Feed Grains and Livestock in Canada: A Reconciliation

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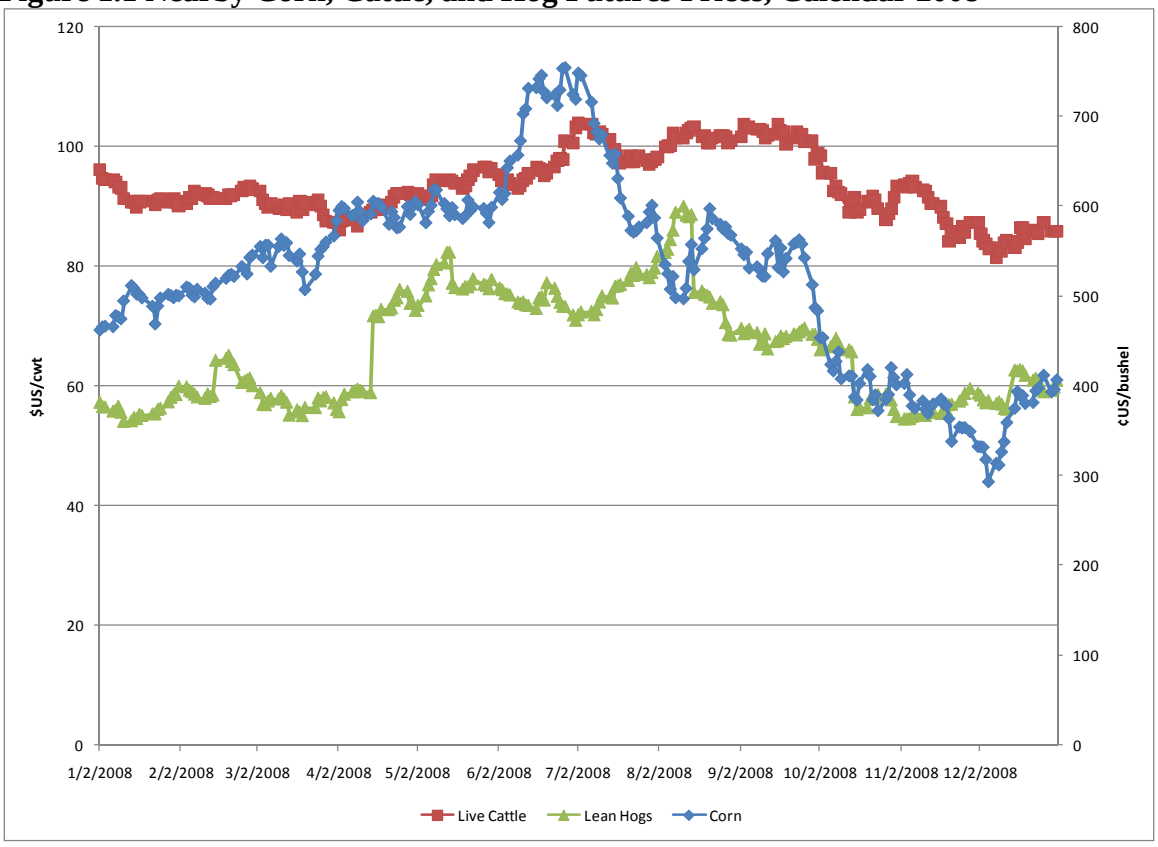
1. Introduction

The year 2008 proved remarkable in feed grain and livestock markets. Through the first half of the year, feed grain prices surged to historic highs. Then, from late July onward feed grain prices retreated sharply. At the same time, cattle and hog prices strengthened somewhat through the first half, only to weaken significantly in the second half. Thus, livestock feeders incurred near-record feed expenses in the first half, and livestock prices did not hold as feed grain prices decreased in the second half.

These trends are illustrated in Figure 1.1below, for corn, live cattle, and lean hogs based on US nearby futures prices. The figure suggests that livestock feeding profitability was battered in the first half of the year by ever increasing grain prices as cattle and hog prices did not increase sufficiently to offset grain prices. Secondly, the trends in corn prices were primarily on the old crop; by harvest time corn prices had significantly retreated. Finally, hog and cattle prices mostly declined seasonally in the fall of 2008.

Figure 1.1 Nearby Corn, Cattle, and Hog Futures Prices, Calendar 2008



This is a simplistic description of the whip-saw situation in feed grain and livestock markets that affected Eastern and Western Canada in 2008. However, it provides little insight into either the long-term situation or the intimacies of the relationship between feed grains and livestock. This is critical, because by ignoring the fundamentals of feed

grain and livestock dynamics, we risk falling victim to policy that treats them as independent, or seeks to benefit one at the expense of the other, ultimately to the detriment of both.

1.1 Purpose and approach

The purpose of this paper is to develop the key economic fundamentals that govern the development of feed grain and livestock industries. The implications of these fundamentals are then interpreted in the context of recent developments in Canadian feed grains and livestock.

1.2 Organization of the paper

Section 2 provides background on basis in pricing feed grains and livestock. Section 3 develops six fundamental concepts in feed grain and livestock industry development. Section 4 interprets these fundamentals in the context of two watershed policy events in this decade. Section 5 concludes the paper.

2. Feed Grain and Livestock Basis: A Primer

The notion of *basis* is fundamental in understanding pricing in commodity markets and cost competitiveness across regions. This section provides a brief overview of basis concepts.

2.1 Price determination and price reference

The process of determining the fundamental price level in commodity products like feed grains and livestock occurs in futures markets. For most grains and livestock this occurs in US futures markets located in Chicago and Minneapolis. Canola and western feed barley futures are traded at the Winnipeg Commodities Exchange. An important aspect of a futures contract, and therefore futures prices, is a location reference. Part of the integrity of futures contracts is the obligation to deliver to a location in the event that price differences are not used to settle obligations by the stated delivery period. In other cases, futures contracts are cash settled based on price differences at a referenced location in a specified delivery period. This location becomes the price reference denoted by futures prices. For example, western feed barley futures are deliverable at Lethbridge; corn futures are deliverable at Chicago and other selected points in the US Corn Belt. Lean hog futures are cash settled against an index of Midwest US hog prices.

2.2 Pricing at a fixed location

At a given point in time, pricing in a region is based on the price of the least deferred (or nearby) futures contract, with an adjustment for local supply and demand conditions relative to the futures base point. At a given point in time, this price adjustment, which is the basis, relates to the cost of transport between that region and other regions accessed to clear the market, with appropriate adjustment for exchange rates and any differences in commodity specifications. In the case of storable product like grains, the basis also reflects the cost of holding grain inventories from now until the futures delivery period; this is called the cost of carry, and it will generally be quite small when it is calculated against the nearby futures contract. If a region is surplus a commodity relative to the futures market, its price will be at a discount to the location referenced by futures market; if the region is deficit the commodity relative to futures, its price in the region will be at a premium to the futures reference.

For example, if Manitoba has hog marketings that exceed local hog slaughter capacity, then the hog price in Manitoba will be the nearby Chicago lean hog futures price, adjusted for US/Canadian currency conversion and differences in hog carcass specification, less the cost of transport to plants in the US to clear the Manitoba hog market. These adjustments are manifest in the basis, and the basis is negative to reflect the export orientation of the local market. This is called an export basis.

Similarly, if the demand for corn at London, Ontario at a point in time exceeds the local supply, the price at London will be the nearby corn futures price, adjusted for currency

conversion and the cost of carry to the futures delivery period, plus the cost of freight to import corn to mitigate the supply deficit. Thus, the basis is positive to reflect the premium paid to cover the freight cost of importing to balance the market. This is called an import basis.

This is illustrated more generally in Figure 2.1 below, using the southwestern Ontario corn as an example. In the figure, each of the concentric rings surrounding the point in southwestern Ontario represents a distance of 200 km. Suppose that, at a point in time, southwestern Ontario is surplus corn, and that corn must be transported from southwestern Ontario into central Ohio to clear the market. Then, before accounting for currency adjustments and the cost of carry, the price in southwestern Ontario is the Chicago nearby futures market, less the cost to transport corn about 600 km to Ohio. Conversely, if southwestern Ontario was deficit corn at a point in time, and the corn was imported from central Michigan to fill the supply gap, the southwestern Ontario price, before the exchange rate adjustment, would be the Chicago nearby futures price, plus the freight cost to transport corn to southwestern Ontario the 400 km from Michigan.

Figure 2.1 The Geography of Pricing Basis

2.3 Meaning of basis at a point in time

The feed grain pricing basis at a point in time contains significant economic meaning. Trends in the basis are indicative of dominant trade flows. The basis can change throughout the year, due to any number of factors such as access to transportation infrastructure, competition for storage, and seasonality of production and/or consumption. Moreover, there is typically some two-way feed grain movement across regions regardless of local supply and demand. For example, small volumes of feed grains may move from a deficit region into a surplus region (contrary to the above logic) simply due to backhaul freight rates, specialty grades of product, etc. What is more critical in understanding the general movement of product is the general trend in the basis – whether it is generally positive vs. zero (par) or negative. This effectively distinguishes between a net importing region and a self-sufficient or exporting region.

In addition to indicating the directional movement of product across regions to balance supply and demand at a given point in time, basis also tends to be reflective of relative efficiency in feed grain production. Regions that can profitably sustain feed grain production at a basis of par or less must have a yield base of other production cost advantages that allow this to occur. Other regions with less suitable growing conditions or higher costs require a positive basis in order to induce feed grain production. Thus, basis across regions at a point in time is a barometer of relative efficiency and competitiveness in feed grain production.

2.4 Feed grain basis and livestock

The above basis dynamic becomes a critical dimension of cost-competitive livestock and meat production. For example, consider a feeder animal of 500 pounds, which the buyer intends to sell at 1,000 pounds. If the "all in cost" of putting the additional 500 pounds on the animal is 80 cents per pound (or $400 per head) and the buyer expects to sell the 1,000 pound animal at $1 per pound ($1,000 per head), then the maximum the buyer can pay for the feeder animal is $600 per animal, or $1.20 per pound. If the "all in cost" rises to 90 cents per pound of gain, then the maximum payment for the feeder animal falls to $550 or $1.10 per pound.

What this means is that as the basis strengthens to an import basis, it raises the cost of feed locally, it increases the "all in production cost", and decreases the bid price for feeder animals locally. If competing regions can still pay $600/head for feeder animals less cost of transport, and the cost of moving the animal is say $25/head, then the local feeder is squeezed by a negative $25 per head on margin. As a consequence, over time the region will adjust to feeding fewer animals and the asset values in livestock feeding decrease concomitantly.

The logical extensions of this are explored below.

3. Fundamentals of the Feed Grain-Livestock-Meat Complex

This section develops six fundamental economic principles that direct and influence the development of feed grain production, livestock feeding, and meat packing in an open trade, market economy. These relate to which prices convey incentives at different levels of the market and how, ways competition for residual inputs occur, and the role played by capitalization of input prices. Taken together, the factors define the mutual dependency that exists between feed grains and livestock, and anticipates the disruption that will result when they are pushed out of harmony with one another.

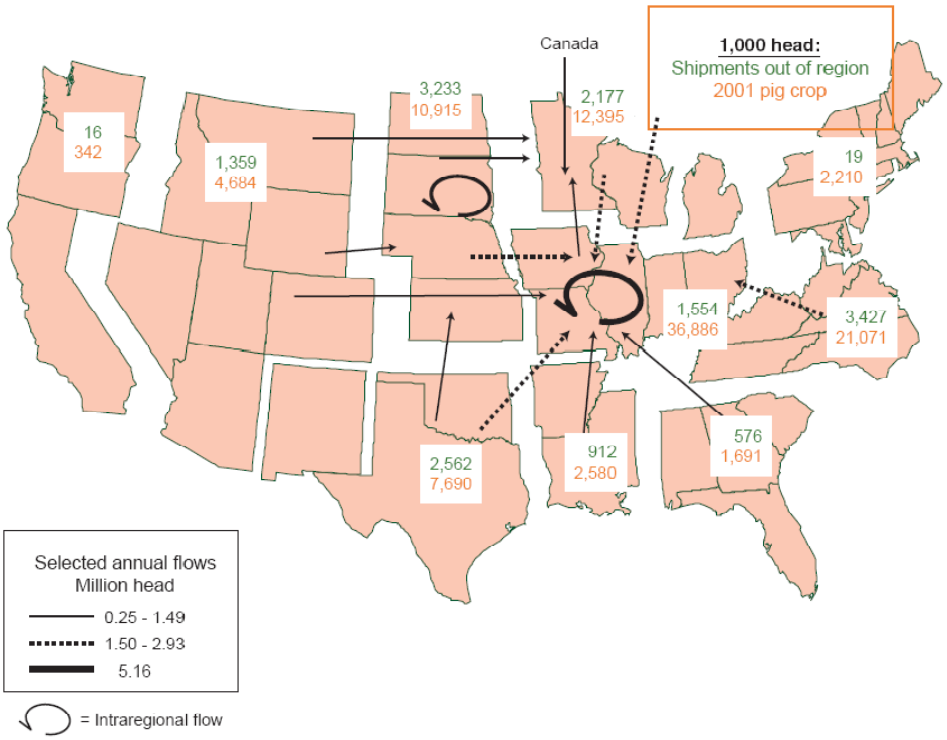
3.1 Livestock feeding in a region is due to feed grain production, not vice-versa

Livestock feeding and meat processing are not specific to a region; facilities in these enterprises are built, torn down, and moved around according to market conditions. What are specific to a region are the natural factors that create suitability to produce feed grains such as soil, water, and climate. Where these factors combine to allow efficient production of feed grains, livestock feeding and meat processing develop as a means of adding value to feed grains. Haley (2004) illustrates this using pork in Iowa as an example, "Iowa is by far the largest pork-producing State in the United States, largely by virtue of its huge grain production base. Over the past 25 years, Iowa has been the largest producer of corn and soybeans in the United States. Iowa also hosts a significant number of U.S. slaughter/processing facilities, averaging about 28 percent of U.S. hog slaughter from 1980 to 2003"

If feeder livestock are not available locally, the efficiency of feed grain production allows the region to compete for feeder animals from other regions. Feeder animals are transported to the efficient feed grain production region; feed grains are generally not transported to the region originating feeder livestock. In addition to the efficiency in feed grain production and resulting price advantage, Shields and Matthews (2003) note that "generally, transporting an animal is less costly than transporting the feed required for it to reach slaughter weight because the weight of the animal is less than the total feed it will consume".

Examples of the above dynamic occur throughout North America. Calves born on ranches in the British Columbia interior are moved to feedlots in southern Alberta or eastern Washington to where feed grains are less expensive. When Canada had a Crow freight subsidy that made grain expensive in the prairies and Feed Freight Assistance to subsidize feed grain movement into eastern Canada, calves and feeder cattle born in western Canada were shipped to Ontario and Quebec for feeding; when the Crow and Feed Freight Assistance were discontinued and feed grains became relatively inexpensive in the west, the practice declined and feeding increased in western Canada. Shields and Matthews show that interstate hog movement in the US has generally been toward the US Corn Belt as reprinted below in Figure 3.1.

Figure 3.1 Interregional Movement of Hogs in the US, 2001



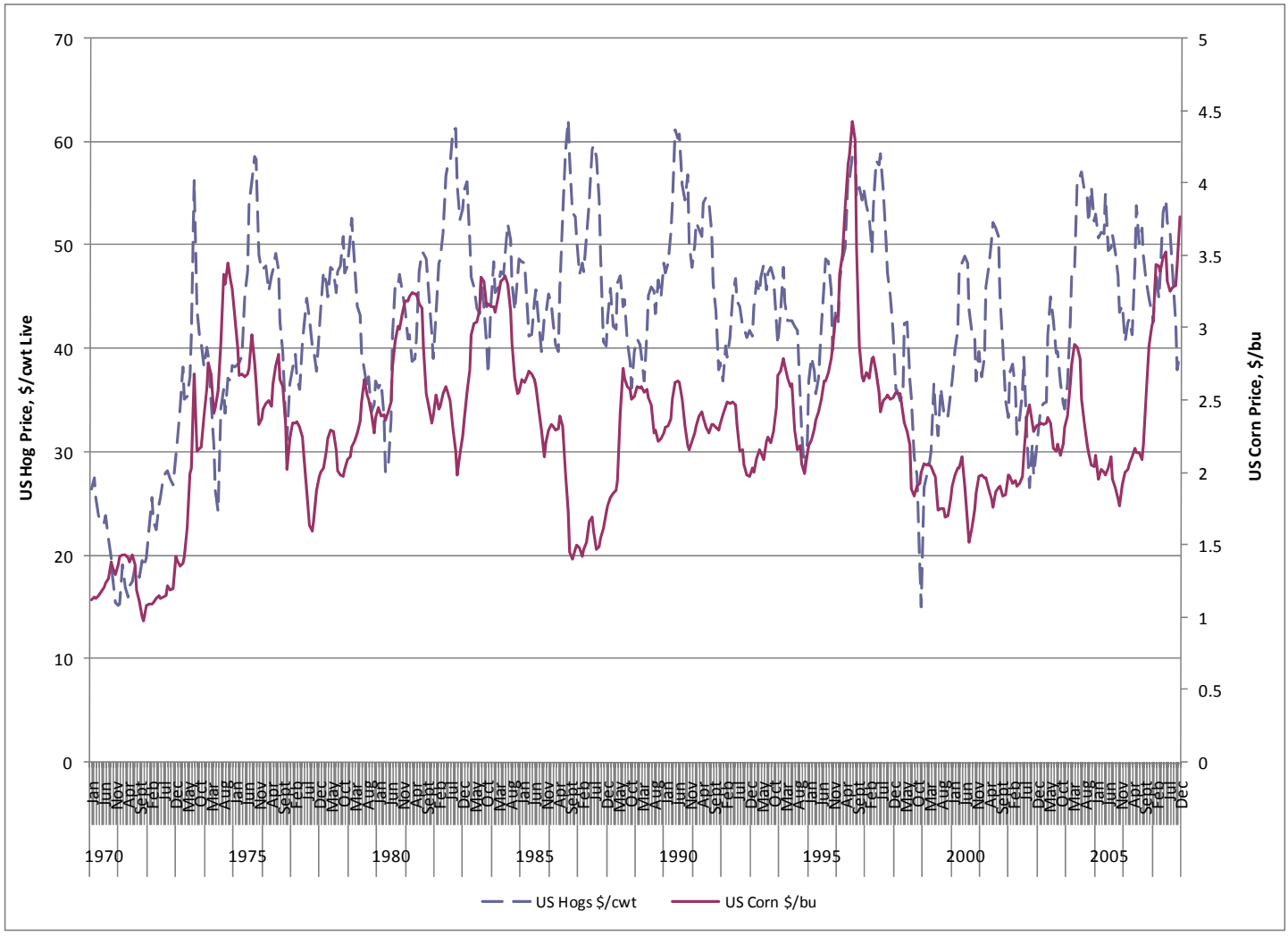
Source: Shields and Matthews, 2001

3.2 Livestock feeding depends more on the basis for feed grains than its price level

Farmers that feed livestock buy feed grains, either explicitly from a feed supplier or implicitly as farm-fed grains. As such, fluctuations in the level of feed grain prices influence profitability. However, this is an issue that affects profitability *within* the feeding period of a specific animal group; over the longer term, the price paid for feeder livestock is adjusted based on the expected revenue from the fed animal and the expected feed cost. Also, sustained periods of sharp increases in feed prices are commonly followed by increases in the prices of slaughter livestock, albeit with a lag. The reason is that the squeeze created by high feed grain prices induces a decrease in the livestock supply, which takes time to work through the system, but eventually increases livestock prices. Figure 3.2 below provides some context based on US hogs and corn. While there are many factors influencing hog prices apart from the deferred effect of corn price spikes (especially a persistent hog cycle), in the periods following major corn price spikes such as 1973/74, 1981, 1984, 1988, 1996, and 2004, US hog prices later increased.

In principle, livestock feeding can be profitable at either high feed grain prices or low feed grain prices because feeder livestock prices adjust, and the contraction in livestock resulting from feed grain price spikes generates a deferred livestock price increase.

Figure 3.2 US Corn vs. US All Hog Prices, 1970-2007



What is more critical to the long run viability of livestock feeding in a region is the price basis for feed grains. This defines the livestock feeding region's competitiveness for feeder animals, and follows directly from the first principle discussed above. Since the feeder animals are transported to the feed grains (not vice versa), and the pricing of the feeder animals is determined as described above, the regions with the most competitive *relative* pricing on feed grains can attract and competitively bid for feeder livestock. This dynamic occurs regardless of whether a high price or low price feed grain environment prevails.

3.3 Feed grain production depends more on the feed grain price level than the basis

Producers of feed grains in a region do not compete with producers in other regions for the residual input to production. The residual input in feed grain production is land, and for obvious reasons is not traded and price-arbitraged across regions. This is different from livestock feeding, in which the residual input is feeder livestock which is traded and arbitraged across regions. Thus, what matters to the feed grain producer is the level of feed grain prices and revenue from sales, particularly in comparison with production costs. It is of little practical significance whether the feed grain price in the region is structurally high or low compared with an adjacent region because the major input to production (land) is not arbitraged with the adjacent region. Rather, differences in price and productivity between regions manifest themselves in differential land prices. In other words, where differences in feed grain prices would trigger movement in feeder livestock in the livestock feeding segment, the fact that land can't move creates differential land values across regions. Thus, the basis for feed grains only matters to the feed grain producer to the extent that it contributes to the overall feed grain price level; it has little or no role in interregional competition for inputs.

3.4 Livestock expansion is self-correcting

Production of livestock within a region cannot proceed unbounded, as it is constrained by its local feed grain supply. This is true regardless of the region's situation with respect to meat packing capacity. If livestock production expands beyond the capacity of the region's feed grain production base to supply it, feed grain imports will be required. As this occurs, the following effects will be observed. First, the feed grain pricing basis in the region will adjust to cover the freight costs required to facilitate imports. This may induce additional feed grain supply in the region, which will then result in the import price basis being mitigated. If feed grain expansion within the region does not occur or is insufficient, livestock feeders will be uncompetitive with other regions for feeder livestock, and livestock production will decline. This will occur until feed grain demand from livestock feeding comes back into balance with regional feed grain production, and livestock feeding can be sustainable at this level.

3.5 Expansion in feed grain production is self-correcting

Production of feed grains within a region cannot proceed unbounded, as it is constrained by production cost and local feed grain demand. If feed grain production expands beyond regional demand, the price of feed grains will fall by the cost of transport to clear the regions production to an export basis price. The more that feed grain production exceeds regional demand, the further it must be transported to clear the market, and the greater the export basis discount that will result. This transportation cost effect creates an incentive against unmitigated production increases – as the export basis price differential increases, feed grain production will tend to decrease so that it comes in line with production costs and/or regional demand. Thus, regions that are low-cost feed grain producers can sustainably operate on an export pricing basis; higher production cost regions are limited to local demand and/or cannot supply all of the regional demand and are sustainable only at an import pricing basis.

3.6 The first five principles remain in the background unnoticed

While the above principles are foundational in understanding how a region's agricultural economy in feed grains and livestock develops, they tend to go unnoticed because of the influence of other factors, most of which ultimately have less significant long-term impact. These include exchange rates, regulatory and inspection issues, crop and livestock pests/diseases, crop substitution, changes in technology, and most agricultural policies.

As an example, it is widely held that a weak Canadian dollar is a leading reason for the development of an export-based livestock industry in Canada. There is no question that a weak Canadian dollar generated additional revenue when slaughter livestock prices were converted from US dollars to Canadian dollars, and that this benefit resulted in a supply response. However, in understanding livestock feeding, this could only have been a short-run phenomenon, as the weak Canadian dollar also had the effect of increasing the cost of input items priced in US dollars but purchased in Canadian dollars. These include feeder livestock, feed, packing plant equipment, and machinery. Some of the pricing of these items is implicit as they are transferred on-farm, so the exchange rate effect is muted, but ultimately the opportunity costs of on-farm transfers become real. Thus, while exchange rates have had an important impact, in the long run it is of smaller significance compared with Canada's competitive positioning on feed grains.

3.7 Observations

The above principles imply a strong and fundamental interdependent relationship between feed grains and livestock feeding. Livestock feeding depends on local feed grain production as its rationale for locating in a region, and on the cost competitiveness of local feed grain production in leveraging its competitiveness for feeder livestock. Feed grain production depends on the demand from livestock feeding within a region.

As a simple illustration, consider a region in which livestock feeding and meat production have developed to consume the region's feed grain production. The feed grain price basis is thus approximately par, with feed grains neither structurally exported nor imported. Suppose feed grain yield growth is 2% per year on a stable acreage base, so that effectively feed grain production increases 2% per year. The following outcomes exist:

1. The region's livestock feeding segment grows concurrently at 2% per year (measured on an equivalent basis) and the feed grain basis remains at par
2. Livestock feeding in the region does not change and the feed grain price basis declines to an export basis
3. Livestock feeding in the region increases by more than 2% (measured on an equivalent basis) and the feed grain price basis increases to an import basis

Assuming no similar technological improvements in livestock feeding, feed grain production is likely to be sustainable under outcomes 1 and 3 above, and may be sustainable under outcome 2. Livestock feeding is likely to be sustainable under outcomes 1 and 2, but not under 3. Thus, the fortunes of the two segments are intrinsically linked, and the best prospect for the sustainability of the two is growth trajectories that are coordinated. As illustrated above, this is what markets and price basis signals do.

4. Disconnected Policy in Interdependent Industries

The above sections argue that feed grains and livestock feeding are intrinsically linked and interdependent. However, recent developments in agricultural policy have been inconsistent with this. This section provides a discussion that illustrates two cases in which policy dealt independently with feed grains and livestock, to the detriment of both.

4.1 2002 US farm bill programs and corn countervail case against the US

The US Farm Bill enacted in 2002 represented a return toward commodity-based support programs, following a 1996 Farm Bill which had offered more broadly-based and less commodity-specific support, or "freedom to farm". Under the 2002 Farm Bill, crop-specific programming was authorized under the commodity marketing loan, direct payment, and counter-cyclical payment programs. The effects of these programs, as described by Sumner, were to mute adjustment to market forces in US cropping patterns, and to suppress prices of supported crops. In other words, in the context of corn, the US Farm Bill programs had the effect of maintaining acreage in corn that would otherwise have been planted to other crops; this suppressed corn prices.

The issue of chronically low corn prices following the 2002 Farm Bill came to a head in 2004 and 2005. Canadian corn producers were languishing under low prices and, in part as a consequence, corn acreage decreased. As a means of relief, Canadian corn producers launched countervail and anti-dumping cases against the US. Following a preliminary finding, the Canadian International Trade Tribunal (CITT) implemented interim duties on corn imported from the US. In its final ruling, the CITT rejected the complaint by corn producers, and the duties were removed and refunded.

Among the most aggressive opponents of the corn countervail and anti-dumping actions were Canadian livestock producers and meat processors. Understandably, the livestock feeders and meat processors had no desire to pay a duty on corn, as Canada had evolved to be a net importer of corn between 2000 and 2005. In opposing the corn producers' action, the representation made by livestock feeders and meat processors was that the Farm Bill programs had no effect on the Canadian corn market, and implicitly that the effect of the Farm Bill programs had been a positive for livestock feed and meat production, precisely because of the price suppression effect.

This could be written off as a necessary tactic in opposing the countervail action, but consider the opportunities that must have existed for livestock and meat processors before a countervail action was ever engaged by the corn producers. The livestock and meat segments could have recognized their dependence on sustainable Canadian corn production, in harmony with the principles outlined above, and partnered with corn producers in requesting relief from the US programs' effects on Canadian corn producers (or protection from "trade injury"). A request to offset the effects of the Farm Bill programs would have been perceived with much more credibility by government had it been backed by a broader section of producers and consumers. Indeed, in 2005, prior to

the launch of the corn countervail case, the Ontario Business Risk Management Advisory Committee (Daynard *et al*) made precisely this recommendation, but it was never picked up by feed grains or livestock industry groups as an initiative to champion before government. As it was, the corn producers and livestock/meat segments fought one another, and the countervail complaint was easily labeled as self interest on behalf of corn producers by government.

The response of the livestock and meat industry to the corn case ultimately represented reactionary, short-term thinking on behalf of the livestock and meat sector. It confused the interest of livestock and meat in terms of the corn price level and the corn price basis. The long-term impacts of these US programs, which suppress world corn prices, are to reduce profitability in Canadian corn production, reduce Canadian corn acreage in adjustment, and thus to strengthen the basis for corn (and other feed grains) in Canada relative to the US, which undermines the logic for livestock feeding and meat processing in Canada.

4.2 Canadian ethanol mandate and subsidy

Since 2005, a range of ethanol blend mandates for gasoline in vehicles has been adopted in Canada. We now have a federal 5% ethanol blend mandate in unleaded gas; this is consistent with provincial mandates in Ontario, Manitoba, New Brunswick, and Alberta. Saskatchewan has a 7% ethanol blend mandate. As a means of implementing blend mandates, subsidies from both federal and provincial levels for ethanol production are made available to plants. The federal subsidy program uses a deficiency payment scheme based on individual plant profitability history (somewhat analogous to AgriStability), allowing up to 10¢/litre in support. In Ontario, deficiency payments are triggered to plants under a formula, based on oil, ethanol, and corn prices, which pays up to 11¢/litre in support.

Feed grain industry groups in Canada have been supportive of Canadian ethanol mandates and subsidies, and see ethanol development as a means of increasing the demand for feed grains and, hence, prices in Canada. Based on the logic articulated above, it can be expected that ethanol development will increase Canadian feed grain prices as the demand for feed grains increases relative to supply. This increase will occur in the basis – the price of feed grains in Canada relative to elsewhere. As Canada is a small player in ethanol and feed grain production in the world context, it is unlikely that Canadian development will have a material impact on feed grain prices at a global scale. Thus, the feed grain price improvement effect that can be expected from Canadian ethanol development will come in terms of the price basis in Canada, not in the world price. The logical implication of ethanol development is to move Canada to a permanent import basis for feed grains.

This represents a non-sustainable foundation for livestock feeding and meat processing in Canada. As described above, by being shouldered with an import basis for feed grains, Canadian livestock feeders will be placed at a structural disadvantage in competing for

feeder livestock, including feeder livestock originating in Canada. This will occur, despite the availability of distillers' grains (DG) created as a byproduct of ethanol production and used as a feedstuff in livestock feeding. Indeed, DG cannot be a source of comparative advantage relative to feed grains, as the inclusion rate of DG in livestock diets is significantly lower than that of the feed grains for which they are a substitute. Moreover, other regions in North America have similar access to DG.

As this adjustment occurs, the supply of market livestock will decline (see, for example, Mussell *et al* on implied adjustment in the Ontario red meat sector, accounting for the use DDG as an ethanol byproduct), and Canadian meat processors will face a cost disadvantage in livestock procurement relative to competitors. The profitability incentive will be for meat processors not to invest further in Canadian operations, and in the limit to relocate to regions where they can be competitive in livestock procurement. Thus, a structural move toward an import basis for feed grains will foreshadow a structural decline in livestock feeding and meat processing in Canada.

The above should be of note to policy makers. Because it is dependent upon compulsion (blend mandates) and production subsidies, making ethanol from feed grains by definition does not add value. Moreover, it stands to make livestock and meat industries that do add value to feed grains uncompetitive. Since Canada is heavily leveraged toward the export of cattle, hogs, and red meat as industries that add value to feed grains, the potential level of economic activity affected is of great significance.

Do Canadian feed grain producers care whether their customers are local livestock feeders or ethanol plants? In the immediate term perhaps not, but by championing development of a policy-driven industry (ethanol) at the expense of a market-driven one (livestock and meat), the risks and pitfalls of this strategy within the feed grain segment must be recognized.

First, since the livestock and meat sector will shrink in response to ethanol expansion in order to erase the effect of the import basis, ethanol production will need to be of sufficient scale to offset the livestock meat decline. The shrink in livestock is likely not to be smooth as packing plant closures remove lump-sum volumes of market for livestock and feed, so the risk exists for an overall shrink in the domestic feed grain market as transition occurs from livestock feeding to ethanol.

Second, economic performance in the ethanol segment has been heavily challenged through 2008, and this is expected to continue. In 2008, high corn prices and corn price volatility heavily damaged ethanol plant profitability in the US, with at least one major ethanol producer in the US declaring bankruptcy, and widespread idling of capacity. High corn prices have subsided as a pressure point (for now), but with oil now below US $40/barrel, and with denatured ethanol priced at a discount to unleaded gasoline, the economic challenges remain. Media reports describe discussions currently underway in the US regarding a bailout package for ethanol manufacturers.

Third, as a policy-driven initiative rather than a market-driven one, ethanol is subject to political risk that increases in an era of recession and government deficits. If the profitability of ethanol plants falters due to softening of mandates or subsidies, so too will the market for feed grains, especially given the negative impact on livestock that ethanol development will have had.

Finally, ethanol made from feed grains is in the peculiar position where intense effort is underway, supported by government, to develop ethanol production from alternative sources such as lignocellulosic biomass or algae. In the US, specific mandates exist for lignocellulosic ethanol into the future, essentially capping the market share for grain-based ethanol. Thus, the most active area of research related to ethanol involves creating a substitute for grain-based ethanol, raising the question of whether ethanol is, in fact, in the long-term best interest of the Canadian feed grain production segment.

Ethanol made from feed grains in Canada creates an imbalance between feed grains and livestock because of its impact on the feed grain basis. The effect on the feed grain basis will be to shrink livestock feeding and meat processing in Canada as feed grains move structurally to an import pricing basis. Remarkably, feed grain producers ultimately do not care about this strengthening in the basis, other than insofar as it increases the overall feed grain price. This adjustment will require a balance between ethanol production increases and livestock feeding retrenchment that will come at significant public cost and risk, ultimately resulting in a smaller domestic feed grain market.

4.3 Observations

The intimate link between livestock and feed grains has been largely ignored in important policy decisions in Canada. Rather, policy has been segmented, and has alternatively favored one segment at the expense of the other. In the corn countervail case, the posture of the livestock and meat sector marginalized Canadian feed grain production against the long-term interest of livestock and meat, in terms of a competitive corn basis. With its support of ethanol policy, the feed grain segment is ignoring the impact of ethanol and livestock and meat packing, implicitly assuming that livestock production will continue as it has historically, with ethanol adding to the feed grain demand, and doing so at some risk to itself. Neither approach recognizes the mutual dependence between feed grains and livestock.

5. Conclusion

These observations suggest the need for a more holistic or sector-oriented strategy for feed grains, livestock, and meat in Canada, or at least a strategy in which the segments are not placed in conflict with one another. By ignoring the fundamentals of the feed grain-livestock/meat processing complex, the appearance has been created that one segment can only grow at the expense of the other, or alternatively that one segment can grow in spite of the other.

In practice, the segments that add value to feed grains can only operate effectively in a tight balance with one another. Livestock follows feed grains, and meat packing follows livestock. These exist in a mutually advantageous, but potentially precarious, balance with one another. The balance is made much more precarious when policies influence one segment in ignorance of the others.

As it stands, the disconnect between feed grains and livestock in Canada presents the prospect of the following chain of events for the future. Ethanol development will dramatically shrink livestock production and meat processing in Canada due to its impact on the feed grain basis. This will be followed by the supplanting of grain-based ethanol with more efficient lignocellulosic ethanol technology, which will then significantly weaken the domestic demand for feed grains. This will leave feed grain producers without an anchor domestic market, and feed grain pricing will fall structurally to an export basis.

Perhaps an eventuality such as this can be avoided, but not on the current course. Feed grain producers should back away from support of grain-based ethanol as being against their own long-term best interest. The livestock and meat segments should rally behind the feed grain segment as key partners, and work together on a holistic and far-reaching strategy to add value to Canadian feed grains by conversion to meat. Such a move would restore harmony to a natural market dynamic that has been battered by unilateral and opportunistic maneuvering.

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