GROUPE AGÉCO

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"MADE-IN-CANADA" HOG PRICE

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TABLE OF CONTENTS

1. Research context and objectives 4
2. Value of Canadian pork 5
2.1 Japan 5
2.2 China 5
2.3 Mexico 6
2.4 The US 6
3. Hog price discovery: Background and benchmark case studies 7
3.1 Price discovery for hogs in the US 7
3.2 Price discovery for hogs in Denmark 8
3.3 Price discovery for hogs in Germany 8
3.4 Price discovery for hogs in Chile 9
3.5 Price discovery for hogs in Mexico 10
3.6 Canadian beef sector 10
3.7 Raw milk in the UK 11
4. An overview of hog price discovery across Canada 12
4.1 Price determination for Canadian live hogs: Key factors 12
4.2 Price discovery in Canadian provinces 12
5. Critical analysis of reference prices for live hogs: How to choose the right one? 14
5.1 Price behaviour and hog quality: Differences between marketing arrangements 14
5.2 Linkage between prices 14
5.3 Market power and price negotiations 15
5.4 A composite price is more meaningful 15
6. Designing a "Made-in-Canada" hog price reference model 16
6.1 General framework for the design of a "Made-in-Canada" hog price reference model 16
6.2 Choice of the reference prices for a "Made-in-Canada" price reference model: Cost of production, live hog or cutout 16
6.3 Which price references are most relevant? 17
6.4 Establishing the Canadian hog premium 18
6.5 Proposals for a "Made-in-Canada" live hog price reference model 19
7. Conclusion 20

1. RESEARCH CONTEXT AND OBJECTIVES

The discovery and communication of producer prices is contentious and disruptive in many parts of the world where large numbers of producers sell their product to a much smaller number of processors and where power in the chain lies in the hands of the latter. Confidence in fair and transparent price formulation is key to the success of the hog sector. The US has long been a price setter for Canadian hog prices due to the amount of live hogs and meat that flow across the border, mainly southward. Clearly, the valorization of different cuts and by-products in the range of different international markets and the domestic Canadian market determine the final value of the pork value chain. It is the share of the revenue at the end of the chain which is passed back to the producer and the process by which this price is discovered that are the focus of this report. In this regard, issues related to the relevance of US live hog prices used in hog price formulas in Canada to reflect the value of Canadian hogs pose a real challenge. Canadian hog producers do not have a transparent means of determining the price of Canadian live hogs. Many examples in recent years have shown that the Canadian live hog market is not properly reflected by the US market. Moreover, a foreign animal disease outbreak in the US could lead to a total disconnection of the two live hog markets to the great disadvantage of Canadian hog producers.

This report explores the opportunity and feasibility of establishing a “Made-in-Canada” hog price based on relevant indicators to better reflect the value of the Canadian carcass. In the first section, the value of Canadian pork is compared to its main competitors in its four major export markets (the US, Mexico, Japan and China) to determine if the origin is a key criterion for purchase and if Canadian pork is benefiting from a price premium over US pork. This section is followed by a review of the price discovery mechanisms and issues occurring in the hog and pork meat sectors in five major exporting countries competing with Canada on its exports markets (Germany, Mexico, Chile, Denmark and the US). This review is completed by the analysis of two examples drawn from other sectors (raw milk in the UK and the beef sector in Western Canada). Afterwards, price discovery in the main hog-producing Canadian provinces is reviewed, followed by a critical in-depth analysis of the US price references for live hogs and pork. Finally, based on the analysis detailed in the previous sections, the feasibility of a “Made-in-Canada” hog price reference model is assessed through a discussion of what could be the most appropriate reference prices for use in the context of the Canadian pork value chain. Three options that would allow for a better distribution of the value created by the sector amongst the partners of the chain are also analyzed.

2. VALUE OF CANADIAN PORK

2.1 JAPAN

The only market where Canadian pork is priced above American pork is the Japanese fresh and chilled market, with price premiums for most products ranging from 1 % to 18% for fresh fillet over the 2018–2019 period.

Japanese pork purchasers value trustworthy and stable suppliers, but also specific farming practices, including feeding programs and genetics, and production certification (traceability, quality assurance).

Canada has developed a reputation for high quality pork. The price is obviously key, but image is also important. The premium is related to the origin, but also to the brand and the way the product is processed at the plant (desired product characteristics, such as quality consistency, compliance with specifications, shelf life and food safety). Throughout the interviews, products of Canadian origin were usually noted as being of higher quality than those of other origins. Japanese preferences position Canadian exporters favourably, particularly over US competitors. The Canadian reputational advantage seems likely to grow stronger, provided careful brand management and promotion continue.

2.2 CHINA

For China, price and quality are the two key drivers for imports, although price is the overriding factor. Interviewees noted differences in quality between origins, although these were rarely perceptions that extended nation-wide. At times different among processors within the same origin market, these perceptions were rather related to individual products from specific countries or to specific individual factories owned by some multi-site operators. Quality meat can most aptly be defined as imported products that meet the preconceived expectations of the buyer, and it is becoming increasingly important to importers.

There appeared to be less emphasis placed on the relationships with suppliers than in other markets. However, ensuring stable supply with limited disruptions was noted as an important factor; disruptions in supply are not acceptable. US exporters are favoured in some instances because of their capacity to supply at the scale required by some importers.

Regarding the ractopamine issue, direct export to China is only allowed for ractopamine-free pork. However, a grey channel is tolerated through Hong Kong for pork produced with ractopamine, but a discount is applied by importers to mitigate the risk of arbitrary closure of the grey channel (US$0.20 to US$0.50/kg of product).

2.3 MEXICO

Mexico is a price-driven market supplied by the US (82%) and Canada (17%). There is no difference in price between origins (US or CA) of exports to Mexico for a specific cut.

Mexican importers may prefer US products, as they are cheaper and because of the scale of shipments. However, quality-wise, Canadian products are the preferred choice when Mexican (MX) importers want to be more specific with quality requirements. This has allowed Canada to gain some market shares relative to the US. It would be very difficult to use this market to justify a farmer price premium.

2.4 THE US

The North American market is highly integrated between Canada and the US, with similar products and yields. US brokers do not make purchases based on origin for the commodity market, although for an equivalent price, they may prefer pork of American origin. The pork commodity market is primarily price driven. On the speciality and niche markets, customers are asking for a brand, not an origin. There are some preferences on these markets for Canadian pork products (for their smaller size, colour, longer hocks, reputation of the brands).

Overall, the most important factors that drive the purchase decisions are, first and foremost, the price and then the supplier’s reputation (service, reliability of delivery, quality of the business relationship, quality of the products and traceability). Hence, the difference rather lies in companies (whether in the US or Canada) and their brands.

3. HOG PRICE DISCOVERY: BACKGROUND AND BENCHMARK CASE STUDIES

Apart from the Japanese market, the value of Canadian pork is mostly similar to the value of pork supplied by the major exporters to the principal Canadian foreign markets. Hence, it is necessary to understand how pork and live hogs from these key competitors are priced in order to understand the drivers of competitiveness. The price discovery process for five of the most important exporters is summarized, along with a critical assessment of the key issues faced by the market participants with regard to their respective pork value chain. Finally, to enrich this analysis, the price discovery processes for two other sectors (raw milk in the UK and beef in Canada) are considered.

3.1 PRICE DISCOVERY FOR HOGS IN THE US

The core of the price discovery mechanism in the US swine industry is the regulatory framework for the marketing and pricing of livestock, whose two pillars are the Livestock Mandatory Price Reporting Act (LMPR) and the Packers and Stockyards Act (PS).

The PS requires to establish and maintain a library or catalogue of the types of contracts offered by packers to swine producers for the purchase of swine (including swine that are purchased for future delivery). As of April 2019, about 800 contracts/formulas were referenced in the library.

Under the LMPR, swine sales must be reported across the following categories: negotiated purchases (spot cash market), negotiated formula purchases, swine or pork market formula purchases (SPMF), other market formula purchases (OMF), other purchase arrangements (OPA), and packer-owned and packer-sold purchases (integration by packers). SPMF, OMF, OPA constitute what is commonly named alternative marketing arrangements (AMA). In 2018, the negotiated market represented around 2% of swine sales, while SPMF was about 31%, packer-owned and packer-sold was 34%, OPA was 22%, and OMF was 11%. Over the last two decades, a significant shift was observed, with OPA and packer-owned sales gaining ground to the detriment of a very thin negotiated (cash) market.

Under the LMPR, pork sales must also be reported across the following categories: negotiated sales, formula marketing arrangement sales, forward sales and export sales (sales for delivery outside of the US, excluding Mexico and Canada).The negotiated sales of pork represent about 30% of the volume of pork cuts for which prices are reported.

In addition to the prices reported under the LMPR, market participants, sellers and buyers will use two other reference prices for hog and pork, both published by the Chicago Mercantile Exchange (CME): the CME Lean Hog Index and the CME Pork Cutout Index.

In preparation of the 2020 reauthorization of the LMPR , the USDA conducted several consultations with industry stakeholders. Some recommendations have led to some form of consensus, such as reviewing the rules of allocation of hogs to the different categories of marketing arrangements, increasing the transparency of non-carcass merit premium—such as specific production-related quality attributes—including more data on formulas based on the cutout price and finding ways to address day-to-day volatility created by the reporting process. One notable issue that has not reached any consensus yet is the revision of the definition of a packer's affiliate. One proposal under discussion

is that any person owning more than 0% of a packer will be considered an affiliate of the packer (against 5% presently). This would affect all producer-owned packers and increase the allocation of hogs to the packer-owned category, which may exacerbate the thinness of the negotiated market.

3.2 PRICE DISCOVERY FOR HOGS IN DENMARK

In Denmark, the price of live hogs is set by Danish Crown, which holds a near-monopolistic position. Being a cooperative of hog producers that has integrated downstream activities, Danish Crown is focused on maximizing profits from pork products. It can rely on producers’ commitment to supply all their hogs directly to the coop slaughterhouse. The length of the contract to which farmers must commit to cooperatives is also capped at 6–12 months in the case of Danish Crown, forcing Danish Crown to remain competitive with respect to the hog supply.

The hog price is then set based on projected pork sales through a variety of cuts (with a heavy weight of export sales), profitability objectives, but also on the German price, as there is a significant trade flow of piglets from Denmark to Germany, depending on the relative price between the two countries. At year end, producers may receive an additional payment reflecting Danish Crown profitability.

There is very little regulation with regard to the marketing and pricing of live hogs. The only exception is in relation to the common grading system. The latter is controlled by the Ministry of Agriculture and regulates the meat percentage for pigs and gives comfort to farmers that animals are graded fairly by processors.

While the Danish model is perhaps an aspirational model for Canadian farmers to replicate from a live pricing perspective, this is unlikely to be achievable. It originates through farmer ownership of the coop processor, which dominates the kill. A key part of its success has been the effective access to third-country markets, in which prices are higher.

3.3 PRICE DISCOVERY FOR HOGS IN GERMANY

The German price is the most important pig price in Europe, as it is the biggest market and because it is the price benchmark for most European countries, whose processors take the lead from what is happening in Germany.

While cooperatives are present in Germany, there are a notable number of middlemen, including traders, making this a more convoluted market than Denmark. However, most pigs are sold through traders and farmer-controlled selling groups to the processors, who do not normally have a direct relationship with farmers. The selling groups include primary marketing cooperatives. Some slaughter pigs are sold in the spot market through the Börse, although volumes are limited.

Within Germany, there is a mandatory pork price reporting under European regulation, and it is released on a weekly basis, although this is done 1–2 weeks after the event. In Germany, this regulation is executed in compulsory price information being submitted by slaughter plants processing >200 pigs per week. The total number of reporting plants is 100–120, representing 75%–

80% of total German production. However, this price release takes place after the event; there are no regulations as to the forward setting of German pork prices.

The convoluted nature of the German market and the considerable number of middlemen led to the establishment of the producer organisation, Vereinigung der Erzeugergemeinschaften. This is not a legal entity, but it has been in existence for a long time and is accepted by most actors in the market. This organisation is made up largely of a range of producers and producer organisations.

During a weekly conference call, the concluded prices that farmers and groups have contracted for the week to come are exchanged. In the past, the legality of the action has been challenged at the German Competition Office, which regulates cartel situations, but the claim was unsuccessful. As the information represents already concluded contracts, it complies with German competition legislation. However, price expectations somewhat influence the tone of the call and are, hence, indirectly integrated in the price setting process.

The organisation then comes up with a quotation price, also known as the North West Price, which serves as a starting point for pork prices in Germany. While this committee price is only a reference, the actual price paid by plants is usually very close to it. However, at times, slaughter plants will pay a different price to that set by the committee. If a processor disagrees with the North West Price because it feels too far from market reality, the processor will set a house price (lower); if other processors disagree, then they will follow. However, if only one processor sets a house price, it is likely that they will pay a fee on top of the house price to farmers to ensure pigs are not sent elsewhere. Disagreement between the committee and slaughter plants are often seasonal and usually relate to the supply of pigs. Fundamentally, the German pig price is heavily impacted by the supply and demand of slaughter pigs and meat.

The reference price is then corrected by a range of costs that are imposed on suppliers (transportation, insurance, etc.), which vary depending on the supply contract and the range of classification criteria, which can reduce the price. These changes are rather opaque, made more so by the presence of independent traders who compete with the producer groups in selling to the slaughterhouses.

This methodology for calculating the price has remained relatively constant, with very few changes made in many years.

3.4 PRICE DISCOVERY FOR HOGS IN CHILE

Almost all pig production is vertically integrated in Chile (95%).

The prices of live pigs reported by Odepa (Chilean Office of Agrarian Studies and Policies) correspond to that of auction markets, which account for a very small share of total animals (<1% total kill). The Chilean price discovery process is therefore of little relevance to Canada

3.5 PRICE DISCOVERY FOR HOGS IN MEXICO

With a larger share of pig production in the hands of integrated companies, the cash price of live pigs is losing some of its relevance, especially since there could be strong regional contrasts and very local cash markets. What is not integrated or vertically aligned is described as a totally free market functioning on a purely spot basis system; the use of production contracts outside of vertical integration is extremely limited.

Spot prices are negotiated on the basis of supply and demand. As a basis for discussion, both parties can refer to the daily series published by a department under the Ministry of Economy, the SNIIM (*Sistema Nacional de Información e Integración de Mercados,* http://www.economia-sniim.gob.mx), on its website. These spot prices may reflect very different local market conditions.

The market of Mexico City weighs strongly on national prices, and demand for processing is the major price driver, both being primarily served by integrators. Moreover, with imports accounting for up to 40% of total supplies, US prices have quite a significant influence on the Mexican market.

3.6 CANADIAN BEEF SECTOR

Price discovery in the beef industry is far from a settled matter and continues to be an issue of concern.

Two packers/buyers dominate the market, have excess capacity and compete vigorously for cattle to maximize the utilization of facilities and the work force. This situation, along with the fact that contracts have much lower transaction costs ($15 to $25 less per head), tends to favour contract pricing.

There is no mandatory price reporting in Canada. All pricing is provided based on voluntary reporting to Canfax, who also daily reports a full range of US prices that are mandatory (live, rail and cutout prices). The volume of fed cattle actually sold on a cash basis is low and is estimated to be 20% or less of all cattle sold; some weeks this proportion would be below 5%.
Feedlot operations (the sellers) are reluctant to report settled price information for commercial and confidentiality reasons. New measures to maintain or improve transparency and price discovery are continuously being suggested or implemented. For example, the Fed Cattle Exchange system is one such example; recently AFSC, the organization offering the Western Livestock Price Insurance Project, has implemented a pilot project to collect price information from a sample of feedlot operators (some of whom are not reported to Canfax). The results are still being evaluated.

The case of the Canadian beef price discovery process highlights that price reporting on a voluntary basis has its limits. The producer's business model somewhat determines how sensitive they are to price transparency issues. Contract producers seem to think they have an advantage in not sharing information. This is an issue if contract prices are based on the information available and if this information is not representative of the actual whole market (biased sample).

3.7 RAW MILK IN THE UK

From the early 1930s to the mid-1990s, milk in the United Kingdom was sold through marketing boards. The UK's entry into the European Economic Community in 1973 gradually led to the dismantling of these boards to harmonize with European competition rules and the CAP. In the following years, producer prices decreased significantly and so did milk production during the 2003–2004 period. Between April 2003 and October 2009, production decreased by almost 9%, and the number of producers decreased by 6% to 8% per year. During the same period, consumer prices rose, as did processing and retail margins. Faced with declining production and the fear of not being able to secure a local supply—as milk became scarcer and scarcer—retailers set up a direct link with producers by offering them retailer-aligned contracts for drinking milk sold under their own brands, which the processor transformed on a fee-for-service basis. These contracts establish a milk price based on the cost of inputs. The implementation of these contracts from 2007–2008 onwards resulted in a very significant increase in the price of milk, which jumped by nearly 50% between 2003–2007 and between 2008–2012. This increase in producer prices occurred to the detriment of processors, who saw their margins decrease by more than half, while retailers' margins remained the same. This can be explained by the competition among processors to obtain private label milk contracts with retailers. Dairy production rebounded, and after a spike in 2012–2013, it experienced a very high growth rate, reaching a peak of 14,790 million litres in 2015–2016.

The spread between the price received by producers who are under the SAC and the other producers is growing and has been very high in periods of low prices, such as during the 2009–2010 and 2015–2016 periods. This two-tier dairy industry is a source of division among producers.

In recent years, one major retailer (Tesco) announced its intention to review the scheme of its contracts, which could mean an additional market component in the contracts. This review is motivated by the upheaval of the dairy market. Some also argue that the cost-of-production deals do not encourage farmers to boost efficiency.

However, it is difficult to imagine that such contracts could exist between retailers and producers in the pork sector and, more generally, in the meat sector. This is mainly due to the multitude of products that come out of a pork carcass cutout, which are products that cannot be fully balanced through a single marketing channel, such as a retailer. One of meat packers' major roles is to balance the carcass and maximize its value through the different marketing channels (retail, export, secondary processing, catering, etc.). It is also worth noting that the UK dairy market is highly focussed on domestic market sales yielding greater power to the retailers in the chain, whereas the Canadian pork sector has significant exposure to export markets.

4. AN OVERVIEW OF HOG PRICE DISCOVERY ACROSS CANADA

4.1 PRICE DETERMINATION FOR CANADIAN LIVE HOGS: KEY FACTORS

When considering the Canadian pig and pork supply and demand structure, one can notice the extent of the linkage with the US industry and market: 18% of all pigs produced in Canada are exported live to the US; 23% of the pork meat consumed in Canada comes from the US; and 19% of Canadian pork production is exported to the US. Besides, the US is a major competitor on most of Canadian export markets (non-US exports represent 43% of Canadian pork production). Consequently, US price references remain a key market indicator for price determination across the Canadian pork value chain, as US supply and demand dynamics will necessarily affect Canadian ones.

Simply said, Canadian packers are competing with US-sourced pork meat on all markets. Their price references are the US pork cutout prices. The arbitrage on cuts is made at the North American scale, while the arbitrage on live hogs is not.

Other local factors will affect live hog prices in Canada. On the supply side, the main factors are income expectations for the farmers, risk management programs and tools, regulatory constraints for hog production expansion, labour shortage, packing sector efficiency (capacity use and labour shortage) and distance to markets (cost of transportation, arbitrage opportunity). On the demand side, the main factors are domestic demand growth expectations (household income, consumption patterns, competitiveness with other proteins) and the international trade environment (trade agreements, trade conflicts).

4.2 PRICE DISCOVERY IN CANADIAN PROVINCES

In Quebec, the process for determining the price of live hogs has been governed since the early 1980s by the Quebec hog producers' collective marketing plan. Under this system, hog producers collectively negotiate a sales agreement with slaughterhouses, usually for four years. The agreement lays down all the conditions for the sale of pigs.

Since 2013, the agreement authorized the use of special agreements for pigs that meet precise specifications and that have been audited by a third party. Between 2009 and 2019, the price of hogs other than Owners or Special Agreement was based on the price of the LM-HG201 Negociated and Swine or Pork Market Formula, adjusted for the average ranking index, exchange rate and carcass yield difference. Since 2016, all regular ractopamine-free hogs are paid a price premium, which depends on the packer: fixed premium of $1/100 kg or a premium that varies with the cost of grain (in one case, with the cost of grain and manure hauling).
With the new convention, the price formula has been modified to include a price range related to the US pork cutout. This formula includes a ceiling price and a floor price corresponding, respectively, to 90% and 100% of the cutout price (LM PK 602 Negotiated Sales - Afternoon). The new formula also includes a premium of $2/100 kg for hogs sold under the Qualité Québec agreement.

In Ontario, about 30% of the hogs produced go to a producer-owned packing plant. The price paid to producers is derived directly from the wholesale value of pork (cutout value). Another 60% to 65%

are marketed through contracts, including 25% marketed through the marketing division of Ontario pork (individual contracts, plus the pooling program). Less than 2% of hogs are negotiated on the cash market.

Live hog prices are under mandatory reporting in Ontario. Packers must report price paid for live hogs produced in Ontario. Three categories of hogs are reported: low (15%), middle (70%, average), high (15%). Prices will not be weighted by plant.

In the meantime, Ontario Pork publishes a reference price (100% formula) based on a US reference price (CME Lean Hog Index). This reference price is intended to provide information to market participants. It is also used in contract formulas along with US reference prices and serves as a benchmark price for the AgriCorp's Hog Risk Management Program.

In Western Canada, most of the pigs are either owned by the packer (integrated) or traded between packer and the producer on a contract in which prices are based on a formula. It is estimated the virtually no pigs are sold on a cash or spot market basis.

In simple terms, the contract price between the packer and the producer is calculated based on a US reference price with a factor reflecting local conditions. Producers in Saskatchewan and Alberta tend to receive the lowest price among Canadian provinces. Currently, there is a high level of dissatisfaction with the price discovery process among Western Canadian producers, as producers are perceiving that packers are consistently making profitable margins on hogs, while feeling that these are not being shared fairly with them based on their reading of the consistent negative price differential with Eastern provinces. All available market information received by hog producers in Western Canada point to a rather one-sided price discovery system benefiting the packers. This translates into an unwillingness to invest and expand production, even in the Hutterites colonies, which are among the lowest-cost producers in North America.

5. CRITICAL ANALYSIS OF REFERENCE PRICES FOR LIVE HOGS: HOW TO CHOOSE THE RIGHT ONE?

The previous section demonstrated that the different price discovery mechanisms implemented in Canada use US price references. Therefore, it is necessary to have a more thorough and critical understanding of these US price references before designing any "Made-in-Canada" hog price model.

5.1 PRICE BEHAVIOUR AND HOG QUALITY: DIFFERENCES BETWEEN MARKETING ARRANGEMENTS

Carcass base price levels vary between marketing arrangements. Over the last four years, negotiated price has been consistently lower than alternative marketing arrangements (AMAs), while in the past the spread was quite cyclical. On the negotiated market, sellers and buyers have a lot of market information available when negotiating (CME, USDA), but their quality expectations are significantly different. Buyers face a lot of uncertainty about the quality of hogs they are buying, so its starting price is discounted compared to what it would be with more certainty about quality. The increasing use of AMAs generates more volatility of the negotiated market and decreases carcass price levels, mostly by influencing the supply and demand conditions in the negotiated market.

Meanwhile, there have been noticeable changes in the average carcass profile of the different categories of marketing arrangements. While 10 years ago differences in average carcass weight and lean percentage were slim, they are now marked (AMA hogs are 7% heavier and 2 points leaner), meaning that very different hogs are marketed through the different types of arrangements.

This reflects evolution of the demand and of industry drivers: differences in pork products (quality attributes, branding, etc.), the emphasis on control of carcass quality and reliability of supply.

5.2 LINKAGE BETWEEN PRICES

The negotiated sales for swine play a central role in price discovery and is leveraged in price formulas covering a large part of the production (about 66%). Consequently, the relevance of the negotiated price and its consistency with market fundamentals is critical for the hog industry.

In the meantime, about a third of the hogs may be sold under a contract whose formula has a cutout component. More and more contracts have a cutout component. This trend may last for at least two to three more years, but a reversal cannot be excluded later if the cutout reference becomes less favorable. Based on a historical analysis, price formulas including a cutout component seem to be fairer over the long term, with more value being distributed along the supply chain, depending on the weight given to it in the formula (from only-partially-cutout-based formulas to fully-cutout-based formulas).

5.3 MARKET POWER AND PRICE NEGOTIATIONS

The pork packing sector is very concentrated, with the top three packers (22 plants) owning 61% of the total US slaughter capacity and the top five (26 plants) owning 72%.

Meanwhile, hog operations are also somewhat concentrated. Hog operations with more than 5,000 heads in inventory represent 10% of the total number of operations but 90% of total swine sales. In 2012, 145 producers having more than 50,000 heads in inventory held 60% of the total US inventory (This data has not been updated since.). The 40 largest swine producers owned almost two thirds of US swine breeding in 2018. Hence, the reported prices originate from transactions between a very limited number of market participants. A few producers will have a significant market power, while most will be price takers.

With respect to how the value is shared between the packer and the producer, one can observe a significant shift in mid-2014 in the value of the producers-packers price spread relative to the wholesale value of pork meat. Over the last five years, the packing sector has been capturing a larger share of the pork value in the US.

5.4 A COMPOSITE PRICE IS MORE MEANINGFUL

The mapping of the data reported for swine and pork and used for price discovery shows how meaningful data on pork cutout prices is for the discovery of the US swine price, as they also provide information on the underlying price of packer-owned swine. A pork cutout component in a price formula allows to capture more relevant market information. Hence, it is a necessary component of any price reference for live hogs.

Moreover, as discussed previously, the swine negotiated price tends to be discounted, as it originates from marginal transactions, which are not at the core of swine producers' business model. Consequently, the swine component of any price reference should be a composite of reported swine prices, like the CME Lean Hog Index.

6. DESIGNING A "MADE-IN-CANADA" HOG PRICE REFERENCE MODEL

Canadian pig production is characterized by marked differences between Eastern and Western provinces in terms of production systems, supply chain structures and market regulations. This makes the elaboration of a single price formula that is relevant for all live hogs sold in Canada very challenging. However, it is possible to define a general model for a "Made-in-Canada" hog price by following a structured approach, starting by setting a general framework for its design.

6.1 GENERAL FRAMEWORK FOR THE DESIGN OF A "MADE-IN-CANADA" HOG PRICE REFERENCE MODEL

Usually, the price formula used to determine the price paid to producers for their hogs is structured as follows:

PRICE_Paid = REF_Price x ConversionCoeff + Basis + Premium/discount

Where "REF_Price" will reflect the market conditions at a macro level, "ConversionCoeff" will allow to make prices equivalent (technical factors, exchange rate, etc.). "Basis" will reflect local market conditions (rarity of supply, over/under packing capacity, cost of market access, transportation); it can be positive or negative. Lastly, "Premium/discount" will reflect specific quality attributes and the packer's business model.

The basis and premiums grid translate local market conditions and business practices that cannot be captured into a Canada-wide price. Consequently, this research has focused on designing a model for a "Made-in-Canada" price reference for live hogs (CAN_REF). The general model for this "Made-in-Canada" price reference would be:

CAN_REF = REF_Price x ConversionCoeff + CAN_Premium

Where "REF_Price" is a function of existing reference prices used to set the price level for live hogs, "CAN_Premium" reflects general efforts made by producers to create added value for the packers (ractopamine-free, Canadian Pork Excellence program), and "ConversionCoeff" integrates the usual conversion factors.

6.2 CHOICE OF THE REFERENCE PRICES FOR A "MADE-IN-CANADA" PRICE REFERENCE MODEL: COST OF PRODUCTION, LIVE HOG OR CUTOUT

The first step is to choose one or several reference prices that will reflect the market conditions under which Canadian hogs are sold. The use of either a hog cost of production reference, a live hog price reference, a cutout price reference or a composite must be decided based on the industry's overall objective.

The cost of production reference price could be derived from the components of the pig cost of production, as is done in some hog contract formulas in the US or UK retailer-aligned contracts for

raw milk. However, this option is not retained. Indeed, it would exacerbate the risk borne by packers with regard to the volatility of the cost of their hog supply, as the asymmetric price transmission along the pork value chain would limit packers' ability to manage any margin squeeze. Besides, the diversity of cost structures across Canada calls for different formulas for each province, making that option somewhat less relevant and feasible. Besides, this type of price reference is not widely used in the US and is generally used in combination with other market indicators. Hence, to avoid any hog marketing misalignment between the Canadian and US pork industry, it would be preferable to not use a price reference based only on a hog cost of production. A cost of production reference could, however, be used as a floor price to protect against a surge in grain price. It also remains a relevant market indicator when it comes to evaluating if a price formula is sustainable and ensures the viability of production in the long term.

Integrating a cutout component allows the downstream value of pork to be shared more explicitly with the producers and facilitates the alignment of business interests. As mentioned previously in this report, there has been a shift from using live hog prices to using pork cutout prices, alone or in conjunction with live hog prices in the US. Quebec (over 7 million hogs) recently adopted a price formula using a cutout component. There are strong arguments in favour of using a cutout price component in the reference price for live hogs. First, a cutout reference price would alleviate some of the effects of volatility spillovers and of price transmission asymmetries. Secondly, cutout prices capture more market information than live hog prices because of the growing share of integrated value chains in the pork industry (either corporate-owned or producer-owned) for which price discovery occurs when selling pork.

Live hog price references are still relevant, as they reflect market fundamentals on the supply side. The live hog price reference will provide information on the cost of hog supply in relation to packers' competitiveness (capacity utilization rate, expansion and profitability).

6.3 WHICH PRICE REFERENCES ARE MOST RELEVANT?

As highlighted before, the live hog reference price ought to be a US reference price. The reference must be representative of the hog commodity market. The most relevant reference is the USDA LM_HG201 report, which uses a weighted average of negotiated, negotiated formula, and swine or pork formula prices. If regional differences need to be considered, other reports may be more relevant for Western Canada (LM_HG204 and 208). Again, one must use the weighted average prices for the following marketing arrangements to get a representative price: negotiated, negotiated formula, and swine or pork formula.

Ideally, the cutout price reference must reflect—as much as possible—the markets of Canadian pork packers. This means that it should be geographically representative but also based on an appropriate cutout model. There is no existing official cutout model for Canadian pork nor any published cutout price. Several obstacles that would prevent the publication of a Canadian cutout price reference have been identified. The very low number of meat packers in Canada could make it difficult to comply with confidentiality rules, and there is a significant risk that data could frequently not be published. Besides, in the absence of any regulatory framework mandating meat packers to report their pork sales, publications will rely on packers volunteering to report their sales.

In the absence of a Canadian pork cutout price in the foreseeable future, a US cutout price reference should be used, considering that US packers are direct competitors of Canadian packers on all their markets, both domestic and foreign, and assuming there are no significant differences in cuts between US and Canada (i.e. cutout models are similar). However, one must keep in mind that some adjustments may be needed to reflect specific market situations where there is a difference between US and Canadian marketing conditions and commercial environment.

USDA cutout prices cover sales of US pork in the US but also sales to Canada and Mexico, so they are really a North American price. The cutout price for the carcass does not account for packaging and labour costs incurred by pork packers, nor does it account for by-product revenues. Consequently, an adjustment is needed to recognize that meat packers must cover operational costs, as the purpose of the price reference model is not to hinder packers’ competitiveness. Currently, we are lacking a Canadian benchmark for pork packers’ operating costs. As a result, setting the share of the cutout price going to the producers could be done by relying on data from the US, which supports a 90% to 95% share (assuming operating costs of $15–$25/head and a drop value of $5/head). The Quebec new price formula and several US contract formulas are using a window contract with a minimum and maximum adjustment to the cutout reference price. The pork cutout reference could be prices reported by the USDA LM_PK602, LM_PK680 or CME Pork Cutout Index.

After reviewing the different reference prices that could be used in the model, the other key component (the Canadian premium) of the proposed “Made-in-Canada” hog price reference model needs to be discussed to properly reflect the value of Canadian hogs with regard to US hogs.

6.4 ESTABLISHING THE CANADIAN HOG PREMIUM

The analysis of the value of Canadian pork on export markets has shown that Canadian fresh pork products benefit from a premium on the Japanese market over similar products sourced from the US. This premium relies on both the work of meat packers (branding) and producers (production certification, carcass quality). This premium is not captured in any US cutout price reference. Hence, the latter should be adjusted accordingly to reflect Canadian pork markets. The costs incurred by producers to comply with the Japanese market requirements apply to all hogs produced, regardless of their actual destination. Therefore, it would only be fair to share that Japanese premium.

The Japanese premium distributed over the whole carcass would be calculated as the sum of the value of premiums on the Japanese market for each cut over the US price, distinguishing fresh and frozen cuts, weighted by the share of each cut in the carcass cutout and by the exposure to the Japanese market, which would be equal to the share of Canadian output exported to Japan for each cut, again distinguishing fresh and frozen cuts.

The whole set of data needed to calculate the Japanese premium is not currently available. However, a tentative estimate was made for illustrative purposes only. The tentative estimate results in a Japanese premium of C$6.5 to C$9 per 100 kg. The share of the producer is yet to be determined and should reflect the producers’ relative contribution to the effort resulting in that premium.

With regard to the current market conditions, where ractopamine-free hogs command a premium in the US, a premium for ractopamine-free hogs is presently justified for a "Made-in-Canada" price reference model—since it is not captured in the US base price that is used as reference. Based on current available data, that premium would be set at a value between C$1 and C$3/100 kg. However, it must also reflect the evolution of the business environment in the US and it is not unlikely that hogs produced using ractopamine will sooner than later be priced at a discount, making a premium in Canada irrelevant.

6.5 PROPOSALS FOR A "MADE-IN-CANADA" LIVE HOG PRICE REFERENCE MODEL

Integrating all the elements presented above, three options have been retained for a "Made-in-Canada" hog price reference model. Based on the 2013–2019 price history, each of the three options proposed for a ''Made-in-Canada'' hog price reference model would have had a significant impact on the prices paid for hog produced in Canada. This impact would have been felt mainly over the 2015–2018 period, when there was a rapid and sustained increase in the difference between the price of meat (cutout) and the price of live hogs (live hog price).

The first option is a cutout-only reference price model where the reference price is adjusted using the percentage of the cutout that would be paid to the producers. This percentage would have to be determined. That option—by completely aligning the price of live hogs with the American cutout—would set how the value of pork meat is shared along the value chain. It therefore considerably reduces the volatility of the price of live hogs.

The second option is a composite reference price model where the reference price is composed of a live hog reference and a cutout reference. The weight to attribute to each component would have to be determined. The percentage of live hogs exported to the US could be used to set the relative weight of the live hog component. The cutout component is also adjusted using the percentage of the cutout that would be paid to the producers. The value of this parameter would certainly be subject to debate. This parameter is difficult to establish based solely on an economic argument. Any increase in the weight given to the live hog price in the model would increase volatility, and if the 2015–2018 price environment were to be reproduced, it would lead to a lower price compared to the one obtained with a lower weight for the live hog price component.

The third option is also a composite reference price where the reference price is based on a live hog reference with a floor and ceiling price based on a share of the cutout reference. This corresponds to the model of the new Quebec Formula where the floor and ceiling price have been set at respectively 90% and 100% of the cutout reference. The use of that option would have resulted in significantly higher live hog prices during the 2015–2018 period and in greater volatility than the other two options, as it is further influenced by the price of live hogs. However, volatility would still have been lower than for actual hog prices in Canada over the period analyzed (2013–2019).

The sensitivity analyses show that the price levels resulting from the 3 options are more sensitive to changes in the values of the parameters applied to the reference price than to changes in the level of the Canadian premium (Japan and ractopamine). For instance, the introduction of a cutout reference would have had much more of an impact on the price paid for live hogs over the 2015–2018 period.

7. CONCLUSION

The proposed models for a “Made-in-Canada” hog price will determine the reference price upon which the final price paid to the farmer will be set. However, it does not consider the other components of this final price: the basis reflecting the local market conditions, including the cost of access to market and the set of premiums and discounts specific to the packer’s business strategy.
It has been demonstrated that the development of a solely Canadian price reference for hog and pork is difficult to envision, and thus the pricing process in the Canadian pork sector must remain linked to US price references. If this option is well suited to a “business as usual” situation, the risks associated with disruptive events in the Canadian or US market (e.g., a closure of the Canada-US border) must not be overlooked. In this context, the Canadian hog industry should provide mechanisms to deal with such eventualities.

While the proposed price reference models could lead to improved returns at the farm level and more accurately compensate farmers for the real value of Canadian pigs, we cannot ignore the great challenge of implementing such a price model in the Canadian hog industry. Without leverage, whether this be regulatory or through the generation of increased selling power, it is difficult to see, at first glance, how to force packers and producers to use this price model in their trade relations. It is indeed difficult to imagine that packers will voluntarily comply with a practice that may have the effect of reducing their margins. However, the proposed “Made-in-Canada” price reference models have the potential of not only determining a higher price for hogs, but also of helping build a stronger and more sustainable partnership between packers and producers.