

BETTER pork

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BEHIND THE LINES

Emergency plans save lives

In follow-up to *Better Pork's* June cover story on barn fires, writer **Dennis Furlan** examines ways in which producers can develop procedures to manage an on-farm emergency. Having such plans in place can help to reduce the loss of life (both human and animal) or property, as well as to reduce the risk of environmental damages.

In another feature, writer **Norman Dunn** highlights the Danish development of a new pork labelling program. Given the seemingly mounting consumer interest in animal welfare, it is interesting to learn of industry initiatives in other countries and to reflect on possibilities for more local markets.

We have also made some additions to our *Better Pork* departments. We are pleased to welcome the return of **Janice Murphy** and her informative Nutrition department. Given the growing conditions this year, some producers are perhaps wondering about the potential impact of the drought on the corn feed quality. Murphy explores some research findings on this topic.

We're happy to announce a new department highlighting the activities of **Swine Health Ontario** – a leadership team focused on swine health management. This month, writer **Lilian Schaer** outlines the organization's Porcine Epidemic Diarrhea elimination plan.

We hope you find the current edition of *Better Pork* interesting, informative and engaging. As always, please feel free to contact me to discuss the current challenges and opportunities in the swine industry. **BP**

ANDREA M. GAL

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Europe's food and farming sector is convinced that animal welfare labelling wins more consumers for pork. Enter Danish and Dutch scientists with a new approach to pork labelling 15



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Brewing a new use for pork

Lovers of craft beer may have to make a trip south of the border to try out a new brew that features pork.

A New Jersey brewery, **Flying Fish Brewery**, introduced its Exit 7 Pork Roll Porter on Sept. 1. Yes, the brewers actually used pork in the creation of this beer.

Barry Holsten, the manager of Flying Fish, cooked 30 pounds of pork roll for the beer, according to **New Jersey On-Line LLC**. (Pork roll is a type of processed pork popular in New Jersey breakfast sandwiches. Imagine a meat along the lines of a sweet smoked kielbasa.)

According to the company website, this porter showcases “chocolate, maple, toasted nuts and a bit of spice from the pork roll.”

Food writer **Peter Genovese**, in his *New Jersey On-Line* article, gave a favourable review of the Pork Roll Porter. “It’s pleasantly smoky, smoother than expected, and does the state’s iconic food justice,” said Genovese.

The Pork Roll Porter is one of three limited editions, released to celebrate the brewery’s 20th anniversary. Exit 14 Imperial Pilsner is a hoppy brew, inspired by **Anheuser-Busch Companies, LLC**. Exit 5 Sour Forage Beer is a pale ale (saison), brewed with pine needles, goldenrod and wintergreen. The Exit series beers derive their names from the New Jersey Turnpike. **BP**



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Canadian-produced PED vaccine in the works

Researchers at the University of Saskatchewan developed a prototype vaccine that could help protect North America’s swine industry from the deadly Porcine Epidemic Diarrhea virus (PED).

It is estimated PED has cost the North American swine industry about \$400 million in lost income since 2013, according to the university press release.

PED vaccines are currently shipped from the United States to veterinarians on an emergency basis, which requires substantial paperwork and costs time.

“A Canadian-produced and licensed vaccine would be . . . more easily available to us (than the U.S. vaccine),” said Dr. Greg Wideman, a veterinarian with South West Ontario Veterinary Services. “It would streamline the process of getting the vaccine to the farm.”

Wideman said the vaccine manufacturers will be challenged to make a vaccine with a good IgA response. IgA is an antibody that protects piglets from PED. It’s found in the sow’s milk but until the antibodies are produced, piglets are vulnerable to the disease.

“That’s not an easy thing to pull off,” he said. “We’ll need some more time for verification to determine if the vaccine is effective.” **BP**

Social (Ag)Media: How to cook your pork and connect with consumers

Last year, according to **Statistics Canada**, the average per capita consumption of pork was 22.63 kilograms (carcass weight), which was a slight increase over the previous two years.

This month’s installment focuses on Twitter accounts for pork recipes – after all, many of us are always willing to try a new way to prepare this delicious meat. And sharing these accounts and recipes may just be another way to connect with consumers. This list does not indicate endorsement, as we haven’t had a chance to try out the many different recipes!

@PickOntarioPork

(Pick Ontario Pork)

Pick Ontario Pork helps to connect “consumers, retailers, and food-service operations with farmers,” according to its Twitter description. It also shares some recipes.

@PorkChopRcps

(Pork Chop Recipes)

As the Twitter handle suggests, this account focuses on pork chop recipes. Perhaps you’d be interested in checking out brown sugar pork chops or grilled Dijon pork chops.

@LovePork **(Love Pork)**

The Love Pork Twitter account from the United Kingdom regu-

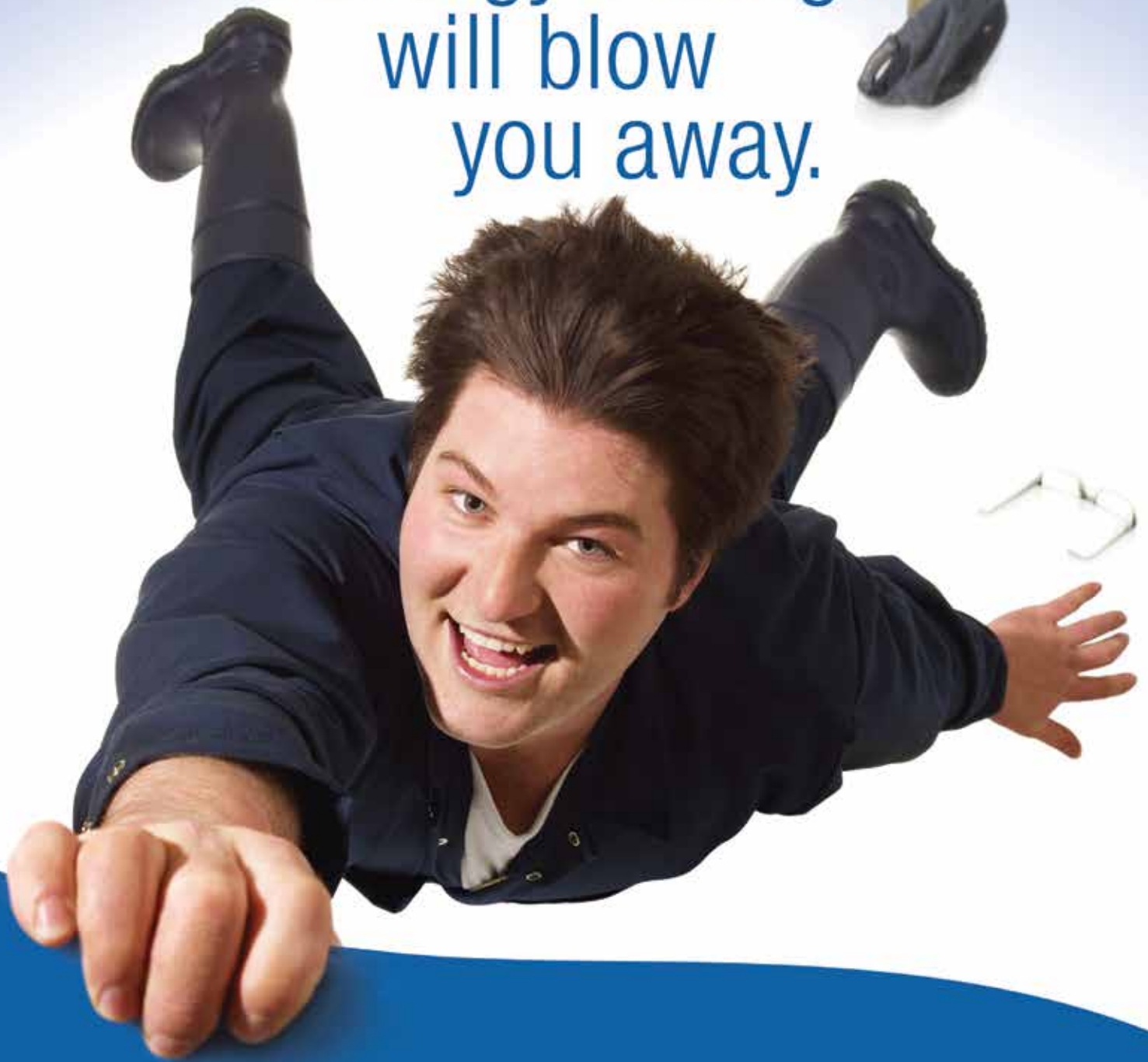
larly provides links for pork recipes. Some recent posts include recipes for pulled pork with paprika and brown sugar and pork meatballs baked with cheese.

@BaconCalendar **(Bacon Calendar)**

The Bacon Calendar Twitter account shares mouth-watering photos of dishes incorporating bacon. It also posts recipes, such as for a bacon blue cheese omelette or bacon scallops with garlic butter sauce.

What social media accounts do you like to follow? Tweet us, post on our Facebook page or email us at letters@betterfarming.com. We always appreciate your thoughts. **BP**

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GETTING with the plan

An emergency can happen at any time and in any place on the farm operation. Are you prepared?

by DENNIS FURLAN

One of the worst scenes any farmer could imagine is standing there, helpless, while a crisis unfolds on the farm — whether it's a hired hand entrapped in a grain bin, a severe fuel or pesticide leak, a collapsed electricity tower, or a raging barn fire with live animals trapped inside. Sometimes, no amount of prevention or planning can stop such tragedies, or even rescue animals and/or people. However, sometimes, the right approach can not only help avoid such crises, but allow for managing them if and when they occur.

Such an approach involves the instituting of an on-farm emergency plan, which outlines emergency protocols. As much as we all like to think we can handle ourselves when stuff happens, the fact is that, when a fire is raging across a farm, or an individual is trapped in a grain bin, there is no time to think. If emergency procedures aren't in place, the worst can happen.

These types of procedures can be outlined in any on-farm emergency plan, which can be prepared through resources made available at many levels of government. Alternatively, farmers can take the initiative and develop an emergency plan that's their own. Either way, such a plan should contain various contingencies that can be initiated once an emergency strikes.

The OSCIA emergency plan

Such an example of an emergency plan has been made available by the Ontario Soil and Crop Improvement Association (OSCIA) as part of an overall environmental farm plan. The emergency plan itself provides guidance to farmers on a wide range of emergency protocols, including emergency contact lists, farmstead maps, equipment inventory and mapping, and action guidelines for handling spills and other farm emergencies.

Karen Jacobs is the Environmental Outreach Specialist for the OSCIA. She was a member of the team that prepared the most recent update to the OSCIA's emergency plan. The team also included technical specialists from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Via email, Jacobs says, "There has been an increased level of awareness about emergency preparedness that needed to be incorporated into a plan we felt

Dennis and Tara Terpstra review their emergency plan measures.

comfortable encouraging producers to use.”

Much of the awareness Jacobs refers to stems from the outbreak of the deadly porcine epidemic diarrhea (PED) that swept through the United States, starting in 2013, and killed more than eight million pigs. The potential for serious outbreak in the province alerted the farming community to the ever-present dangers lurking around the corner. (PED did eventually reach a number of Ontario farms, primarily through the feed system. The number affected was small.)

As a result, the OSCIA emergency plan contains new and updated sections related to catastrophic livestock losses as well as health and safety. The plan also addresses other major emergency situations such as: spills management for fuel; manure and pesticides; power outages; low water conditions; fire; flowing grain entrapment; and insufficient manure storage. Jacobs says, “The last update to the emergency plan was in the early 2000s. It was time to update the whole plan.”

A plan that everybody knows

Although PED never did reach their farm, just the threat of its outbreak motivated Tara and Dennis Terpstra, owners of the Silver Corners pig farm in Brussels, to be even more vigilant in their own emergency preparedness plans.

“We have always been eager to engage in the latest measures for emergency planning, but when the PED outbreak happened, everyone involved in farming became aware of the ever-increasing dangers, and we were at the front of the line,” says Tara Terpstra.

If this sounds like 20/20 hindsight bravado, it isn’t. Although the PED scare heightened everyone’s awareness to the risks involved, the Terpstras give new meaning to the idea of being prepared for emergencies. For well over a decade now, Silver Corners has kept up to date with any emergency measures available, from courses and seminars to textbooks

and manuals. If it has something to do with preparing for the worst, the Terpstras like to think they’ve done it.

“I don’t think we’re being overly virtuous or careful here,” says Terpstra. “This is our livelihood. This is how we provide a living for our family and our kids, as well as a healthy food supply to Ontarians. I couldn’t imagine not constantly learning about emergency preparedness and always keeping our plan up to date. It might be one reason, knock on wood, that nothing catastrophic has yet happened on our farm.”

As a sign of just how prepared the Terpstras are, Tara pulls out a stack of binders that constitutes part of their emergency planning measures. These binders include the OSCIA emergency plan itself, which is customizable for individual farms, as well as learning modules from courses taken over the years.

Susan Fitzgerald, of Fitzgerald and Co. in Elmira, is a project manager specializing in the agricultural and food sector and has plenty of experience dealing with on-farm emergency planning and bio-security at the local, provincial and federal levels. About the customizability of the OSCIA emergency plan, she says, “Part of its beauty is that it can absolutely be filled in by any farmer to suit the needs of his or her specific farm.”

As an example, Tara Terpstra points to the section on manure storage for serving as guidance to the Silver Corners farm. She says, “As you go through the various sections of the plan, you get a sense of what your own farm’s strengths and weaknesses are. Luckily, engaging in this planning helped us learn that our manure storage capacity is well above standard and should serve us

Emergency plan components



The Ontario Soil and Crop Improvement Association (OSCIA) has made available an emergency plan that is part of the organization’s environmental farm plan. Here is a summary of what to expect when filling out the emergency plan in a way that is suited to your specific farming operation:

- A template for making a sketch of the layout of your farm, as well as the surrounding area.
 - A guide through the four elements of managing spills: control, contain, call and clean.
 - Contingencies for power outages: determining water supply and feed requirements.
 - Measures for dealing with catastrophic livestock losses: being physically and mentally prepared.
 - Preventative measures to deal with low-water conditions.
 - A section on fires and a fire-plan template.
 - An outline of measures to prevent various grain-entrapment scenarios, including: engulfment in flowing grain, entrapment in grain transportation vehicles, collapse of horizontal and vertical grain surfaces, and suction equipment hazards.
 - An outline of manure storage-capacity measures, as well as a manure spill plan.
 - Guidelines for preparing emergency kits and contact lists.
 - Petroleum and pesticide record-keeping guidelines.
- The emergency plan can be found at: <http://www.ontariosoilcrop.org/oscia-programs/workshops-webinars/environmental-farm-plan/efp-emergency-plan/> **BP**



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well in avoiding needless crisis.”

The Terpstras run Silver Corners with the help of only one hired hand. In essence, that’s three people presiding over a farm with much livestock and farm acreage to worry about, as well as three young boys running about. The responsibilities are considerable, so the emergency measures and plans in place should be, too.

Dennis Terpstra says dealing with emergencies is ultimately about

dealing with people: safeguarding their health and safety in the event that something unfortunate happens. “Kids are kids, but we’re constantly warning them about the dangers on the farm. You can see all the warning signs and labels around here. We expect everyone, including ourselves, to take them seriously.”

In fact, there are warning signs just about everywhere on the Silver Corners farm, and it’s the direct result of

the recent PED scare. For example, anyone trying to enter the farm area behind the house is warned, via gate and sign, not to do so. They have to sign in. Tara Terpstra says, “It wasn’t like this a few years ago, when anyone could just walk around. We’re much more careful now.”

The Terpstras also ensure that proper emergency contact information is available and available in the right places. Throughout the farm, formal yellow contact forms are posted on walls in clear sight. There’s one on the lockers as you enter the shower area before entering the pig barn; everyone on the farm knows it’s there.

Is emergency planning mandatory?

Training is the first thing that comes to mind for Mike Brine, Agribusiness Specialist for Trillium Mutual Insurance in Listowel, when asked about on-farm emergency planning. He says, “With the trend of farms getting bigger, especially in terms of hired personnel, it’s very important that not only do these people get proper (emergency procedure) training, but that this training is specific for the farm they’re working at.”

When asked if Trillium Mutual requires its agricultural policy holders

A resource for farm animal emergency preparedness

The federal government’s Emergency Preparedness for Farm Animals brochure/web page, which was prepared by Public Safety Canada, includes instruction regarding:

- Having a shelter plan in place.
- Having an evacuation plan in place.
- Guidelines on making an emergency plan.
- Guidelines on preparing a farm emergency kit.

The guidelines can be found at: <http://www.getprepared.gc.ca/cnt/rsrscs/pblctns/frm-nmls/index-en.aspx/> BP



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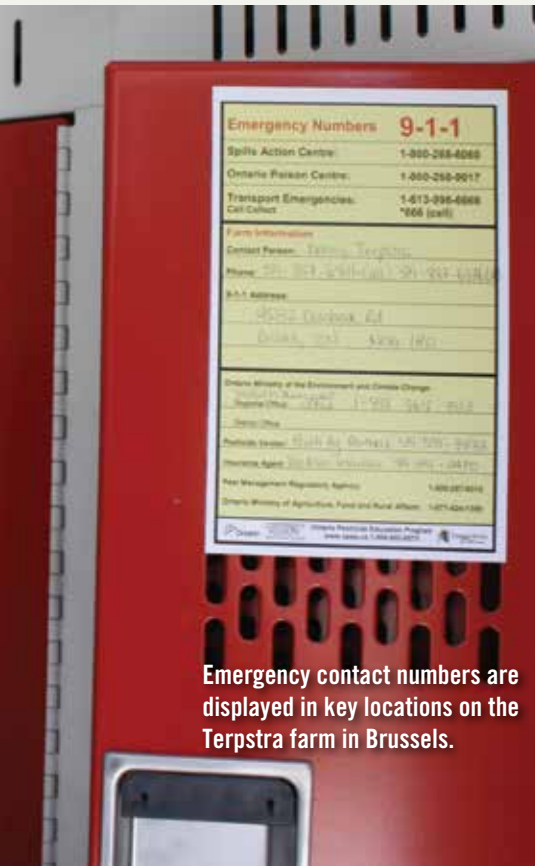
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Emergency contact numbers are displayed in key locations on the Terpstra farm in Brussels.

to have an emergency plan in place, Brine points to a potential challenge for all farmers. He says, “No. Generally speaking, and to my knowledge, most insurance companies don’t require an emergency plan. However, part of the process we engage in with farmers is the risk inspection, which is an opportunity for these farmers to learn from us about the kinds of emergency measures that can help avoid risk.”

In fact, the question of whether farmers are required, by regulation or otherwise, to have an emergency plan in place is not as simple as it sounds. On the one hand, there is no farming- or agricultural-specific regulation requiring all farmers to have an emergency plan. On the other hand, some laws, including non-agricultural legislation, may well require such emergency planning.

For example, the lack of a specific agricultural regulatory requirement exhibits itself in the OSCIA emergency plan, which is part of the orga-

nization’s environmental farm plan. Although an environmental farm plan is required for farmers to secure various sources of governmental funding, the emergency plan itself doesn’t actually have to be filled out.

“The emergency plan is not a mandatory part of the environmental farm plan,” Jacobs explains. “Everyone who attends the workshops is encouraged to complete the emergency plan, and we are confident that most of them are completing the parts of the plan that are most relevant to their operations.”

Another component of on-farm emergency planning that isn’t specifically regulated is fire preparedness. Bianca Jamieson, ministry spokesperson for OMAFRA, writes in an email response, “Farms are not required to have emergency plans for fires. Some insurance companies may offer incentives to have emergency plans, and some municipal fire departments offer a free inspection program to assist in plan develop-



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There are warning signs everywhere on the Terpstra farm operation.

gency-preparedness measures. The Ministry of Labour requires such regulatory compliance.

In addition, OMAFRA’s Nutrient Management Act requires some hog farms to have a nutrient management strategy (NMS) in place that addresses manure storage capacity, runoff management, farm mapping, animal inventory, and other manure-related emergency preparedness measures.

Is your farm required to have such an NMS in place? It depends. For example, an NMS is required for farms with nutrient units greater than five that are constructing or expanding a livestock barn or manure storage facility. As an example, six finishing pigs that are between 60 and 230 pounds constitute one nutritional unit. Farmers should consult OMAFRA directly to determine what specific nutrient emergency requirements apply to their specific operations.

Other resources to develop your plan

On the federal level, some of the non-regulatory guidelines Duval refers to can be found on a brochure/webpage the Government of Canada has provided that’s titled *Emergency Preparedness for Farm Animals*. It provides a general guide for farm animal emergency care that includes a knowledge of the risks involved,

Tips for fire prevention and preparedness

- Properly store combustible materials (dirty rags, pallets, cardboard, etc.). Don’t stockpile these materials in places that are close to ignition sources.
- Include in the fire section of your emergency plan contact numbers for people such as veterinarians, and people who have equipment such as live-stock trailers and gates.
- Ensure your electrical systems and wiring are routinely inspected.

The Ontario Ministry of Agriculture also provides a guide, titled *Reducing the Risk of Fire on Your Farm*, which can be accessed at: <http://www.omafra.gov.on.ca/english/engineer/barnfire/toc.pdf> **BP**

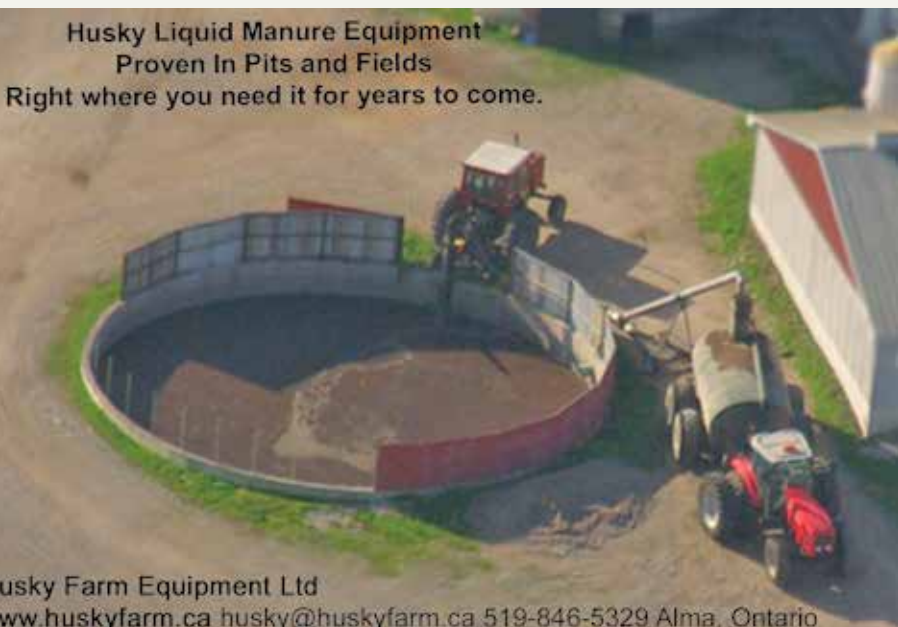
ment. Farmers should check with their municipality or with their insurance company.”

Similarly, the federal government does not mandate emergency preparedness for farmers, says Jean Paul Duval, spokesperson for Public Safety Canada, in an email. “However, we strongly encourage they stay abreast of emergency preparedness practices and heed guidelines provided by Public Safety Canada to protect themselves and their farms,”

says Duval.

Alternatively, one area where Ontario farmers are affected by regulation is labour, and, more specifically, provincial occupational health and safety regulations.

If your farm has more than five employees, then you are required, by law, to have a written occupational health and safety plan in place, which must include emergency procedures, first-aid and rescue procedures, as well as other emer-



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plans for shelters and evacuations, as well as guidance on how to make an emergency plan and prepare a farm emergency kit.

Guidelines specify that it's important to have emergency supplies in one location, or at least in locations that are known by all relevant personnel. Check and update the contents regularly. Lists should be made of all animals, locations, records of feeding, vaccinations and tests. A basic first-aid kit as described in the federal government's brochure should be available, too.

The OSCIA's emergency plan, as well as the Canadian government's guidelines, are just two sources available to Ontario farmers to help them create their own on-farm emergency plan. In fact, if you look hard enough, there is no shortage of plans available, including those from provincial and U.S. state governments.

Fitzgerald commends the availability of all of those examples. But there's a drawback, she says. All



The federal government recommends making a basic first aid kit available.

of the plans "have their relative strengths, and their specific points of focus. But is there one comprehensive plan that covers all areas of emergency preparedness?"

"Probably not."

However, Fitzgerald also points out that the lack of regulatory requirements, as well as fully compre-

hensive emergency-plan packages, means that individuals farmers are free to tailor all resources available to their own situations. "That's a very important point," she says. "In the end, a good on-farm emergency plan is one that you can call your own."

Another resource available to all pork producers is the Prairie Swine Centre in Saskatoon, which provides various resources to the pork industry including information on emergency preparedness. Lee Whittington, the Swine Centre's president and CEO, says in an email response, "We recommend orientation and proper training of staff through SOP (standard operating procedure) review to ensure that all safety instructions are used for all equipment, machinery and tools."

Whittington also provides other guidelines that pork farmers should keep in mind regarding emergency planning. Guidelines include: standard operating procedures for hearing protection and use of masks

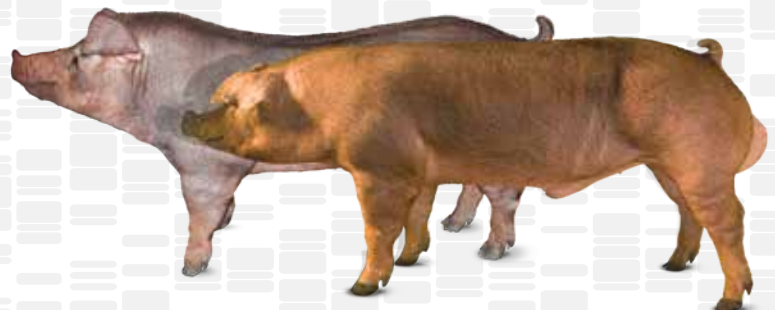
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On the farm, Dennis Terpstra has a large sign at the top entrance of his grain bin that clearly signals the dangers of going inside alone.

facility, and where else have those trucks been?” says Dennis Terpstra. “So, we ask our shipping company to wash the trucks we’ve used. We always try to take that extra measure.”

On the farm, Dennis Terpstra has a large sign at the top entrance of his grain bin that clearly signals the dangers of going inside alone.

According to the OSCIA emergency plan, which has a specific section on grain-bin entrapment, hazards the bin presents include engulfment in flowing grain, entrapment in grain transportation vehicles, as well as the collapse of horizontal and vertical grain surfaces. The plan advises using a harness and buddy system if you have to go into the bin and also contains detailed procedures on how to deal with entrapment. Always assume that the entrapped victim is alive, the plan document says, and never try to rescue them alone.

“I once knew of someone who went down in a grain bin to unjam it,” Terpstra says. “The worst happened. They were fatally injured.”

If he ever needed to go in, “it will be with a harness, and someone standing by as part of a buddy system. You can guarantee that.”

According to an OSCIA press release, over 40,000 Ontario farm businesses have voluntarily attended about 3,500 workshops for the environmental farm plan, which includes the emergency plan. These numbers were released in April 2016 and Jacobs says they grow higher with each passing week.

More workshop attendees means more and more farmers are completing their emergency plans, too.

Being careful when it comes to on-farm emergency planning doesn’t mean you can avoid any and every catastrophe. But it does mean that you can be prepared, both physically and mentally, for what can happen on your specific farm. It also means that you’re constantly in the business of engaging in safe farm practices, which is good for business.

It’s good for Ontario’s healthy food supply, too. **BP**

when feeding, continually updating WHMIS (Workplace Hazardous Materials Information System), ensuring all employees are educated in hydrogen sulfide awareness, and instructing staff in CPR.

An emotional component

There is no shortage of technical detail when discussing the topic of on-farm emergency preparedness. However, one aspect that’s often overlooked is the emotional component, which the OSCIA plan has tried to address in its most recent update. The plan’s section on the topic of catastrophic livestock losses, for example, not only addresses topics such as making a decision on how you would dispose of livestock (composting or shipping) should

an accident occur, but also the emotional component of livestock loss. In a sidebar titled “Be Mentally Prepared,” the plan advises farmers to brace themselves for potentially devastating losses, and to know beforehand who to talk to in such an event. Activists and tourists may also show up after a catastrophic loss, so having a support group and plan in place can be vital.

Other key components of any emergency strategy, say the Terpstas, are preventative measures taken to reduce identified risks.

To reduce risk of disease outbreak, for example, the Terpstas ensure, at their own cost, all the trucks used for shipping are washed and disinfected properly. “How many trucks a day go to a meat processing

Selling swine welfare

Europe's food and farming sector is convinced that animal welfare labelling wins more consumers for pork. But how to make sense of the forest of logos and labels promising meat from happy hogs? Enter Danish and Dutch scientists with a new approach to pork labelling.

by NORMAN DUNN

Do pork consumers really care about animal welfare? And are they willing to pay extra for bigger barns and deep straw bedding?

Danish meat marketing planners think customers in their country are concerned. A 2015 European survey (Attitudes of Europeans towards Animal Welfare) shows some Danes are willing to spend more in this respect. This is why, next year, the "StjerneKød" scheme will be launched there. Translating as "Star Meat," the scheme features a labelling program that gives consumers the chance to pay for different levels of perceived swine comfort.

The swine sector certainly backs the initiative. Planning and advertising support comes from a range of organizations including the country's environment and food ministry, Danish Crown (Denmark's leading swine slaughter and processing company), universities, farm advisors and all main retailers.

Three levels of StjerneKød are planned. The single-star standard involves the mandatory national requirements including permanent access to straw bedding, at least eight hours of natural or electrical light per day and water sprinklers or misting systems for all hogs over 20 kg weight. For the single star on the pork label, pen floor space per hog starts at a minimum 0.3 square metres for up to 30 kg live weight and increases gradually to a minimum 0.65 square metres for the weight range of 85 kg to 110 kg.

Additionally, the national requirement limits the journey from farm to slaughterhouse to eight hours.

Over and above the normal legislation, the single-star class bans tail docking and, right at the beginning

of the production cycle, requires more freedom for the piglets and sows by limiting farrowing crate confinement to the first four days post farrowing.

Label premiums of 20 per cent

The StjerneKød launch is pencilled in for summer 2017. However, the Danish pork sector (headed by the country's Agriculture and Food Council), already reckons on a premium starting at 20 per cent over today's standard prices for pork and its products.

"Basically we want to fund the program through the extra money



Ministry of Environment and Food, Denmark

This is the first logo prepared by the Ministry of Environment and Food of Denmark for the Star Meat labelling strategy.

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Danish Crown

A major player in the planned star rating labels for Danish pork is the country's leading slaughter and processing company Danish Crown. The rating program's aim is to financially reward farmers for producing hogs with extra input in welfare and housing and to give consumers the choice of paying for a range of production standards.

earned by the Star Meat," says Erik Kam, the Council's head of trade and marketing relations.

Taking a look at the cost of pork in Copenhagen this summer indicates that the premium would price

the equivalent of a pound of pork chops (454 g) between C\$7.00 and \$9.40, depending on the class of store.

The planned two-star label would, says Kam, require a 30 per cent bonus above standard price. Qualifications for earning two stars include 30 per cent more floor space per hog (for example, over 0.8 square metres) in the last weeks up to slaughter. Additional straw in the pen as play material to reduce aggression is also on the required list for this label.

There's no premium suggested so far for the three-star welfare level. The top label will require floor space to be 50 per cent over standard. Conservative calculations indicate a doubling of the standard retail price is possible because there's a lot of extra input including free-range conditions for the suckling sows that mean they are outdoors year round. Although this standard allows weaners and feeders to be grown and fed in barns, the animals must have daily access to outdoor runs too.

Interestingly, the Danish Agriculture and Food Council plans right from the start to allow pork products from swine reared in other countries

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into the Star Meat scheme, provided the respective countries can prove that they are producing hogs under the same regulations.

Market research

The Danes seem confident that consumers are positive about swine welfare schemes. Søren Andersen, communications consultant with the Agriculture and Food Council, says research indicates increased willingness amongst consumers to pay more for higher welfare standards. Certainly, a TNS Gallup poll this April found that 46 per cent of respondents in Denmark were overwhelmingly positive about the introduction of a national welfare-based label.

And the Danes seem to be willing to put their money where their mouth is when paying for welfare-based pork products. In another survey, the European Commission's so-called "Eurobarometer" on attitudes of Europeans towards animal welfare (December 2015), 31 per cent

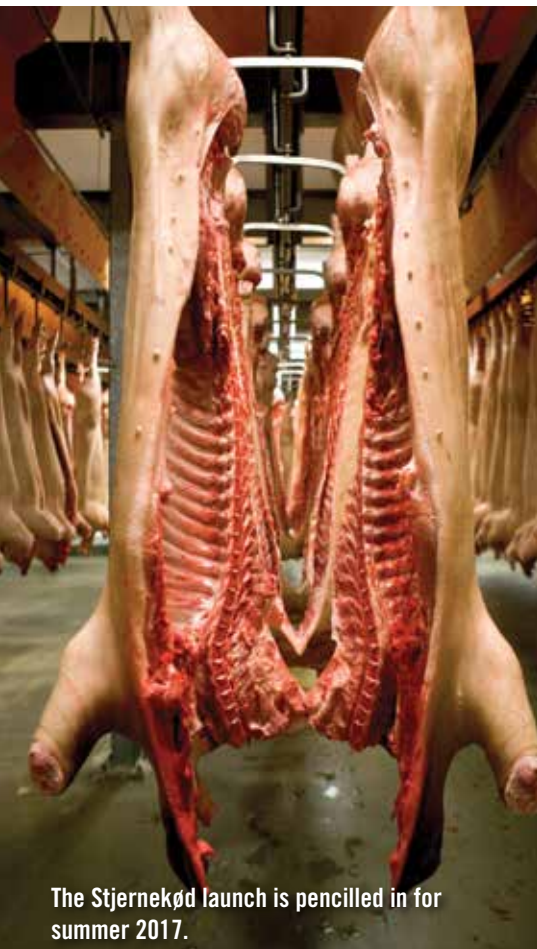
of the Danish respondents reported they'd pay up to 10 per cent more for welfare-based pork. Ten per cent of the Danes questioned indicated that they would even hand over 20 per cent extra at the till. The average for European consumers as a whole showed only five per cent would be willing to pay this sort of premium.

Were there Danes unwilling to pay anything extra at all in this respect?

The survey showed that 15 per cent of Danes were less than willing to pay even a cent for extra hog welfare. But the respective European figure was 35 per cent! So the Stjernefødt planners could be right in the feeling that their consumers are ready and willing to pay more for welfare.

Graduated labelling concept spreads

Dutch researchers just a few hundred kilometres farther south also



The Stjernefødt launch is pencilled in for summer 2017.

Danish Crown

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Danish Crown

In a European Commission survey on attitudes of Europeans towards animal welfare (December 2015), 31 per cent of the Danish respondents reported they'd pay up to 10 per cent more for welfare-based pork.



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Willingness to pay more for farm animal welfare products

Questions	Danish consumers %	Overall EU consumer response %
Willing to pay up to 5% more	34	35
6 to 10% more	31	16
11 to 20% more	10	5
More than 20% more	7	3
Not ready to pay anything extra	15	35

Source: European Commission survey Special Eurobarometer 442, November – December 2015 "Attitudes of Europeans towards animal welfare."

reckon that there's a future for the Stjernefødt type of easy-to-understand and graduated labelling.

Where there's a muddled approach to welfare claims on labels, on the other hand, good resolutions on buying (more expensive) food are rarely practiced for long, says Ynte van Dam from the Marketing and Consumer Behaviour Group within Wageningen University.

For instance, one recent consumer report, "The Dutch and Sustainable Food," found that three-quarters of consumers wanted government to promote sustainability or welfare labels for food. Then the report, issued by the PBL Netherlands Environmental Assessment Agency, checked on how many Dutch shoppers actually bought such products: a disappointing 10 per cent.

To be fair, a mind-boggling and ultimately puzzling proliferation of

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Danish Crown

“The Dutch and Sustainable Food” report found that three-quarters of consumers wanted government to promote sustainability or welfare labels for food.

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welfare and environment protection labels populate most Dutch supermarket food shelves. Some, such as Demeter, Bioland, Biotrend, Eko and the national Integrated Farm Assurance standard IKB, are used in several European countries for meat, milk and eggs. Others are less prominent, and many simply muddy the waters as far as sales messages are concerned. Maybe it would be better, says van Dam, to offer a graduation of welfare and other quality standards for products within a sector: from the lowest legally acceptable standard right up to the best available.

This approach worked very well with household equipment in terms of electricity consumption, he recalls. “The introduction of an energy label on household appliances (under 1995 European legislation) soon caused energy-guzzling washing machines and fridges to disappear from the stores.” The law on labelling according to power consumption proved that human nature encourages the choice of even a slightly better product, if at all possible.

This strategy, called “negative labelling” in the trade, gives consumers the chance to buy the lower standard goods. But it also highlights that there are more sustainable options on the same shelves, a choice allowing consumers the chance of living up to their good intentions, even if this costs a little more.

And this is exactly the route the Danes now want to follow with their StjerneKød strategy: boosting consumer awareness of production methods and, hopefully, earning more for the pork producer. **BP**

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Education goes hand-in-hand with farming for this Clarrington couple

Mary Ann and Stan Found have always made it a priority to share the good story of agriculture. Then, in 2006, they built a barn dedicated to agricultural educational outreach.

by ANDREA GAL

Mary Ann and Stan Found of the South Courtice Development Area of Clarrington are passionate advocates for the pork industry and the agriculture community. Mary Ann, for example, helped to form Durham Farm Connections in 2005. This organization unites the community outreach and education efforts of eight commodity groups in the region. Durham Farm Connections has a high school program, a yearly open house, and an educational trailer used at fairs and other local events. Stan is also active in the organization.

In 2006, Mary Ann retired from teaching at the high school level and the couple pushed their commitment to consumer education even further. That year, they built and opened an ag education barn for school tours, typically for children in kindergarten through Grade 3. Mary Ann said a main reason for creating the resource was because “we had so many urban residents living on our line fence.”

Visiting schoolchildren typically spend a half day on the Found Family Farm, where they have the opportunity to see a wide range of farm animals – pigs, sheep, beef and chick-

ens. They learn how donkeys mixed in with the sheep can help to protect the herd from predators. They see the crops in the fields and learn about seasonal farm work. About 2,000 visitors participate in the on-farm program each year, Mary Ann said.

She is also active on the local fair board as well as with her local church and the Women’s Institute. She volunteers with Meals on Wheels.

Stan is involved in the local beef association, serves as the county representative to the provincial association and serves on the local cemetery board. He also is a director with the Durham Farmers’ County Co-op. They are both directors with the local pork producers’ association. No wonder Mary Ann said “the truck and the van very seldom cool off!”

Amidst the array of volunteer work, the Founds have a finishing hog operation, a beef operation and a cash crop operation. The couple farm together with their son, Brad, who also has a commercial sheep enterprise.

When did you start farming?

STAN – When I was born. I’ve been on the same farm my whole life. This is my grandparents’ farm originally. And our son is the fourth generation farming with us.

MARY ANN – I was born on a dairy farm. At age 10, my father decided that the lure of the factory and the steady income was better than the farm. So he sold the farm. Forty-one years ago, I married back into the farm.

Describe your role on your farm operation?

STAN – I do everything, along with my son. Whatever has to be done, we do it. I’m manager, labourer, whatever. My wife helps too.

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MARY ANN – I tend to be more of the “go for” – I help where I can. I don’t manage the equipment. My key role has been to help the neighbours understand what the farm is doing.

Hours you spend in the barn per week?

STAN – Oh, eight to 10.

MARY ANN – I spend probably around 20. It’s not necessarily the pig barn. I spend more time in the ag education barn.

Hours in the office per week?

STAN – Not enough.

MARY ANN – One to three. Today, one of the most important things that needs to happen (is bookkeeping and record-keeping). It’s tough.

How many emails do you receive per day?

MARY ANN – On average, somewhere between a low of 10 and a high of 40.

A large part of that is attributed to the volunteer work we do in the community. Some of that is because we have started a farm-gate marketing endeavour. Some of the requests for frozen lamb, beef, pork and chicken come through the email . . . I bring in a small flock of meat birds every two weeks from the first of May through Thanksgiving so the children visiting can see the lifecycle of the chickens. So those meat birds become part of what I am allowed to raise (as part of the Family Food Program, formerly known as the Small Flock Growers Program). Those chickens (from the education program) are the ones that are marketed – the ones we don’t eat.

Hours a day on a cell phone?

STAN – Five minutes, maybe 10.

MARY ANN – He doesn’t like the cell phone. He never answers (it).

What about your smartphone?

MARY ANN – I purchased (an iPhone) a few years back when I was getting more involved in going to other ag education (activities). I love helping Ontario Pork with the Pig Mobile (a travelling display for students to learn about pigs).

We were ramping up our farm-

gate sales program. Not being able to check the emails wasn’t working. So, (now) I can check the emails and leave a message on the landline (for Stan).

Do I make the best use of it? No. I don’t fully understand it yet.

How many text messages do you receive per day?

MARY ANN – Yes, I have just started texting. Actually, I’m begin-

ning to like it. Most young people have got both thumbs going. I’m Peter Pointer. I do like (texting) now. I find I get responses quicker than through email.

Hours a day on the Internet?

STAN – Five to 15 minutes, maybe. Unless it’s too late, then zero.

MARY ANN – I would say no more than an hour a day for the Internet itself. And probably closer to a half

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hour.

I check the weather regularly. If there is something I need for purchasing, whether personal or business, I'll check it out online. Our son checks for parts online. Stan checks for livestock and market prices. When it is time to do RMP (Risk Management Program) and AgriStability, then we go to the Internet.

I don't surf the Internet. We're still old-fashioned. We're not getting our recipes off the Internet.

STAN – I already know how to cook!

What do you like best about farming?

STAN – Watching a new calf being born. Watching the corn germinate and come up out of the ground. Then you can see the rows in the spring.

MARY ANN – The connection with nature. I love the flexibility of farming. I love the fact there is something new every day.

What do you like least?

STAN – Picking rocks. Because we have such good land here, we have very few stones to pick. But we still have to pick a few. That's a nasty job.

MARY ANN – The inability to predict what's going to happen sometimes, especially around the financial

end of things. The worry about what the future will bring. We're pressured urbanization-wise, we're pressured succession-wise. Those things worry me.

What is the single most important advice you've received or lesson you've learned?

STAN – Be positive.

MARY ANN – Work hard, do your best, and to God leave the rest.

What's your management philosophy?

MARY ANN – For me, I guess it would be, go to bed at night without being angry. Leave something better than it was when you woke up in the morning.

What's your top tip about farm succession?

STAN – Try to plan ahead. But, when you're next door to a subdivision, it is a bit of a challenge.

MARY ANN – It's absolutely necessary in today's business world. I think it is different for every family. And it's not an easy topic always to discuss.

What are your hobbies or recreational activities?

MARY ANN – For me, I have to say I'm a full-time volunteer. My hob-

bies come through my commitment to my volunteer work. I spend the mornings delivering meals through Meals on Wheels and I chat with the seniors.

STAN – I used to golf but I ran out of time for that.

What does your family think of farming?

STAN – Well, we've got one (son) that's farming with us so I think he likes it alright. And the others, I think they approve of it.

What's your most important goal?

STAN – Pass on the farming operation to the next generation. That can be a challenge because the subdivisions and the government want to pave over the best farmland in southern Ontario with the 407 Express Toll Route and new houses every day.

MARY ANN – My most important goal would be, after I'm gone . . . to leave a positive impact for the future.

How do you define success?

STAN – Growing a good crop any year.

MARY ANN – Or raising a good animal every given time, that's healthy, content and comfortable.

Is your farm vehicle messy or neat?

STAN – Well, it may be on the side of a little bit messy.

MARY ANN – It's a whole lot messy.

STAN – It's a farm truck!

What are three items that are always to be found in your pickup?

STAN – Reading glasses. I have to have them everywhere I go. Tools, parts, paperwork when I ship pigs every Tuesday morning. A log book for the truck and trailer inspection before I leave the farm.

What was your most memorable crop/production year?

STAN – 1992. It rained all summer and we couldn't get the crops harvested. In mid-December we had 17 inches of snow in a day or so. We (finished the) harvest the next January. **BP**



Stan and Mary Ann Found

Capturing Potential through Nutrition: Group Housed Gestating Sows

Capturing Potential through Nutrition: Group On Sept 6th and 7th at the Group Sow Housing Seminar in Stratford, Quincy Buis, a recent M.Sc. graduate from the University of Guelph, and I delivered a presentation titled “Capturing Potential Through Nutrition: Group Housed Gestating Sows”. The presentation focused on energy and protein requirements for gestating sows, feeding strategies to meet these requirements, and on additional nutritional aspects to consider with group housed sows, such as feeding fibre to increase satiety.

Let’s start with the basics... The ultimate goal when feeding sows is to increase her lifetime productivity by optimizing the number of healthy pigs weaned per sow per lifetime. When doing this, we also need to consider things like feed costs, sow welfare, sow health and nutrient losses to the environment. Many farms are now approaching and surpassing 30 pigs weaned/sow/year, and nutrition plays a very large part in this.

When managing sows, regardless of their housing system, we need to minimize body condition and weight changes throughout her reproductive life. During gestation we want her to gain weight related to her pregnancy, and allow for maternal growth in younger animals (parity 3 or 4 and below) without putting on excess weight or condition. In lactation we want to minimize sow weight loss as much as possible. In order to achieve these goals, we need to meet her nutrient demands as accurately as possible throughout the gestation phase.

The two most important nutrients when feeding gestating sows are energy and amino acids (protein). Additionally, we must make sure we are meeting the micronutrient requirements (vitamins and minerals) of these animals. We must also consider feeding strategies to increase satiety (the feeling of fullness) in restricted fed gestating sows.

First we will look at protein and energy requirements throughout gestation. The requirements for both of these are lower at the start of gestation and increase over time. Figure 1 shows the typical protein deposition patterns for different components throughout gestation. Between day 20-70 we see rapid placental growth, and starting around day 50, we see exponential fetal growth. For this reason, the dietary lysine requirements of a sow are about 33% higher in the last 3rd of gestation (Figure 2). Keeping in mind the fact that younger sows also require protein for their own growth, we see a 38% decrease in lysine requirements between a parity 1 and parity 4+ sow (Figure 2).

Standard practice in the swine industry is to increase the amount of feed a sow gets as she moves towards the end of her gestation period. These graphs show that simply increasing the amount of diet (and keeping the protein to energy ratio the same) may not meet the needs of the sow. Strategies such as phase feeding or precision feeding should be considered when feeding pregnant sows. With phase feeding, you change the diet composition as she progresses through gestation, thus allowing you to more closely match her nutrient requirements. Precision feeding is a newer technique which is becoming more practical with the use of electronic sow feeders. With precision feeding, you can have two different diets (low and high protein for example), and blend them together on a daily basis at the feeder, allowing you to target each sow specifically for her parity and stage of gestation. This technique will not only allow you to meet the nutrient requirements more closely, but it will also help you reduce feed costs and nutrient losses to the environment (Clowes et al., 2002; Pomar et al., 2012), and may improve sow productivity and longevity.

The final point I am going to discuss in this article is using fibre to increase satiety in gestating sows. Typically, sows are limit fed because over-feeding leads to reduced productivity, difficulty farrowing and reduced longevity. Limit feeding sows can lead to

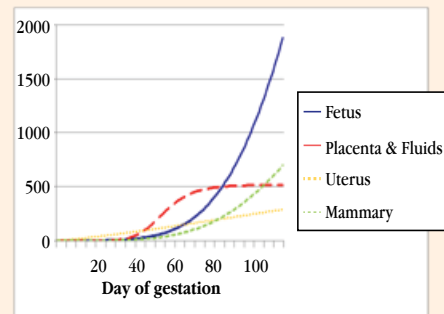


Figure 1. Typical protein deposition patterns for fetus, mammary tissue, placenta and fluids as a function of time (Brazer et al., 2012; NRC 2012).

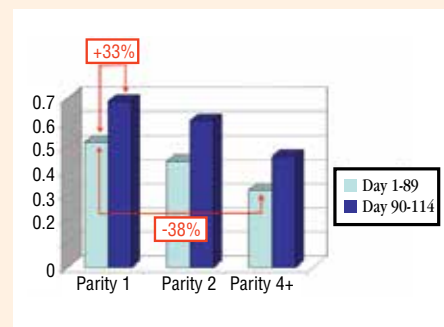


Figure 2. Estimated lysine requirements of gestating sows in early (light blue bars) and late (dark blue bars) gestation for parities 1, 2 and 4+.

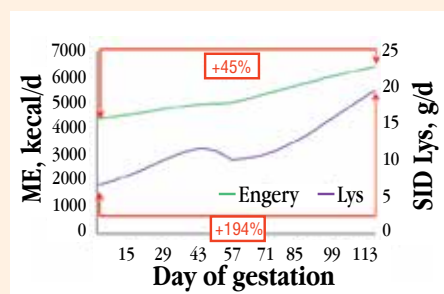


Figure 3. Estimated energy (green line) and lysine (purple line) requirements of the gestating gilt (Buis et al., 2016).



Figure 4. Straw provided in racks as a source of fibre and enrichment

abnormal (stereotypic) behaviour which is an animal welfare concern. When sows are housed in stalls, we often see this abnormal behaviour expressed as bar-biting or sham-chewing. In group housing systems, this may be one reason why sows can become aggressive toward other sows. Dietary fibre can help increase the feeling of satiety, and reduce the expression of abnormal behaviours in sows, regardless of their housing system.

There are three aspects to consider with fibre use: the amount of fiber, the physical characteristic of the fibre, and the type of fibre. In the European Union, diets often contain 9-12% crude fibre, but may be as high as 20% without affecting animal performance. Having a higher crude fibre content is helpful, but more important than the total fibre concentration is the physical size of the fibre and the balance between fermentable fibre and crude fibre. With physical size, more coarse materials provide better gut fill for the sow, and thus are better at reducing hunger than a finely ground fibre source. Some potential strategies for feeding coarse fibrous materials would be to provide hay or straw in racks (Figure 4), as cubes or as bedding.

The value of providing fermentable fibre sources to sows has been shown in many research studies. Ingredients such as sugar beet pulp, alfalfa meal and soybean hulls contain 60-70% non-starch polysaccharides, which can be fermented by bacteria in the intestinal tract. This fermentation occurs over an extended period of time, and helps to provide a more stable release of energy to the sow, thus helping her feel full for longer periods. Ingredients such as sugar beet pulp are becoming more common in sow diets, and have been shown in many research studies to decrease

abnormal behaviours in sows without having negative impacts on performance.

Remember, we no longer are feeding sows just for optimal performance; we are also feeding to improve animal welfare. Keep in mind that the nutritional requirements of sows change with size, parity and stage of gestation. Consider using phase or precision feeding techniques to meet her requirements more closely. Remember that each sow and each housing system is different. Monitor body condition scores on a regular basis and adjust each sows feed allowance in order to maximize her productivity. Design your group housing system to reduce feeding related aggression as much as possible, and include fermentable and coarse fibre in the diet to help increase her feeling of fullness throughout the day.

*Laura Eastwood, Swine Specialist
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Addressing Some Myths Around Group Sow Housing

At the Group Sow Housing Seminar in September, Dr. Jennifer Brown from the Prairie Swine Seminar discussed some possible misconceptions. As usual, there is little black and white and it is important to understand the details of any study or report that appears to provide a single answer.

The 'Myths' she tackled were: Aggression is a major problem in groups (because sows are naturally aggressive); Group housing is more expensive; Sows in groups are less productive; All group gestation systems are alike; Mixing before 4 weeks gestation reduces conception rate and litter size; Group housing will be mandatory by 2024.

This article attempts to summarize Dr. Brown's assessment of these often complex issues.

1. Aggression is a major problem because sows are naturally aggressive

There are a number of factors influencing aggression: Individual differences (genetic variation); Socialization (development and experience); and Group Size.

Sows can be socialized and conditioned through experience to tolerate other sows in order to reduce aggressive behaviour following mixing. Research shows that piglets socialized with other litters by 12 days of age gain critical 'social skills' and improved tolerance of other animals later in life. Multiple movements and mixing events improve sows' social adaptability. When mixed with strangers, market hogs kept in smaller groups are quicker to fight and spend more time fighting than pigs kept in large groups (groups of 18 vs 108 animals), so larger sow groups may reduce problems with aggression. Genetic selection for lower aggression and passive temperament, which may have been neglected in recent years, has potential.

2. Group housing is more expensive

There are few well-documented reports to support or refute this. A 2012 report from Quebec's CDPQ estimates that new builds for groups can be cheaper than stalls, because there is less penning required. With renovations, it is difficult to assess because the condition of the original structure has a huge impact on cost depending on whether it needs repairs or upgrading during the renovation. A key factor that can't be ignored is the efficiency of the barn design and management after the conversion, aside from the actual costs of conversion.

3. Sows in groups are less productive

There are a number of studies and scientific reviews that show similar production levels in stalls and groups. Differences in productivity could be a result of many factors, but there is no consistent evidence of a difference between housing systems. During the transition, of course, production will probably be negatively affected by sow movement, increased culling, etc. Producers have reported that following the transition period production will return to normal or even improve. In the long term production is determined by system design and management. Sows in group housing do not require more energy than those in stalls, and benefit from improved thermoregulation since they can avoid draughts and choose where to sleep. The benefits of greater activity appear to include increased



ing) can be bewildering. Each option has characteristics that need to be understood and assessed to determine what will work best in any facility, and suit the stockpersons and management style.

(There isn't space here to delve into this topic in detail; in a sense, this is what the 2016 Group Sow Housing Seminar was all about.)

5. Mixing before 4 weeks gestation reduces conception rate and litter size

Mixing at 4 weeks (after implantation and pregnancy confirmation) is common. Recent research at the Prairie Swine Centre indicates that mixing sows at the time of weaning did not negatively affect conception rate but did reduce the number of stillborns. This approach may introduce more management options.

6. Group housing will be mandatory by 2024

The following is an excerpt from the National Farm Animal Care Council's Code of Practice for the Care and Handling of Pigs:

As of July 1, 2024, mated gilts and sows must be housed:

- in groups*; or
- in individual pens; or
- in stalls, if they are provided with the opportunity to turn around or exercise periodically, or other means that allow greater freedom of movement. Suitable options will be clarified by the participating stakeholders by July 1, 2019, as informed by scientific evidence.

*** If housed in groups, individual stalls may be used for up to 28 days after the date of last breeding, and an additional period of up to 7 days is permitted to manage grouping.**

Research is planned to determine sows' need and motivation for exercise in order to help define the 'suitable options' for periodic exercise when stalls are used.

The National Sow Housing Conversion Project (NSHCP)

The NSHCP aims to provide resources and advice to producers facing the task of convert-



bone strength, fewer stillborns, and reduced farrowing intervals. If individual feeding systems are used feed costs can be reduced and productivity improved by targeting sow nutritional requirements.

4. All group gestation systems are alike

Compared to the consistent nature of gestation stalls, the options for group housing (feeding system and equipment, flooring type, grouping management, grouping tim-

What are the options

Feeding	Floor	Grouping	Timing	Total
Floor				
Short stall	Slat	Static	Weaning	
Gated stall	Partial	Dynamic	Pre-Implantation	
ESF	Bedded		Post-Implantation	
4	x3	x2	x3	=72

From H. Gonyou

ing to group housing. The website www.groupsowhousing.com is a central database of information including newsletters, factsheets, resources, producer profiles and detailed barn conversions. It's goal is to facilitate the successful adoption of group sow housing.

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Ontario Animal Health Network (OAHN) Swine Producer & Industry Report #4

Erysipelas Update-What producers need to know...

An increase in cases of Erysipelas has been noted by the OAHN swine network. Quebec has seen a similar trend. We have put together this fact sheet with important information that producers need to know about this disease.

Causative Agent: Gram positive, rod shaped bacteria

Sources of Infection: The most important source is from other pigs. Thirty- fifty percent of healthy swine carry this organism within the tonsil and in lymphoid tissues. Spread is through nasal discharge, saliva, urine and in feces. Rodents and wild birds can also spread infection

Susceptibility: Usually affects pigs between 3 month and 3 years of age

Resistance: Remains viable for up to 6 months in tissues and feces

Clinical signs: Acute disease can cause sudden death, high fevers (104-108 0 F 40-42 0 C) for up to 7 days, pigs appear sick and chilled. Affected animals walk with a stiff gate and are unwilling to eat. Infection can cause abortion in sows. "Diamond shaped" skin lesions that are dark purple in colour, raised and firm in appearance (see photo above). In dark-skinned pigs skin lesions can be easily palpated. Sub-acute disease usually causes less severe clinical signs than acute disease. These animals do not appear as sick and fevers are not as high. Appetite of these pigs may be non-affected and skin lesions can be easily overlooked. Chronic disease causes pigs to have arthritis that leads to stiffness and swelling of joints. This affects growth rates and is responsible for significant losses in prime cuts at packing plants. Clinical signs tend to worsen when combined with other infections as well as with overcrowding and other environmental stressors

Treatment: Sensitive to penicillin and usually tetracycline and killed by common disinfectants. Resistant to neomycin, streptomycin and sulfonamides. Marked improvement within 24 hours of beginning treatment
Prevention: Herd health management and implementing a vaccination program. Contact your herd veterinarian to set up a vaccination control program for your herd.

Note: Pigs that are exhibiting clinical signs of Erysipelas are often condemned at slaughter.

Producers should not send these pigs to slaughter.

***New Virus* Porcine Sapelovirus (PSV) Isolated in the USA**

A new RNA virus called Porcine Sapelovirus (PSV) has been isolated from a pig presented with neurological signs in the USA. No other causes of infection were isolated in this case. PSV infections usually cause no clinical signs, but can cause neurological signs, diarrhea, pneumonia and reproductive failures in sows. This virus is usually spread through fecal-oral transmission, but insects, birds and wildlife vectors may also play a role in transmission. Sapelovirus survives well in the environment. Sodium chlorite or 70% ethanol will kill this virus. More research needs to be completed to investigate this virus in commercial swine. For more information please visit the Swine Health Information Centre website: www.swinehealth.org Go to emerging disease/information/fact sheets.

Senecavirus A: Producer Fact Sheet

In July 2016, 12 new cases of swine vesicular disease were noted at US slaughter plants. Seventy-five percent of these cases were confirmed to be Senecavirus A infections. It is important that Ontario swine producers stay vigilant with biosecurity. The OAHN swine network has published a fact sheet for producers on Senecavirus A: <http://oahn.ca/wp-content/uploads/2016/08/2016-08-25-FINAL-OAHN-Senecavirus-A-news-release.pdf>

For the complete report and more information about OAHN visit www.oahn.ca.



Erysipelas Skin Lesions: Gross Lesions
Source: Pathology lecture (4th year vet students), contributed by Pat Halbur.

Income (\$/pig)	Farrow to Wean	Nursery	Grow-Finish	Farrow to Finish
Market Pig @ 101% of Base Price \$160.74/ckg, 110 index, 100.44 kg plus \$2 premium				\$181.37

Variable Costs (\$/pig)

Breeding Herd Feed @ 1,100 kg/sow	\$13.19			\$14.47
Nursery Feed @ 33.5 kg/pig		\$15.77		\$16.62
Grower-Finisher Feed @ 271 kg/pig			\$84.91	\$84.91
Net Replacement Cost for Gilts	\$2.26			\$2.48
Health (Vet & Supplies)	\$2.16	\$2.10	\$0.45	\$5.03
Breeding (A.I. & Supplies)	\$1.48			\$1.63
Marketing, Grading, Trucking	\$0.70	\$1.00	\$4.66	\$6.48
Utilities (Hydro, Gas)	\$1.96	\$1.15	\$1.77	\$5.14
Miscellaneous	\$1.00	\$0.10	\$0.20	\$1.40
Repairs & Maintenance	\$1.18	\$0.60	\$2.13	\$4.05
Labour	\$6.27	\$1.85	\$4.00	\$12.83
Operating Loan Interest	\$0.23	\$0.28	\$0.95	\$1.51
Total Variable Costs	\$30.44	\$22.86	\$99.08	\$156.55

Fixed Costs (\$/pig)

Depreciation	\$3.92	\$2.00	\$7.09	\$13.50
Interest	\$2.20	\$1.12	\$3.97	\$7.56
Taxes & Insurance	\$0.78	\$0.40	\$1.42	\$2.70
Total Fixed Costs	\$6.90	\$3.52	\$12.48	\$23.76

Summary of Costs (\$/pig)

Feed	\$13.19	\$15.77	\$84.91	\$116.00
Other Variable	\$17.25	\$7.08	\$14.17	\$40.55
Fixed	\$6.90	\$3.52	\$12.48	\$23.76
Total Variable & Fixed Costs	\$37.35	\$26.38	\$111.56	\$180.31

Summary	Farrow to Wean	Feeder Pig	Wean to Finish	Farrow to Finish
Total Cost (\$/pig)	\$37.35	\$65.25	\$139.35	\$180.31
Net Return Farrow to Finish (\$/pig)				\$1.06
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) includes 101% Base Price & \$2 Premium				\$159.79
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) excludes 101% Base Price & \$2 Premium				\$163.20

This is the estimated accumulated cost for a market hog sold during the month of August 2016. The farrow to wean phase estimates the weaned pig cost for March 2016 and the nursery phase estimates the feeder pig cost for May 2016. For further details, refer to the "2016 Budget Notes" posted at <http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html>.

Seneca Valley Virus symptoms mimic more serious foreign animal diseases

If you see vesicles on your pigs, immediately consult your herd veterinarian.

Seneca Valley virus is not new. It has been reported in past years in the United States, New Zealand, Australia and Canada.



dusanpetkovic/Creative RF/Getty Images

by S. ERNEST SANFORD

Seneca Valley Virus (SVV), now called Senecavirus A (SV-A), is a non-enveloped, single-stranded RNA virus in the family Picornaviridae, which is the same virus family as Porcine Epidemic Diarrhea (PED) virus, Foot-and-Mouth Disease (FMD) virus and Swine Vesicular Disease (SVD) virus. The disease from SVV/SV-A clinically resembles FMD, SVD, Vesicular Stomatitis (VS) and Vesicular Exanthema (VE), all of which are vesicular diseases of pigs (and other livestock species) and are reportable foreign animal diseases (FADs) that would have devastating consequences if any of them were to occur in our Canadian livestock population.

SVV/SV-A is not a new virus. It has been reported in past years in the United States, New Zealand, Australia

and Canada. The one report from Canada was made in 2007 when 187 pigs shipped from Manitoba to a U.S. slaughter plant arrived with vesicles (fluid-filled cysts) on the snout and feet, and 80 per cent of the 187 pigs were clinically lame on the truck, causing an alarm to be raised since the clinical signs were consistent with FMD. Tests conducted by the U.S. Foreign Animal Disease Diagnostic Laboratory at Plum Island were negative by polymerase chain reaction (PCR) for all FADs (FMD, SVD, VS and VE), but were positive for SVV.

Clinical signs of Senecavirus A

Clinical signs of SVV/SV-A are similar to those of the reportable vesicular diseases FMD, SVD, VS and VE, characterized by the formation of vesicles, erosions and ulcers on the skin, oral cavity and coronary band at the hoof/skin junction on the feet.

Lesions can be seen in all ages of pigs, including sucklers, weaners, growers, finishers and mature sows and boars. An increase in mortality in neonatal pigs up to one week of age can be expected. Pre-weaning mortality of 30 to 70 per cent might occur in the early stages of an outbreak of SVV/SV-A, but clinical signs usually cease in about a week.

One feature about SVV/SV-A that differentiates it is that, unlike most other viruses, SVV/SV-A prefers warm environmental conditions and does not like cold. Hence, it is much more active and outbreaks are more common in the spring through to the fall rather than over the winter months.

As diseases go, SVV/SV-A is not a particularly severe disease to the affected pigs. With the exception of an outbreak in Brazil (described on page 31), illnesses have been clini-

cally mild and short lived. The big concern over SVV/ SV-A is its clinical similarity to the very significant vesicular FADs of FMD, SVD, VS and VE. This became all too real in October 2015 when pigs with vesicles arrived at a slaughter plant in Ontario, causing a temporary shutdown of the plant until tests proved that the pigs did not have any of the FADs. That was a close call that nevertheless had financial repercussions. Of even greater concern is the very real possibility of shutdown of international borders and disruption of trade should pigs with similar vesicles show up at an international border. The shutdown would be much more costly and could last for a much longer period before tests clear the pigs of infection with any of the FADs.

In November 2014, reports from Brazil described acute outbreaks of a disease characterized by:

1. Vesicles and coalescing erosions on snouts and coronary bands in sows;
2. Acute death of neonatal piglets (30 to 70 per cent) in the first four days of life; and
3. Self-limiting outbreaks that lasted one to two weeks.

Occasionally, vesicles and erosions on the coronary bands were present in convalescing piglets. Reports were initially limited to acute significant losses of newborn piglets. Losses were sometimes associated with lethargy, nervous signs and/or diar-

rhea in neonatal piglets. Samples of vesicular fluid and blood sera sent to the University of Minnesota Veterinary Diagnostic Laboratory tested negative by PCR for FMD virus, SVD virus, VS virus and VE virus. SVV/ SV-A was identified when more intensive, next-generation sequencing tests were done at the university's lab.

This disease outbreak in Brazil is a distinct departure from previous SVV/ SV-A cases described from other countries around the world in the degree of its severity and high levels of mortality in suckling pigs, which had not been reported in other previous outbreaks.

Cautionary note

Because of the clinical similarity to the reportable vesicular diseases (FMD, SVS, VS and VE), it is imperative that if vesicles are seen on pigs the herd veterinarian be consulted immediately, who will then contact the Canadian Food Inspection Agency, whereupon tests will be conducted to rule out the aforementioned reportable vesicular diseases.

Summary

Seneca Valley Virus, now called Senecavirus A (SV-A), is a non-enveloped, single-stranded RNA virus in the family Picornaviridae, the same virus family as Foot-and-Mouth Disease (FMD) virus and Swine Vesicular Disease (SVD) virus. The

disease from SVV/ SV-A clinically resembles Vesicular Stomatitis (VS) and Vesicular Exanthema (VE), all of the above being vesicular diseases of pigs (and other livestock species) and are reportable foreign animal diseases (FADs). SVV/ SV-A has been known for some time, having been reported previously in the United States, New Zealand, Australia and Canada.

The Canadian case came from Manitoba in 2007 when 187 pigs shipped from Manitoba to a U.S. slaughter plant arrived with vesicles on the snout. Tests at diagnostic laboratories ruled out all FADs. Clinical signs of SVV/ SV-A are characterized by the formation of vesicles, erosions and ulcers on the skin, oral cavity and coronary band at the hoof/ skin junction on the feet, lesions typically seen in the vesicular FADs of FMD, SVD VS and VE. Lesions can be seen in all ages of pigs, including sucklers, weaners, growers, finishers and mature sows and boars. Although not itself a particularly severe disease in pigs, its clinical similarity to the vesicular FADs is cause for concern in the event that a clinical outbreak is dismissed as SVV/ SV-A without diagnostic confirmation and the outbreak might really be one of the FADs. **BP**

S. Ernest Sanford, DVM, Dip Path, Diplomate ACVP, is a swine veterinary consultant in London, Ontario.



Seneca Valley virus is usually clinically mild and short-lived.

Drought raises questions about energy value of corn

A recent Iowa State University study provides some answers.



Depending on the timing, drought can negatively impact a number of variables – the number of cobs per plant, the number of kernels per cob, and/or the size or weight of the kernels.

Josebey/Creative RF/Getty Images

by JANICE MURPHY

Corn is the number one cereal crop worldwide with 885.3 million tonnes produced, according to 2011 figures from the Food and Agriculture Organization of the United Nations. Not surprisingly, the United States is the top producer with 313.9 million tonnes or 35.5 per cent of global production, with Canada ranked 11th at 10.7 million tonnes produced in 2011. In Canada, corn ranks as the third most valuable crop behind wheat and canola. With the majority of corn being grown in southwestern Ontario, weather conditions are a huge

concern for any given year's cropping success. In light of the drought experienced this summer, industry stakeholders may be concerned about the feeding value of the 2016 crop.

The U.S. Corn Belt suffered drought conditions in 2012, when temperatures in Iowa were 3.8 C above average and rainfall was 25 per cent below normal, making it one of the driest years on record. That year in Iowa, July was the hottest recorded since 1936, with 21 days hitting daily maximum temperatures above 32 C. The combination of high temperatures and low rainfall caused stress on the corn plant during the critical phase of cob formation and

milk stages of development, resulting in reduced yields, decreased kernel mass, and lower kernel number.

Impact of drought on the corn plant

Depending on the timing, drought can negatively impact a number of variables – the number of cobs per plant, the number of kernels per cob, and/or the size or weight of the kernels.

Drought can also decrease plant height and leaf area index. During times of stress, the plant is able to mobilize carbohydrate reserves in the leaves and stalks, and nitrogen reserves in the leaves, to support nutrient deposition in the kernels. With lower yields, the total nitrogen

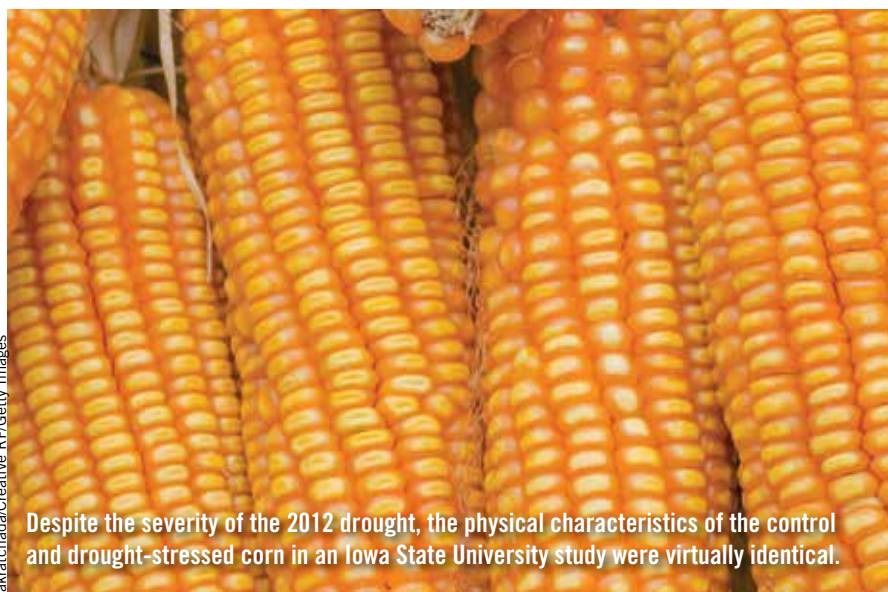
needed to produce a given concentration in the corn would be lower. These factors could explain how plants are able to maintain consistent nutrient levels, despite small kernel size, during severe drought.

Since corn is primarily added to swine diets as an energy source, any change in energy content could have an impact on growth performance and carcass composition. Researchers at Iowa State University recently set out to evaluate the impact of drought conditions on the energy content of corn and to determine how they might be able to relate corn quality measurements, nutrient content, and energy digestibility to the severity of drought stress in corn.

Twenty-eight samples of corn from the 2012 drought-stressed crop and two representative corn samples from the 2011 crop were collected in Iowa and Illinois. Yield, which ranged from 2.5 to 14.8 tonnes per hectare, was used as an initial screen for drought impact. Each sample was fully characterized and graded by an official from the U.S. Federal Grain Inspection Service. Diets were formulated using each of the 30 corn samples and were fed at 2.6 times the estimated maintenance energy requirement according to the U.S. National Research Council Nutrient Requirements of Swine (2012), based on the average weight of the pigs at the beginning of each collection period. Sixty individually housed barrows were randomly allotted to 30 diets across four testing periods to assess the samples.

Identical characteristics

Despite the severity of the 2012 drought, the physical characteristics of the control and drought-stressed corn were virtually identical (see Table 1 on page 34). There did appear to be a trend for the proportion of damaged kernels to be higher in the drought-stressed corn but this difference was not statistically significant, likely due to the wide range evident in the samples. Kernel weight was also highly variable, and although the kernel weight of the 2012 crop ap-



Despite the severity of the 2012 drought, the physical characteristics of the control and drought-stressed corn in an Iowa State University study were virtually identical.



Prior research has shown that drought conditions cause premature termination of the grain-fill period, which negatively impacts both kernel weight and yield.

peared to be numerically lower than that of the 2011 crop, again there was no significant difference.

The highest variability in all the measurements taken over the course of the study was reported in 1,000 kernel weight (Table 1). Prior research has shown that drought conditions cause premature termina-

tion of the grain-fill period, which negatively impacts both kernel weight and yield. Depending on the degree of stress among samples, the length of this grain-fill period would respond accordingly and explain the wide ranges observed.

The chemical composition of the samples, including average crude

protein, ether extract and starch levels, observed in drought-stressed corn were similar to the values reported in previous studies. While ADF and NDF were significantly higher in the drought-stressed corn when compared with the control, these results were not unusually high compared to previously reported data. Overall, the data on chemical composition suggested that drought-stressed corn was not very different compared with typical corn.

There were no significant differences in average digestible energy

(DE), metabolizable energy (ME), and net energy (NE) between the control and drought-stressed corn. Based on experience, the gross energy (GE) of corn would not be expected to differ, unless there was variation in fat content, and since the ether extract values were similar between control and drought-stressed corn, no differences in GE were anticipated or detected.

Relationships between DE concentration and physical and chemical characteristics

Armed with this information, the re-

searchers started looking for relationships between DE concentration and the physical and chemical characteristics of the drought-stressed corn.

Small but significant correlations were only observed between DE and NDF, kernel density, and per cent damaged kernels, and these relationships were not considered to be particularly noteworthy. There were no statistically significant correlations observed between DE and any of the other parameters examined in the study.

The researchers were genuinely surprised that they struck out in establishing a connection between DE content and corn yield. Since yield is the most foreseeable consequence of drought, the likelihood of it being a suitable predictor of drought stress should be high. However, they conceded that it is possible that modern corn hybrids may be more tolerant when challenged by drought conditions.

Despite its original hypothesis, this study found drought-stressed corn to be on an equal playing field to corn grown under typical weather conditions. Corn grown under drought-stressed conditions was comparable in available energy concentration and, despite some lower quality measurements such as kernel density and damaged kernels, energy values remained stable.

Based on these results, it is clear that corn grown under drought-stressed conditions can be successfully used in swine diets. However, it is still prudent to have all feed ingredients tested prior to formulation. Even though corn is surprisingly uniform compared to other grains, it is important to assess each new crop on its own characteristics. Drought did not prove to play a significant role in establishing energy content; however, other environmental variables have been proven to impact energy values so caution is warranted. **BP**

Janice Murphy is a freelance writer with a background in swine nutrition. She lives and works in Prince Edward Island.

Table 1. Characteristics of corn samples used in diet formulation

Item	Control	Drought-Stressed	Drought-Stressed range
Number of samples	2	28	–
Physical Measurements (as-is basis)			
Kernel density, g/cm ³	1.27	1.27	1.26 – 1.30
1,000 kernel weight, g	337	284	176 – 386
Test weight, kg/hL	73.9	73.1	69.0 – 76.0
Total damaged kernels, %	0.9	1.7	0.2 – 7.9
Broken kernels and foreign material, %	0.8	0.7	0.2 – 2.0
Yield, t/ha	–	7.97	2.45 – 14.81
Particle size, µm	625	647	525 – 844
Chemical Composition (DM basis)			
CP, %	8.56	9.18	7.98 – 11.07
Ether extract, %	4.07	3.96	2.91 – 4.83
ADF, %	1.89	2.23	1.82 – 3.14
NDF, %	6.92	8.19	7.02 – 10.14
Starch, %	70.5	69.5	67.4 – 71.6
Digestibility and Energy Content (DM basis)			
DM	89.41	89.79	86.3 – 92.3
GE	4.42	4.43	4.40 – 4.49
Apparent Total Tract Digestibility of DM	84.4	83.4	81.4 – 85.0
Apparent Total Tract Digestibility of GE	84.3	83.1	80.6 – 85.6
DE, Mcal/kg	3.72	3.68	3.54 – 3.82
ME, Mcal/kg (Calculated)	3.66	3.62	3.48 – 3.75
NE, Mcal/kg (Calculated)	2.92	2.87	2.76 – 2.97

Source: Newman, M. A., C. R. Hurburgh, and J. F. Patience. 2016. Defining the physical properties of corn grown under drought-stressed conditions and the associated energy and nutrient content for swine. *J. Anim. Sci.* doi:10.2527/jas.2015-0158.

Group aims to establish PED elimination program

If the Swine Health Ontario initiative works, it could become the gold star for disease management in the province.

by LILIAN SCHAER for SWINE HEALTH ONTARIO

There's a new Ontario swine leadership team focused on improving the industry's ability to prevent, prepare for, and respond to serious swine health threats in the province. And they've been able to secure funding to help producers eliminate Porcine Epidemic Diarrhea virus (PED) and support the development of associated risk reduction strategies.

Swine Health Ontario (SHO) is a team of seven industry representatives guiding swine health-related projects and programs in Ontario in collaboration with Ontario Pork, Ontario Pork Industry Council (OPIC), Ontario Swine Health Advisory Board (OSHAB), Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Animal Health Laboratory, University of Guelph, Ontario Association of Swine Practitioners, and the Ontario Animal Health Network.

"From an industry standpoint, our goal is to improve prevention, preparedness and response to significant swine health issues across the entire industry. (Achieving this goal) will reduce risks and losses so that we can maintain a healthy and profitable pork industry in Ontario," says SHO Chair Dr. David Alves. "Our key focus is implementing a long-term, sustainable and proactive swine health strategy."

Of particular interest to producers is SHO's goal of eliminating Porcine Epidemic Diarrhea (PED) from Ontario swine herds by October 2017. One of its first activities will be the implementation of a PED elimination plan for all Ontario hog farm sites. The development of this plan will also provide a model for addressing other important swine health diseases in Ontario.

Ontario has been successful at lim-



RGTimeLine/Creative RF/Getty Images

iting PED's impact since it was first discovered here two years ago. Alves says there's now an opportunity to eliminate PED from the province altogether and show how the industry can collaborate to address important swine health issues.

Participation is voluntary. The more producers who take part, however, the greater the chance of success for the entire industry, Alves says.

"We have strong resources and expertise in Ontario to reduce overall disease levels in our industry, and we believe that this collaborative approach to swine health management can help give Ontario a competitive advantage when it comes to animal health," he says.

The new PED plan consists of guidelines for monitoring, testing and evaluating key risk factors for PED, with protocols to control and eliminate the virus when and where it is detected. Its four main elements are surveillance, identification, elimination and confirmation of negative status, and transport risk rating.

A key part of the plan is establishing the current disease status of all sites which have been PED positive, and that's where SHO has been able to secure funding to assist producers.

OMAFRA will cover the cost of initial diagnostic testing for suspect

clinical cases, and expenses for additional testing, including confirming PED status at related sites, can be submitted to OSHAB.

Disease investigation of new cases and development of a farm or system elimination plan can also be reimbursed. In the case of farms that have historically positive herds and are planning to eliminate PED, funds for limited testing to establish current disease status are available. Diagnostic costs to confirm PED elimination can also be covered.

Producers are encouraged to contact their veterinarian or SHO for more information.

Alves says SHO shows how the swine industry is coming together to lead a challenging five-year plan to keep Ontario's swine health status at a high level; more details will be available in 2017.

Tools and resources for Swine Health Ontario and the provincial PED elimination strategy can be found at www.swinehealthontario.ca or by calling 519-577-6742. **BP**

Swine Health Ontario is a leadership team focused on improving and coordinating the industry's ability to prevent, prepare for and respond to serious swine health threats in Ontario. Coordinated, collaborative, sustainable, responsive and prepared.

Swine dining in 2017

Pork demand is expected to rise in 2017 and so is production.

by MOE AGOSTINO and ABHINESH GOPAL

Will there be more pork on the menu in 2017? USDA's (United States Department of Agriculture) latest demand and supply estimates point to a year-on-year increase in U.S. pork demand of 557 million pounds for 2017. U.S. pork production, though, is expected to outscore demand and rise by 603 million pounds next year. Pork seems to have been replacing beef on the dining table due to lower prices.

USDA forecasts U.S. hog production to hit record highs in 2016, and multi-month lows in wholesale pork prices suggest that grocers are struggling to sell the pork already on hand and adjust to the reality of big hog numbers. The key June 2016 Hogs & Pigs report showed U.S. hogs inventory had expanded more than expected and has since been weighing on prices.

U.S. inventory of all hogs and pigs on June 1, 2016 was 68.4 million head, up two per cent from June 1, 2015. This is the highest June 1 inventory of all hogs and pigs since estimates began in 1964. Breeding inventory, at 5.98 million head, was up one per cent from last year. Market hog inventory, at 62.4 million head, was up two per cent from last year. This is the highest June 1 market hog inventory since estimates began in 1964.

The Canadian hog herd, compared to July 1, 2015, was up 1.9 per

cent (at 13.5 million head) at mid-2016. The breeding herd was up one per cent (at 1.24 million head) and market hog inventory was up two per cent (at 12.2 million head). The Canadian hog herd is 20 per cent of the size of the U.S. herd. Canada is the source for about three-fourths of U.S. pork imports plus about six million live hog imports each year.

After seeing steep price rises during the initial half of 2016, lean hog futures fell below \$60 per pound in August as investors continued liquidating their long (buy) positions. U.S. Commodity Futures Trading Commission (CFTC) data shows that speculative managed money funds have been reducing their net long position (buying exposure) since late June due to plentiful supplies.

Lean hogs – net speculative managed money positions

According to U.S. Meat Export Federation, which based its calculations on USDA data, U.S. pork export volume was up two per cent to 1.1 million tons for the first half of the year but value was down four per cent to \$2.77 billion. Exports to China/Hong Kong finished the first half of 2016 at 80 per cent higher than a year ago in volume (284,900 tons) and 63 per cent higher in value (\$540.5 million). Rabobank estimates China will see a supply gap of two million tons in 2016 owing to floods

and production issues. The country will likely maintain a similar level of imports even when local production recovers in 2017.

Due to China's pork prices being nearly twice that of competing countries, pork imports are going strong. The European Union, though, is the main exporter of pork and variety meat to China. Although the United States has increased its pork exports to China, the lack of eligible U.S. pork production plants has hindered the United States from capturing more of the market.

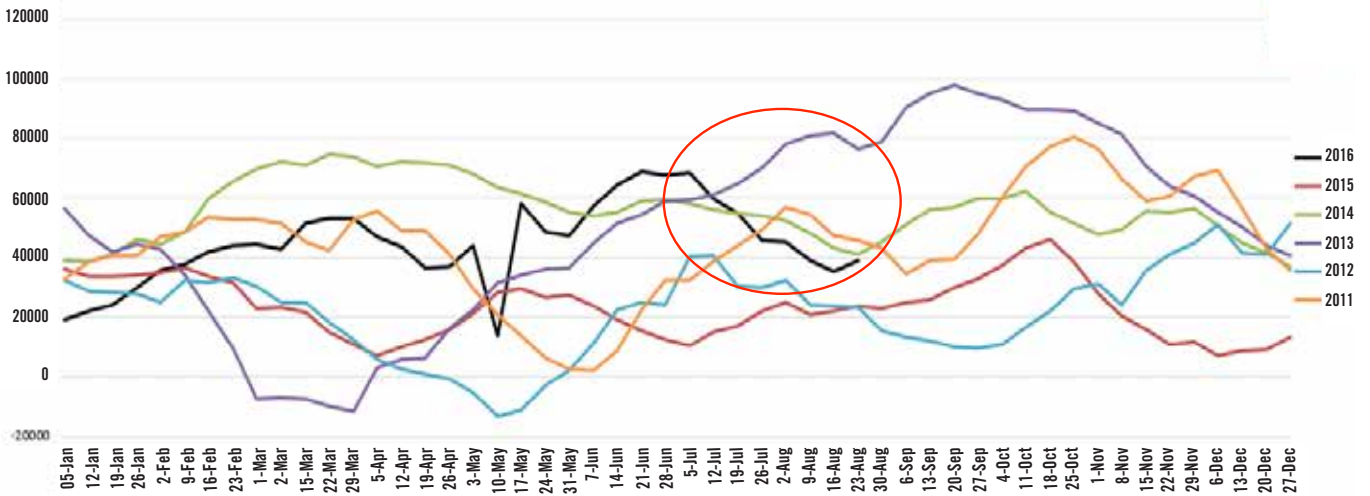
Canada looks most likely to increase its trade with China as it has one of the largest supplies of ractopamine-free pork. The decline in the value of the Canadian dollar is another advantage. Though Chinese import prospects are a strong boost for U.S. and Canadian pork exports, it is important to recognize the swings in Chinese demand and realize that growth in other key markets is essential.

USDA forecasts 2016/17 will produce the United States' first 15-billion-bushel corn harvest and the first four-billion-bushel soybean harvest. These record harvests will help lower feed costs as we go into 2017. This decline is not likely to be sufficient to keep hog profits up, as it doesn't do much to boost hog prices. Demand and exports will have to tick up to boost hog prices.

U.S. Pork Supply and Use

Item		Beginning Stocks	Production	Imports	Total Supply	Exports	Ending Stocks	Total Use	Per Capita
		Million Pounds							
Pork	2015	559	24,517	1,111	26,187	4,941	590	20,656	49.8
	2016	590	24,923	1,150	26,662	5,218	625	20,819	49.8
	2017	625	25,526	1,160	27,311	5,300	635	21,376	50.8

Source: USDA



Source: USDA

Lean hog futures surely exhibit seasonality every year, which makes it capable of steep climb-ups and susceptible to sharp sell-offs. Though it isn't straightforward to predict a possible yearly price range, given the wide swings, hog futures should

be supported in the \$55 to \$60 per pound range in the new year. It's very likely that hog futures will retest the \$85 per pound level in 2017, having done so in the previous two years, and especially during barbecue season. Bon Appétit! **BP**

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Red tape awaits today's Noah's Ark

When he built an ark to save the world's animals, all Noah had to do was find materials, supplies and the animals. What if he had tackled this project in our age of paperwork and protest?

by RICHARD SMELSKI

Imagine if you tried to build Noah's Ark in this day and age. How to do it is not the issue: you can easily find instructions about its dimensions in Genesis 6:16. "Make for yourself an ark of 'gopher wood,'" they begin. "You shall cover it inside and out with pitch. / This is how you shall make it: the length of the ark three hundred cubits, its breadth fifty cubits, and its height thirty cubits. You shall make a window for the ark, and finish it to a cubit from the top; and set the door of the ark in the side of it; you shall make it with lower, second, and third decks."

Now, imagine taking the plan and the dimensions as described in Genesis into your local municipality. You start by saying you anticipate a major flood (after all, climate change extremes are predicted). After getting interrogated for inciting terrorism, you get to see the local planner – who laughs and gives you a list of prerequisites: local plan adherence, neighbourhood feasibility study, engineers' drawings, municipal engineer's review, fire inspector review, environmental plan, septic system plans and bills, triple washrooms, garbage disposal and recycling, highway set backs, electrical stamp, boat safety equipment, wheelchair accessibility, noise restrictions, electrical code adherence and anything else the building inspector can think of along the way. One of the challenges was to maintain cage-free loose housing within the fifty cubits. We haven't even talked yet to the real enforcers: Fisheries and Oceans Canada!

These prerequisites reminded me of the other biblical story of the 40-year journey.

Let's gather the supplies and animals. Now you have the Society for the Prevention of Cruelty to Animals,



Our Personal Photographer/Creative RF/Getty Images

People for the Ethical Treatment of Animals, Toronto Pig Save, animal rightists, animal welfare societies, Neighbourhood Watch, humane societies, World Wildlife Fund, Mercy For Animals, vegans, Jane Goodall Institute of Canada, Alley Cat Rescue, Animal Liberation Front, Peoples Animal Welfare Society, just to name a few.

The plan called for "gopher wood." Conservation authorities are restricting the harvest of gopher wood to save the animals in the forest, but an imitation wood from a developing country may be available.

The 40-year journey is getting more realistic.

OK, let's get a work crew together. The carpenters, plumbers, pipe fitters, painters, electricians and seafarers have to be unionized (unless it's cash). There's a lot of paperwork to complete during the hiring process to comply with human resources policies. Now, I am beginning to think 40 years isn't long enough!

The next step is a financial plan. How much do I need to pay to buy two elephants, monkeys, zebras, etc?

I go online. An emailed offer quickly arrives. Send the blueprint and everything will be provided for half the cost, provided I supply the

client list (Genesis 6:16).

The one line in the financials shows that the insurance costs are exorbitant. The insurer wants all the medical conditions, environmental plans and history of each species. The contract excludes natural major floods and disasters. It also excludes out-of-country travel.

Now, we need to feed the animals. Here we go: the health departments (municipal, provincial, national and international), Canadian Food Inspection Agency, public health, foreign diseases, Ontario Ministry of Transportation and the U.S. Food and Drug Administration (whoever they are) wait on the sidelines.

Now we need a consultant, project coordinator, human resources department, lawyer, accountant and public relations officer.

What started as a dream is becoming more of a nightmare!

No wonder both the Bible and Qur'an suggest that Noah's Ark was built in the desert wilderness far, far away from inspectors, advocacy groups, conservationists, unions, social media and bureaucrats. **BP**

Richard Smelski has over 35 years of agribusiness experience and farms in the Shakespeare area.

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