says Charlie Arnot, CEO of the Centre for Food Integrity, a major US-based initiative spanning the broader food industry. "The world is changing and our 'social license' to control how we operate is at stake. We need to build public trust to consistently earn and maintain that license, to define a future we can compete and succeed in."

Science and standards alone are not the answer, says Arnot. "In agriculture, we're good at science and we think if the science is on our side people will come around to our side of the argument. But our stakeholders need more than that - they need to know we share their values and are committed to doing what is right. We've had the communications equation exactly backward."

Research by the Centre and its partners shows perceptions of shared values and confidence are three-to-five times more important than demonstrating competence. "It keeps coming back to values," he says. "That's where we need to connect with people. It's not just about polishing our image. It's an issue of trust that requires fundamentally different strategies. We need to be integrated in our thinking not only as a supply chain but with the values and expectations of our customers."

Customers increasingly want to know more about how their food is produced and desire products that make them feel good about their purchases, says agricultural economist Glynn Tonsor of Kansas State University. If that relationship is thrown off by questions of trust or confidence the economic implications can be dramatic. "Animal welfare is increasingly a focus and it's now in the conversation on trade. We're seeing more and more examples where a welfare issue is creating challenges for industry, from state ballot initiatives in the US targeting specific practices to iconic global brands such as McDonalds and Wal-Mart facing pressure and driving changes."

Often the most damaging developments are high profile media issues that damage food brands and industry sectors, he says. Research by Tonsor and others shows increasing consumer

awareness and scrutiny of welfare practices often have significant impact on meat demand. "One of the emerging areas being considered now is labelling of animal welfare attributes on retail products, including potential mandatory approaches," says Tonsor. Much work is needed before mandatory labelling discussions go further, he says. "It's an area we need to follow closely. Clearly it has the potential to strongly influence the economic implications of various animal welfare approaches."

This new world demands new approaches, says Gene Gregory, president of United Egg Producers, an organization that has taken the bold step of directly negotiating and partnering with the Humane Society of the United States. "It's about having a measure of control in your future, rather than having it dictated for you," he says. "Through this approach we were able to define terms we could live with that would allow our industry to continue to operate. We faced a lot of criticism but in the end we got a better deal than we would have otherwise, including consistency of requirements across states that was critical to avoiding costly or unworkable models."

Having some control over the pace of change is essential for industry to manage new expectations, echoed scientist Herman Vermeer from the Netherlands, who shared his experience and insight from the EU swine gestation stall phase out. "With science we can solve problems. But often, as in the case here, the debate is an emotional one. We have made adjustments but it has not been easy for the pig farmers."

While public perception is increasingly the major factor driving change, industry can help navigate by keeping on top of the consumer mindset and strengthening that relationship, says consumer research consultant Theresa Dietrich. "People increasingly want to have a closer connection to their food. They want to know where it's coming from and to feel good about what they're eating. What does that mean? One thing that is clear is the relationship between animal agriculture and the consumer needs to be an authentic relationship - that 'authenticity' word is really trending in what matters to consumers today."

Keep in mind activists are one end of the spectrum and don't reflect the general consumer, advises Dietrich. "By focusing on the consumer relationship, there is an opportunity to build confidence and have a positive discussion of welfare as it continues to get more interest and profile."

Another key opportunity for industry is the progress, innovation and relationship-building that is driven every day by individual producers and industry representatives on the front line. The Livestock Care Conference showcased several local examples in two sessions - one on "Progressive industry leaders" and another featuring the presentation of AFAC Awards of Distinction.

## Watch weaning to oestrus intervals, advises US reproduction specialist

From a management perspective, analysis of weaning-to-oestrus intervals present the first opportunity for producers to evaluate how well sows have recovered from their previous pregnancy, according to Dr. Billy Flowers, a swine reproduction specialist at North Carolina State University. It also is a good opportunity to determine how well management during lactation has aided this process, he says. "The general assumption is that if sows return to oestrus within eight days post weaning, then their recovery is complete," he explains. "If the rebreeding interval is longer than this, then perhaps their recovery wasn't quite finished when weaning occurred and their subsequent reproductive performance may be compromised."

One of the greatest influences on weaning-to-oestrus interval is the management of sows during lactation. During lactation, the reproductive organs of sows have a chance

to recover from their previous pregnancy. It is well established that levels of reproductive hormones in the brain that stimulate oestrus and ovulation are very low immediately after farrowing.

"Most research studies have shown that between 12 and 16 days are required for the levels of these hormones to be replenished," notes Dr Flowers. "Lactation plays a critical role in this recovery process because the suckling action of the piglets serves to keep the sow's brain in a state of quiescence and the secretion of these hormones at very low levels. Once weaning occurs, the suckling-induced inhibition of these hormones is gone; if they have been replenished sufficiently, then oestrus and ovulation should occur within four to eight days. If they haven't, then the rebreeding interval will be extended or, perhaps, a post-weaning oestrus may not occur at all."



Lactation feed intake is the most important influence on weaning to oestrus interval

CONTINUED ON PAGE 62



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## The impact on performance

A recent analysis of adjusted farrowing rates and number of pigs born alive based on a farm's average weaning-to-oestrus interval demonstrates its impact on farrowing rate and litter size (Table 1). "Farms with weaning-to-oestrus intervals of less than eight days averaged between 10.9 and 11.0 pigs born alive. In contrast, farms with weaning-to-oestrus intervals of eight days or more averaged about 0.5 pigs less per litter," comments Dr. Flowers. "The relationship between weaning-to-oestrus intervals and farrowing rate was less clear. However, there was a general trend for farrowing rates to decrease as the weaning-to-oestrus intervals increased."

If a herd has an extended rebreeding interval, then there are several areas associated with lactation management that should be examined, Dr. Flowers advises. "The most obvious of these is feed intake during lactation. It has been well documented that nutritional management during lactation has a significant impact on subsequent reproductive performance of sows," he points out. "Lactation is a period in which the sow is under an enormous amount of metabolic stress. It has been estimated that about 75% of the nutrients that a sow consumes during peak lactation goes to support production of milk for her litter." Consequently, it is quite common and indeed normal for sows to have to mobilize protein and fat to meet the metabolic demands of lactation, says Dr. Flowers. "When

**Table 1: The influence of weaning to oestrus interval on farrowing rate and litter size**

Weaning-to-oestrus interval (days)	Farrowing rate (%)	Number of pigs born alive
< 5.9 (21 farms)	84.0 + 1.4	11.0 + 0.1
6.0 – 6.9 (40 farms)	83.9 + 1.0	10.9 + 0.1
7.0 – 7.9 (18 farms)	82.0 + 1.4	10.9 + 0.1
8.0 – 8.9 (13 farms)	80.8 + 1.5	10.4 + 0.2
9.0 – 9.9 (6 farms)	79.3 + 2.5	10.3 + 0.3
>10.0 (8 farms)	74.7 + 4.1	10.4 + 0.3

this happens, the sow loses weight and body tissues. And if she loses too much body condition during lactation, her subsequent reproductive performance post-weaning can suffer," he observes. "As a result, rebreeding intervals, subsequent farrowing rate and litter size can all be affected. Anything that can be done to increase feed intake during lactation should help improve weaning-to-oestrus intervals."

## The influence of lactation length

Another area that can influence the weaning-to-oestrus interval is lactation length, notes Dr. Flowers. "As pointed out earlier, the brain needs time to replenish reproductive hormones after farrowing. If sows are weaned before these levels are established, then suboptimal amounts of these hormones are released," he explains. "This creates a situation in which sows would probably show a delayed oestrus and ovulate a lower-than-normal number of eggs."

"Recovery of the brain and replenishment of these hormones is also sensitive to the metabolic demands of lactation," Dr. Flowers continues. "Consequently, if excessive amounts of body tissue are lost during lactation, then recovery can take longer than the normal 12 to 16 days." He believes that, collectively, lactation lengths of less than 16 days are often not conducive to optimizing the subsequent reproductive performance of sows. Finally, he notes, split or partial weaning strategies can contribute to problems with extended rebreeding intervals. "It is important to remember that whenever pigs are removed, the suckling stimulation is reduced," he stresses. "If enough pigs are removed, there could be a high enough reduction in the suckling intensity that the suppression of the endocrine system caused by suckling is removed and the sow may begin normal reproductive activity." What happens in many situations with split weaning is that the largest pigs in the litter are weaned two to three days before the rest of the litter, Dr. Flowers observes. "If enough piglets are removed from the sow at this time, then from a physiological perspective, she thinks the entire litter has been weaned," he says. "If this occurred on day 16, then the reproductive consequences are similar to those that occur with early weaning."

Management is the key to maximizing wean-to-oestrus intervals," concludes Dr. Flowers. "Keeping the needs of the sow herd as a top priority will help you make the necessary changes to improve this important production parameter," he says. ■

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## Dealing with discharges in sows

By Dr. Dawn Magrath, Innovative Veterinary Services, Lethbridge

I frequently get asked, “Doc, we are seeing a lot of discharge in our sows, should we run some medication?” Unfortunately, the answer is rarely a simple “yes” or “no”. There can be many reasons for this problem to occur and finding out the cause(s), involves some investigation, because the simple culprit of a dirty barn is rarely the case these days. That being said, although most barns are kept very clean, the most important area (at least in stalls), is right behind the sow and this needs to be kept as clean as possible.

First, let’s consider when it might be considered normal or abnormal to see a vulval discharge.

Time discharge is noted	Appearance	Significance
First few days after farrowing	Thick mucus	Normal
More than 6 days after farrowing	Yellow pus, brown	Abnormal
At mating and day after mating	White/ clear mucus	Normal
14-21 days post mating	Any form	Abnormal
During pregnancy	Any form	Abnormal

The times noted in this table as normal events are occurring at a time when the sow’s reproductive tract will be “cleaning up” after farrowing and mating.

### In the farrowing house

If a discharge (as described above) is seen in the farrowing crate and the sow is still eating well, the udder feels good and the piglets look well, then I would consider the discharge to be normal.

If there is a strong/foul odour, this may indicate a retained piglet or placenta. After 5-6 days, discharge of any kind, other than a little clear mucus, should be considered abnormal and further investigation is warranted.

Further assessments that should be carried out are:

1. Check rectal temperature (normal = 102 - 102.5° F).
2. Palpate the udder for signs of heat, hardness, discomfort.
3. Is the sow bright, or dull and off-feed?
4. How do the piglets look? Are they full and appear to be getting adequate milk?
5. Are there multiple sows affected?



A heavy white, yellow or bloody discharge could indicate a uterine infection

A review of the following should be carried out:

- How examination of sows during farrowing is performed.
- Farrowing house hygiene.
- Nutrition.

### In the breeding and dry sow barn

Discharge in the sow other than the first day after mating is an abnormal event. The origin of the material observed can be the bladder, the vagina/cervix, or the uterus. The volume of discharge noted can also be an indication of the source. A small volume might indicate a vaginitis or cystitis

CONTINUED ON PAGE 72

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(inflammation of the bladder); whereas a large volume is more typical with an endometritis (uterine infection).

It is also important to note that sows that discharge do not always lose their pregnancy, of course this will depend on the origin of the discharge.

The most common time that I see discharge in herds is typically 16–20 days post mating, which coincides with when that animal would be starting to return to oestrus. The sow’s reproductive tract is beginning to get ready for mating, the cervix begins to relax and the material that is remaining from the previous insemination begins to drain. More material may be noted after the sow has been lying down and may not always be obvious if sows are only observed when they are standing at feeding time. If there is a reproductive issue on your farm, I suggest observing sows several times daily to monitor for such symptoms.

What are the most likely causes for seeing large volume discharges in this time frame? The most frequent cause of discharge that I see in barns involves the events that occur at mating time. Copious amounts of discharge seen just prior to 21 days gestation are most likely from the uterus. The following description of hormonal changes will clearly define why the sow is so susceptible to introduction of pathogens during mating:

1. Just prior to standing heat, levels of Follicle Stimulating Hormone (FSH) and Luteinizing Hormones (LH) begin to increase and this causes maturation of follicles.
2. The maturation of follicles in the ovaries, cause them to release oestrogen, which initiates signs that we see during heat detection. Enlargement and reddening of the vulva as well as increased mucus production, results from these hormonal changes.

3. Rising levels of oestrogen in the blood leads to a “standing response”. Eventually (about 24–48 hours into the standing heat), ovulation occurs as LH peaks.
4. You can see in the diagram below, the ripened follicles on the ovaries in this reproductive tract specimen.
5. Each structure then develops into a corpus luteum, which begins to produce progesterone and enables the uterine environment to become suitable to maintain pregnancy.
6. If fertilization occurs, and the sow becomes pregnant, the corpora lutea continue to release progesterone and pregnancy is sustained.
7. If fertilization does not occur, the prostaglandins are released by the uterus and this removes the active corpora lutea and the FSH and LH can begin their work once more.

The importance of describing the reproductive cycle is, I believe, instrumental in understanding why timing of insemination is so critical. During high levels of oestrogen in the blood, the reproductive tract is relatively resilient to infection. As we recall, there is increased mucus in the tract and a less tolerable pH for bacterial invaders. However, as the level of oestrogen declines and progesterone increases, the environment becomes much more suitable for bacteria.



**Follicles**

**Ovaries**

Diagram 1: The sow's reproductive tract

Therefore the ideal time to mate the sow/gilt would be 12 hours into standing heat (as long as she is in good standing heat, you don’t want to be too early either) and then repeat 24 hours later. There is no advantage to mating more than twice in a 24 hour period, or mating any sow more than twice as mating a third time will put that last mating into the danger period of declining oestrogen.

If you see discharging sows during the time I have described, it is recommended to discuss this issue with your veterinarian and review standard operating procedures for your site.

Other considerations for reasons you might be seeing increased numbers of sows with discharge in your herd are:

- Having a large proportion of the herd that is more than Parity 5.
- Over-handling the boars at mating time, especially squeezing the preputial sac. I recommend that somebody be present at all matings, but only assist if necessary.
- No assistance at mating can be equally as bad, because the boar’s penis may then end up all over the back end of the sow before he finally is able to get into the cervix, taking contamination with it.

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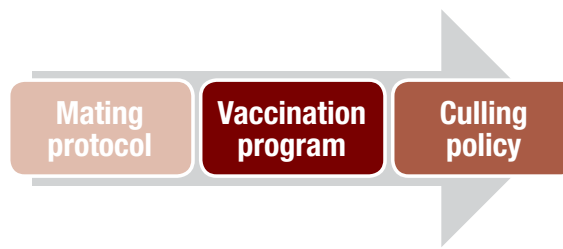


- Wet dirty boar pens, so that the boar is wet underneath at mating time and can contaminate the vulva with environmental pathogens which will then get introduced into the reproductive tract.
- As mentioned in more detail above, breeding too late in the oestrous cycle.
- Herds that have a very short lactation length (less than 21 days) may see more discharge due to fact that the reproductive tract is not recovered. Early embryonic mortality may be seen as discharge in these cases.
- Rebreeding discharging sows.

Remember, discharge is a symptom, not a disease. Prevention and control does not always warrant antimicrobial therapy. By managing these factors, you will be controlling the level of this issue in your herd.

### What your vet will do if you have a concern about discharges

1. Take a good history about your standard operating procedures related to the following areas.
2. Records will be reviewed. This can be useful in determining seasonal recurrence of



discharge that is seen in some herds. Records are also an important part of planning for short term control of the economic impact of a disease/issue. Always ensure your records are up to date to get the maximum information.

3. Post- mortem examinations may be necessary to determine the origin of discharge, especially if policies that have been changed already do not improve the degree of incidence.
4. Samples may need to be collected and submitted to a diagnostic laboratory to determine the pathogens involved. This information can be used to make correct treatment recommendations.
5. Treatment of sows and boars may be required based on the findings from history and lab results.

The bottom line is to keep your veterinarian involved on health issues in your farm to allow a full evaluation and faster return to maximum production.

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# Uncomfortable truths: Antimicrobial stewardship and sustainable access

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

How will we protect access to antimicrobials in food animals? This is a question I was recently asked while speaking at a conference in the United States. "It is a difficult question to answer," I responded, "as there is no black and white response. This is a dynamic world and to answer this question will require thoughtful, measured reflection and consideration. In facing the 'uncomfortable truths' head-on, we should be mindful that preserving access will be a reflection of our care and the care of the social licence that is granted to us through public confidence. Protectionism for the sake of protectionism will only undermine this social licence. Sustainable access will be a product of leadership and the demonstration of stewardship through producer and veterinary willingness and cooperation. We need to look into the mirror and want to change before that change is forced upon us." This is how I started to answer that question. How would you have answered?

Increasingly, the varied usage of antibiotics in food producing animals has come under greater regulatory and retail scrutiny. Consumer attitudes towards the use of antibiotics in the food


supply chain continue to drive this increased scrutiny. Once considered a discussion point amongst regulatory and special interest groups, the specifics of on-farm antimicrobial usage and resistance are now viewed as mainstream issues within social dialogues. The intricate nature of understanding the multi-factorial role and outcomes with respect to antimicrobial use has created inherent polarization within private and public professional fields as well as within a range of lay person and consumer groups.

Within society, Doctors of Veterinary Medicine hold special privilege with respect to prescribing and dispensing of pharmaceuticals intended for use in food animals and food animal populations. The veterinarian's right to prescribe pharmaceuticals is legislated and made possible through the maintenance of medical records that demonstrate a medical recommendation based on an indication for a known health concern. Increasingly, society is placing greater restrictions and pressures upon the veterinary profession and agricultural commodity groups to judiciously and prudently utilize antibiotics within food animal populations. The social license to market food animals is based largely on public confidence. Food Animal Veterinarians are the professionals best positioned and qualified to moderate the discussion on prudent use of antimicrobials and the social dialogue between the various stakeholders. Recently, a document on prudent use of antimicrobials has been adapted by the Alberta Veterinary Medical Association for use within the framework of this discussion. This document is intended to be a stakeholder guidepost for you and me, and underscores general principles and philosophies as they relate to prudent usage.

How can veterinarians demonstrate stewardship? Recently you will have noticed that veterinary pharmaceutical dispensaries are attaching labels to the prescription products that you purchase. These labels are an indication and reflection of the presence of a valid veterinary client patient relationship, the maintenance of a documented and recognized medical record, the presence of a prescription and a record of dispensing from a valid prescription for the appropriate product or products. This system acts as the first line in a veterinarian's check and balance system to ensure responsible usage, prescribing and dispensing.

How can producers participate in stewardship? The public has a great deal of confidence in the veterinary/producer relationship and veterinary medical oversight of food animals. In surveys that speak to retail and consumer concerns over prudent antimicrobial usage and stewardship, comfort with antimicrobials on-farm increases significantly as

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The varied usage of antibiotics in food producing animals has come under greater regulatory and retail scrutiny, says veterinarian Dr. Egan Brockhoff

their awareness of veterinary involvement and monitoring increases. How do we facilitate this relationship to allow for easier and more effective communication between the veterinarian and the producer? How do we facilitate greater cooperation on the road to unravelling these uncomfortable truths? The maintenance of a valid veterinary client patient relationship is a two way street. The veterinarian needs to maintain a medical record to justify the writing of a prescription and thus enable consumer confidence. The producer has the responsibility in supporting the maintenance of that medical record through facilitating access to the animals and farm level intelligence on a consistent basis.

As long as there are animals there will be a need for treatment and prevention of disease. Vaccination, environmental management, and increased knowledge of pig and farm level disease and transmission are all factors in antimicrobial stewardship. Whenever possible we should look to encourage the movement from whole population medication to individual animal medication. In most cases we can maintain animal well-being and health while reducing total costs without affecting productivity. These initiatives must be supported by monitoring and begin with stockperson training on individual pig care, mentorship within the barn environment and validation that encourages staff incentives. Productivity is also a primary driver behind stewardship. Utilizing veterinary resources within real or simulated field trials provide you with the opportunity to make subjective choices. Oftentimes it is these resources that provide the private practitioner with the tools necessary to direct informed decisions versus anecdotal based decisions.

Demonstration of antimicrobial stewardship will be a key to our future access to these products. As a farmer and a veterinarian I see the need for increased cooperation, increased communication and increased awareness if we are to lead this discussion and not just react to it. Food Animal Veterinarians are passionate about their work and your future successes. They are with you and support you and are the professionals best positioned and qualified to moderate the discussion on prudent use of antimicrobials and the social dialogue between you and the various stakeholders all around us. Moving forward it will become increasingly important for veterinarians to cultivate consumer confidence through maintaining a consistent professional medical, prescribing and dispensing record that can be validated and audited. Producers large and small all have a role in this. I look forward to the conversation. ■

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# International Round-up



The Apollo solar powered electronic sow feeder in use at an outdoor pig unit

## Solar powered outdoor sow feeder reduces losses to birds

With an estimated 40% of Britain's sow herd kept outdoors, any innovation that can improve efficiency or reduce costs is keenly scrutinized by producers. Two of the biggest challenges in feeding sows outdoors is the inability to feed sows individually and the loss of feed to birds such as seagulls and starlings. But now a novel solar-powered electronic feeding system promises to eliminate waste and allow accurate individual feeding.

The Apollo feeder, produced by ESF specialists MPS Agri, is already operating in a 3,500-sow outdoor herd near Melbourne, Australia. The MPS Agri feed stations are currently feeding 500 sows and by the end of the year sufficient stations will have been added to feed the whole herd, according to Pig World magazine. MPS Agri outdoor electronic sow feeders are powered entirely from a solar panel mounted on each feeder, which supplies a heavy-duty 24-volt battery.

The solar system is expected to provide uninterrupted power throughout the year in Australia, and likewise in Britain.

"The 24-volt battery provides a three-day buffer against very overcast conditions and I am confident it will be adequate even in a very difficult winter," says Andrew Houston, from MPS. "But in any case, it will always be possible to add another battery."

Each solar-powered feed station reads the transponder carried by each sow, and communicates wirelessly with an MPS Agri computer before dispensing the correct amount of feed. The stainless steel feeders themselves require only a modest amount of power as the gates are mechanical rather than being electrically powered.

The system requires little labour, as above each feeder is a one tonne hopper, which holds a week's supply of feed.

"Apart from the solar power, the feeders are exactly the same as the indoor versions," said Andrew Houston, who predicts a five-year pay-back from eliminating loss to birds, and significant benefits on top of this from the improved productivity that results from targeted feeding.

Each feeding station is capable of feeding 40-50 sows. An indoor MPS Agri electronic sow feeding system, installed and running, costs about £80 (\$130) a sow and the outdoor system will cost slightly over £100 (\$160) per sow.

## Pressure groups are undermining the welfare of British pigs

Animal welfare pressure group Compassion in World Farming (CIWF) and the Soil Association, which determines organic production standards in the UK, have been slammed by Britain's National Pig Association, which represents producers. The organization says that they are threatening the welfare of pigs on British farms because they are opposing new developments and replacement of existing facilities, which would actually be more welfare - and environment-friendly.

In particular NPA has condemned CIWF for sending quasi-official letters to pig farmers, in which it threatens to oppose planning applications unless the applicants disclose confidential management information to CIWF. NPA also condemns the Soil Association for supplying planners with

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misinformation intended to give the impression British pigs are produced in the same way as intensive pig production in other countries.

“The peasant farming idyll promoted by these two organizations has little relevance in a world with a fast-growing population that needs affordable food,” said NPA chairman Stewart Houston. “If their continued attacks on our higher-welfare British pig industry are successful, they will succeed in shutting down pig production in Britain and supermarkets will import more lower-welfare pork from elsewhere in the world.”

Most of the objections raised by CIWF and the Soil Association are not related to planning matters and should be ignored by planners, says NPA. For instance, CIWF has written to applicants demanding to know the precise nature of the enrichment materials to be used in proposed new housing.

However, NPA is concerned the constant attacks on British pig production will soon reach a point where most pig producers are dissuaded from putting up new housing,

because of the planning difficulties involved. “If their intention is to drive economic pig production out of Britain, then there is a real danger they will succeed, but I fail to see who will benefit,” said NPA chairman Stewart Houston. “Consumers won’t, producers won’t, and the pigs left in old, inefficient buildings won’t either.”

### US requires nutritional labelling for poultry and meat

The US Department of Agriculture’s (USDA) Food Safety and Inspection Service (FSIS) has introduced a requirement for labelling on popular raw meat and poultry products.

The new rule means that consumers will have easy access to nutritional information for packages of ground or chopped meat and poultry. In all, 40 of the most popular whole, raw cuts of meat and poultry will have the labelling.

“Providing nutrition information on meat and poultry products in the store gives

shoppers a clearer sense of the options available, allowing them to purchase items that are most appropriate for their families’ needs” said Under Secretary for Food Safety Dr. Elisabeth Hagen. “These new labels mark a significant step in the agency’s efforts to help consumers make more informed food purchase decisions”

According to a USDA news release on the new regulations, “The new nutrition facts panels will list the number of calories and the grams of total fat and saturated fat that a product contains. For example, consumers will be able to compare the calories and fat content for ground turkey versus ground beef, or for pork chops versus chicken breasts, right in the store. Additionally, a ground or chopped product that includes on its label a lean percentage statement, such as “85% lean” and is not considered “low in fat” also will list its fat percentage, making it easier for consumers to understand the amounts of lean and fat content in a particular product. Consumers will no longer have to guess which products fit their diets.”

CONTINUED ON PAGE 78



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7	50.74	81.40	127.39
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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

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## National Pork Board to support Pig Adventure Centre

The National Pork Board has agreed to donate \$1 million to a proposed Pig Adventure Centre in Indiana with a second \$1 million donation contingent on private fund-raising of \$7.6 million.

The goal of the project is to allow consumers to see first-hand the way pigs are being raised in a modern barn. The project is to be built as part of the existing Fair Oaks Dairy Education Centre on land adjacent to I-65 about an hour from downtown Chicago. Plans call for a working 2,400-head sow farm built to allow visitors to view all aspects of production from an enclosed walkway above, and a separate education center equipped with exhibits and other educational tools.

Estimated total cost of the project is \$9.6 million. Belstra Milling, an Indiana pork producer and one of the major supporters of the project, has said it will assume all costs for the working sow barn. Private funds are being sought for the visitor and education features.

Michael Platt, executive director of the Indiana Pork Producer Association and another major supporter of the project, said future plans call for making the sow barn the focal point of a distance-learning project that would allow students from around the country who have little access to farms to learn about modern food production.

Platt said construction of the sow barn is scheduled to begin this spring.

## Piglets go bananas for banana scent

Spanish researchers have found that the application of a banana scent to the skin of the sow's udder increased milk consumption by the piglets and reduced aggressive behaviour. María Fuentes and her colleagues at the Faculty of Veterinary Medicine at Espinardo in Murcia, Spain carried out an investigation into the effect of olfactory stimulation during suckling on the welfare of weaned pigs.

They used six control group sows and six treatment ('Banana') group sows, each with 10 piglets. Treatment consisted of daily application of isoamyl acetate (banana scent) onto the skin of the sows' mammary glands

during the 21 days of suckling. Preference of the piglets for the banana scent was tested with a V-maze at four and 21 days of age.

After weaning, pigs were regrouped into pens of 10. For the Banana group, feeders were scented with isoamyl acetate for the first 15 days after weaning. During the first five hours after regrouping, a video camera was used to record non-agonistic, aggressive and submissive behaviours.

Pigs were weighed on their day of birth and at 21 and at 35 days of age. Feed consumed was weighed during suckling and for 15 days post weaning.

The researchers reported that the Banana group pigs spent more time in the scented arm of the V-maze. They weighed more at weaning and had a significantly higher average daily gain than the control piglets. During the post-weaning observation period, Banana group pigs showed more non-agonistic and submissive behaviours and less aggressive behaviour. However, feed consumption and average daily gain did not differ between treatment groups.

**Reference:** Fuentes M., J. Ojal, M.L. Hevia, A. Quiles and F.C. Fuentes, 2012. Effect of olfactory stimulation during suckling on agonistic behaviour in weaned pigs. *J Swine Health Prod.* 20(1):25-33.

## Genetic marker for PRRS discovered

A consortium of US scientists has discovered a genetic marker in pigs that identifies whether or not a pig has a reduced susceptibility to porcine reproductive and respiratory syndrome (PRRS). This disease annually costs the US pork industry approximately \$664 million.

A genetic marker called quantitative trait locus was found by researchers on swine chromosome 4 that is associated with resistance to PRRS virus infection. This is especially important as this location also is associated with improved growth of pigs that are infected with the PRRS virus. She said results indicate a positive effect for PRRS resistance and higher weight gain, according to Joan Lunney, a research scientist at the USDA's Agricultural Research Service in Beltsville, Md.

The identification of the marker gene responsible for increasing resistance to PRRS will allow genetics companies to more easily

place selection pressure on PRRS resistance, which in turn, could allow producers to introduce new “PRRS-resistant” lines into their herds, says Chris Hostetler, the Pork Checkoff’s director of animal science. “This could be one of the tools used to help eliminate PRRS, but more importantly, this work may provide the platform for finding similar marker genes responsible for conveying resistance to other economically devastating diseases.”

## The impact of pre-starter diet on *S. suis* infection

Adding either milk products or other special feed ingredients to weaning piglet diets does not reduce the number of weaned piglets with clinical signs of an infection with *Streptococcus suis*, according to recent work at the Dutch Swine Innovation Centre, Sterksel, part of Wageningen University.

The researchers investigated whether providing milk after weaning can increase the energy intake of weaned piglets and consequently reduce the number of piglets showing clinical signs of an infection with *S. suis*. The diet with milk was fed during the first three days after weaning. They also evaluated the impact of feeding a diet with a lower level of non-digestible crude protein and with higher levels of gelatinised corn, acids, coconut oil and fermentable non-starch polysaccharides. This was termed an ‘optimised pre-starter’ diet.

Weaned piglets were monitored from weaning until 35 days after weaning. The number of piglets that were treated, culled, or had clinical signs of an infection with *S. suis* was recorded daily.

Energy intake and daily gain (+86 g/d) in the first week after weaning were higher in piglets that were fed milk during the first three days after weaning than in piglets that received no milk. From day 7 to 14 after weaning, energy intake and daily gain (382 versus 341 g/d) were higher in milk-fed piglets than in piglets that received no milk. Feed conversion ratio was similar in both groups. From weaning to day 35, energy intake and daily gain (458 versus 424 g/d) were higher in milk fed piglets than in piglets that received no milk.

The supply of milk after weaning did not reduce the number of weaned piglets with clinical signs of an infection with *S. suis* (19 of 160 piglets in both groups).

Weaned piglets that received the optimised pre-starter diet had a higher energy intake from weaning to day 14 and from weaning to day 35 than weaned piglets that received the control pre-starter diet. Daily gain and feed conversion ratio were similar for both diets. The optimised pre-starter diet also did not reduce the number of weaned piglets with clinical signs of an infection with *S. suis* (21 versus 17 piglets) and the number of culled piglets (3 versus 2) compared to the control diet.

## Fish oil in gestation diet improves piglet growth

A recent study by Belgian researchers compared the effects of adding three different sources of fatty acids (coconut oil, CO; fish oil, FO; shark liver oil, SO) on sow and piglet performance and colostrum composition. From day 103 in gestation until farrowing, four successive groups of

## International Round-up

15 sows received 70 grams per day of one of the three oils.

Gestation length, total numbers of piglets born, born alive, stillborn and weaned were determined. Piglets were weighed at birth, 24 hours, 14 days and 28 days (weaning) later. Colostrum samples were collected at farrowing and 24 hours later for the determination of the levels of immunoglobulins IgG and IgA and the fatty acid profile. Litter performance of the sows was not affected by the dietary treatments and neither was the concentrations of IgG and IgA in the colostrum. The researchers suggested that this was probably due to the short duration of fatty acid supplementation. However, they noted, the profile of fatty acids in the colostrum reflected very well the profiles of the supplemented oils.

The different treatments affected the growth performance of piglets. At weaning, the piglets from the FO treatment were respectively 263 and 329 g heavier than the piglets from the SO and CO treatments. This corresponded to a 4.2 % and 5.8 % increase of the ADG in comparison to the SO and CO treatments, respectively. These results show the importance of the fatty acid composition in colostrum on the growth of piglets and consequently the importance of the feeding of sows at the end of gestation,” concluded the researchers.

**Reference:** Boudry, C., Vanrobays M-L., De Vos, S., 2012. Journées Recherche Porcine, 44, 191-192. ■



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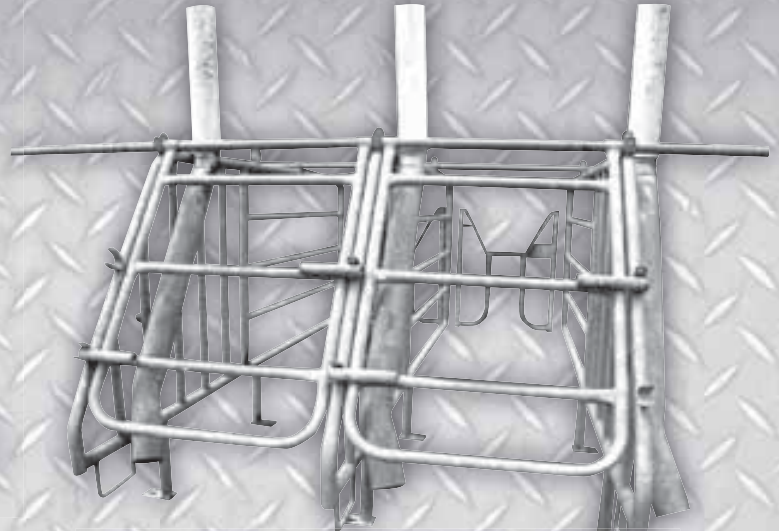
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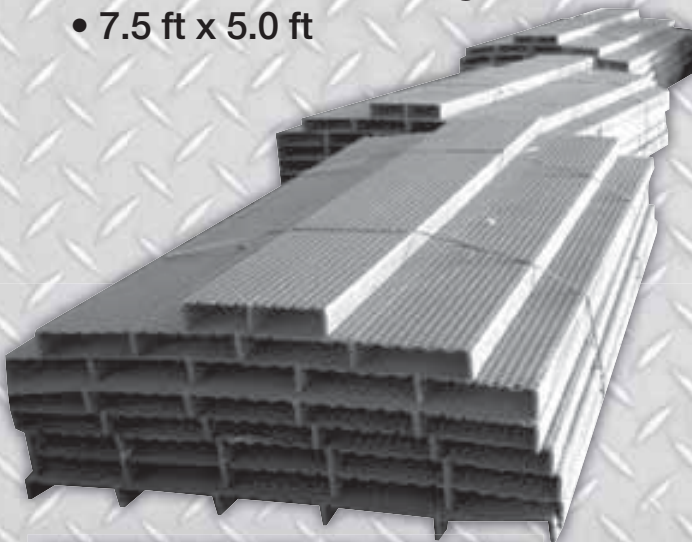
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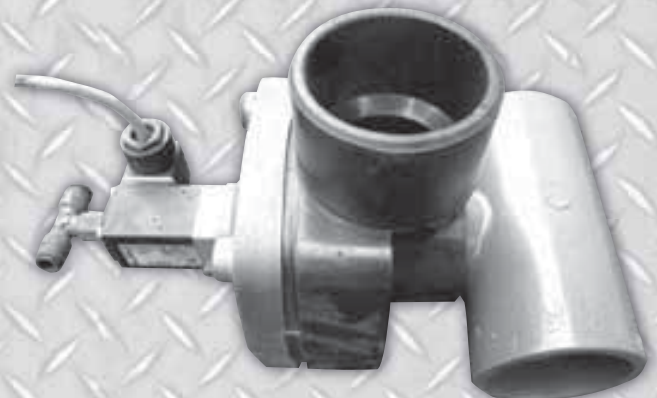
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## View from Europe

# Farm specific diets: The latest revolution

By John Gadd

I appreciate only too well that you in Canada must get tired of us 'clever clogs' in piggy Britain suggesting what you might do next, and I do apologize. We Brits are good at thinking up new ideas but not so hot at exploiting them commercially for ourselves - although those of us who have survived through ten years of high feed prices are getting better at it! Now you too are in the same boat.

But this latest idea is important as I hope to show you.

In the last issue I described what Farm Specific Diets (FSDs) were and provided some of the performance improvements which our grow-out producers are securing, compared to what most of us are doing now - and have done for a long time. That is buying grower/finisher feeds from a feed manufacturer's price list/ salesperson, or having a nutritionist design a formula for us from our own home-grown feeds - in both cases price per tonne being a prominent choosing factor.

Using the FSD concept to buy grow-finish diets (not breeding feeds yet awhile) is a quite different approach to buying grower/finisher feeds, usually three of them across the growout period. Simply put, FS diets are diets specifically formulated by the same nutritionist and sold by the same manufacturer as before, but designed specifically for your own farm conditions - an upgraded custom mix. They could change - or not - according to how your conditions change, and generally a three-month re-assessment period is advisable for the nutritionist to keep abreast of things.

Since 2005 'custom mixes', usually containing some specific additive for some reason or another, as a proportion to 'off-the-peg' feeds, has been about 5% to 95% over here. But FSD's are rather different - the *whole* dietary design is different, not just a bit of it.

### How different?

"Ah!" you say, "But things are indeed so different over there with you guys. Compared to us your farms are so different between themselves." Yes, they are, but it is wrong to assume that yours aren't! Ours are, in that we have a much wider range of housing than you, but they aren't really, in that you have as many differences *outside* any similarities in the way you handle environment as anybody else, including ourselves. Take immunity to disease -

acute or sub-clinical. The immune status of your herd at any one time being an example of a major difference between **any** farm from another and, for that matter, on your own farm between this year and next, or even from month to month.

Immune status influences the way the pigs respond to the nutrients they are offered. For example, not matching the daily protein intake to the degree of digestive effort the pig has to make so as to build up a strong immune shield when it needs to, can severely reduce meat formation. Conversely, to oversupply protein when the pig does not need a high defence because its conditions are clean and stress-free just wastes feed digestively. Commercial pig nutritionists are understanding how nutrient intake and balance can influence under- or over-supply of certain nutrients when (at the moment quite broad) differences in immune challenge exist. Also ways of estimating

CONTINUED ON PAGE 82

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## View from Europe Continued

likely levels of immune protection are getting better all the time so that the nutritionist can now start to do something about it in revising ration design on an on-going basis, providing the producer gives him the information to help him do this.

How we buy feeds now can be an expensive compromise. Off-the-peg diets from a price list, however well-designed, have been given the name of 'precision nutrition', but nevertheless must always be a compromise, so maybe not so precise – or precise enough. These days the modern pig nutritionist can do far better. The FSD concept ticks more nutritional boxes and is a move up to 'super-precision nutrition' for the growing pig.

As for so many things in life, it all depends on reliable information.

### So what information does the nutritionist need?

It is really quite simple and not onerous to provide. A bit more measuring, time and discipline which costs a bit more and the additional work the nutritionist and the feed mill has to contribute is added to the feed cost as well. But so far the benefit paybacks have ranged from 2:1 to as much as 12:1, with an expected mean of 6:1. I will cover this in more detail next time.

1. The weight of pigs entering a department.
2. The weight of pigs leaving the department. (Deaths and culls noted).
3. The time spent in the department - thus the daily gain.

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4. The amount of feed they ate. (The nutritionist may ask about a rough feed wastage estimate)
5. From the geneticist direct to the nutritionist, a statement of what their pigs should be capable of. (i.e. predicted growth curves). You only need to inform the nutritionist if the genetics have changed – to which line, AI supplier or breeding company.
6. What marketing constraints are in the shipping contract and what they are should you change your outlet

How often? Let the nutritionist advise you. All done by email of course. But every 3 to 4 months seems to be sufficient. The nutritionist may ask other questions from time to time – about stocking density, health or temperature. Allied to this latter are the very interesting findings about water intake being an advance warning of disease – maybe bound up with changes in immune nutrient demand?

At least you will know that somebody else is keeping an eye on the situation and may be able to mitigate things until you can get matters better.

### Weighing a worry?

Producers examining this list may be concerned about the weighing aspect. Don't be, there is no need to weigh everything. Some nutritionists are content with input and output weights of the whole grow-finish herd as in 1 and 2 above. Others advise selecting what you consider to be typical examples of your herd from two or three pens (say 30 to 50 pigs) and weighing them every 3 to 4 weeks, reporting this by email. This 3 to 4 week option can give the nutritionist a pointer towards changing immune demand, or lack of it. An interesting area which FSD can explore.

The workload is reduced if a group scale is used as a whole pen weight is sufficient, providing it is the same pen/s each time and any culls deaths reported. For the 'few pens' weighing option it is important to estimate feed wastage, needing keen observation.

Even so, from the producers point of view, all this is not rocket science, is it! In the next issue, I will discuss costs and paybacks and give some thoughts about the future of the concept.



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# Dingley Dell Pork: Brand image is the key

By Stuart Lumb

“If I’d been a run-of-the-mill UK producer selling pigs to my local processing plant I’d have quit pig production 12 years ago and probably now be driving a truck”. Those were the words of Mark Hayward, who runs a 450 acre mixed farm with his brother Paul in the scenic Deben valley, 20 miles east of Ipswich, Suffolk, eastern England.



“In the 1990s we had a traditional indoor unit selling our pigs to the local abattoir and enduring the usual peaks and troughs that went with producing pigs. The trough deepened because we suffered badly with swine dysentery and it nearly finished us off.

Consequently we rented some lighter land and went into outdoor pig production.” Mark is not your typical pig farmer. He heads up a rock band and is a very talented photographer plus he thinks outside the box. In this day and age it pays to be different and Mark figured out that they had to move beyond the farm gate and get more for their pork for it to be worthwhile for him to stay in pigs.



The farrowing paddocks at Dingley Dell Pork

Welfare issues have always been high on Mark’s agenda and in 1997 he signed up to the Freedom Foods scheme, run by the RSPCA ( Royal Society for the Prevention of Cruelty to Animals). Only producers showing high levels of welfare (i.e. above minimum legally accepted practices) can qualify for the scheme and it’s ideally suited to outdoor producers, because tail docking, teething and ringing of sows are only allowed in exceptional circumstances. Quarterly inspection visits are mandatory. Very few farms in the Freedom Foods scheme are awarded “Ambassador” status and the Hayward brothers are very proud of the fact that their farm has won this accolade.

CONTINUED ON PAGE 84



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Establishing a brand was also a key part of Mark's strategy. A brand image is important, and so Dingley Dell Pork came into being back in 1999. Looking at pork on supermarket shelves, everything is branded in order to be different. In fact in the UK during the 1970s the Dewhirst's butchers chain – now long gone – sold its pork under the "Cracklean" label. Sadly this was way before its time as the brand never took off.

Mark never wanted to go into processing and so went into partnership with a local packing plant, which is also audited by Freedom Foods. "Today's consumer wants to know where their food comes from and with Freedom Foods we have traceability from Farm to Fork," enthused Mark. Eating quality and flavour is vital, so their breeding program includes the use of Duroc genes. The herd comprises 750 sows and contains 40 GPs from which the F1s are bred. These are 50% Landrace/50% Duroc and are inseminated with Large White semen, so the slaughter generation contains 25% Duroc. The unit also has 30 rare breed Gloucester Old Spots. The aim was to produce pork from them for "high end" butchers but it never really took off.

The unit is very tidy, with all the huts – some of which have been given psychedelic "hippy" paint jobs – in nice neat rows and well laid out paddocks and is producing 23 pigs/sow/year.

Many of the UK's "outdoor reared" pigs are actually finished in big groups in redundant cattle yards. However to get Freedom Foods accreditation the finishers have to be kept outside for their entire lives and so the pigs are kept in tents with an outdoor run. The tents and fencing are moved periodically which makes the whole system quite labour intensive.

Mark is actively involved on the unit along with his team of 7 staff, as well as spending a lot of his time promoting the business. These days the consumer increasingly wants to know how food is produced. Large intensive units the world over are made up of huge sheds surrounded by high walls and perimeter fences, for sound reasons of biosecurity. Those of us in the industry think nothing of this, but what images are conveyed to "Joe Public"? Build a big wall or fence and immediately people want to know what it's there for. The less educated members of the public then assume we are trying to hide something – otherwise why build a high wall? Mark's philosophy is that he has nothing to hide and in fact welcomes visitors, so that they can be educated about pig production. Naturally this policy carries a degree of risk, but on balance Mark feels the advantages outweigh the downsides.

Cookery programs are currently in vogue on UK television and Mark has done a great job getting famous TV chefs to use

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Dingley Dell Pork. In fact two star Michelin Chef Tom Kerridge won the Great British Menu 2011 competition with his Dingley Dell Pork platter. Mark is only a good hour's drive from London and many famous restaurants in the capital source their pork from Dingley Dell. Just recently the world famous Harrods store in London has started selling Dingley Dell Pork, which is something of a coup for Mark. "Word of mouth is the best form of advertising you can have," he says. "We also have an interactive website which includes 'The New Pork Times' which contains all sorts of facts and trivia about pigs." Dingley Dell also promotes the business through a professionally produced DVD which includes stunning scenic shots along with a 16-page full colour brochure depicting the business mainly by means of eye-catching pictures, with a minimum of text, showing the pigs, the farm, the clientele etc. Facebook and Twitter are also used to promote Dingley Dell Pork.

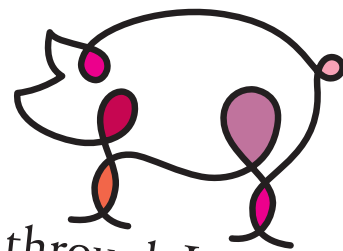
The pigs are just part of the Dingley Dell experience. The Hayward brothers are very keen on conservation and the farm has 50 acres of marsh and ponds and won the 2009 Suffolk Farm Business Special Award for Conservation. The farm also grows willow trees, the wood from which is harvested every 10 years to make cricket bats. Over 50 different bird species overwinter on the marshland and on the cultivated areas over 1800m of new hedges have been planted, while 2 km of existing hedges have been restored.

"We see it as part of our mission at Dingley Dell Pork to inspire and enthuse all parts of the food chain. This is why we are keen to involve those who purchase and use our pork with all aspects of what we do. The easiest way to do this is to have people (chefs, community groups, company executives from the City) come and spend a day with us," commented Mark.

Visitors from local schools are encouraged to come round the farm to find out that sausages and pork chops come from pigs, not from supermarket packs. Dingley Dell also entertains students from the local catering college, again so that they can learn the farm side of pork production. These budding cooks will also hopefully be potential customers after graduation.

Additionally Dingley Dell has an outside catering service, providing hog roasts and serving up innovative pork recipes that reflect the seasons, with the added provision of butchery demonstrations to entertain and gently educate the guests.

The trick in any business is to get in before anyone else. Once a new scheme appears in a press article its too late! The Hayward brothers had the vision to look beyond the farm gate when most producers were still happy enough just to sell pigs to their local abattoir and to create a value-added product through creating and developing a brand image. A lot of emphasis is being paid to conservation in the UK and the brothers have cleverly tapped into that vein. Of course it takes a lot of hard work to do all this – as the saying goes "no pain –no gain" but Dingley Dell Pork is now a well established business. Mark has no illusions though and says he can't rest on his laurels. In fact he has just established a small vineyard so that in a few years time restaurants will be able to offer Dingley Dell wine to go with their pork. ■



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