

BORDER CLOSURE: EFFECTS ON THE ONTARIO FEED INDUSTRY

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Border closure leading to restrictions in animal movement and/or ingredients can occur for several reasons. Similar to a foreign animal disease threat, each border closure can assume its own personality and characteristics. As such, it is difficult and perhaps too cumbersome to develop a plan comprehensive enough to cover all possible contingencies. However, stakeholder awareness and contingency strategy development are needed to mitigate the extensive losses possible. One approach to expose the possible challenges involved is to deal with specific situations such as the closure of the border to the movement of over 40,000 pigs weekly from Ontario to the US.

This discussion will feature more conjecture than detail. The reason is simple. While there have been real-life examples of border closure and their impacts on agri-business, little has been done to prepare or to establish protocols in the event of other closures. Perhaps it is felt that the Federal Government will provide the leadership required. Based on past experiences with foreign animal diseases (FAD) such as the avian influenza outbreak in the Fraser Valley, it is clear that stakeholders in agriculture have to be more involved and work in partnership with the federal government to reduce the effects of such disasters. It is therefore gratifying to see that both the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and the Canadian Pork Council (CPC) have established initiatives to mitigate the effects of border closure. It is obvious that the feed industry and animal health providers, as well as anyone involved with shipping and movement of livestock and feed ingredients across borders, need to be involved as well.

The objective of this paper is to assess the possible role that the feed industry could play in the event of a border closure. A basic border closure plan will be discussed, and wherever relevant, comments regarding the impact on the swine industry will be made.

Definition. Within the context of this discussion, a border closure will refer to any restriction to the movement of livestock and/or feed ingredient as a result of a FAD, a pandemic, trade barrier or natural disaster that extends across provincial and state lines, and between western and eastern Canada (at the West Hawk Lake line).

WHAT EXPERIENCE DOES THE ONTARIO FEED INDUSTRY HAVE WITH BORDER CLOSURE?

The feed industry has had direct experiences with border restrictions. The 9-11 terrorist attack created Homeland Security and in turn, the BioTerrorism Act (BTA). Feed was viewed as a bio-terrorist tool, as was any disease such as BSE that could impact both livestock and

potentially humans. With the discover of BSE in Alberta, and following 9-11, any Canadian feed company shipping feed across the border had to face rigorous restrictions and regulations. The BSE crisis led to the restriction of certain ingredients such as tallow, animal-based proteins and vitamin D in any animal feed made in Canada. US feed suppliers did not face any of these restrictions. In addition, any feed crossing the border required the clearance of a CFIA Inspector who had to inspect, approve and sign off on the ingredient list. This negated any last-minute orders plus a payment had to be made to CFIA for this service. The BTA meant that feeds crossing the border were subject to sampling for pesticides, mycotoxins, antibiotics (other than on the label) and disallowed ingredients. Any feed that was sampled could not be fed, and had to be stored (usually at the producer's farm) until the test results came back, a time period of 2 to 3 weeks. The net result was severe delays at the border to get feed to US-based clients and an increase in feed prices, thereby providing a competitive bias to US feed suppliers. With these restrictions, and the rise in the Canadian dollar, the net result was that many companies could no longer afford to ship feed to the US.

Another example of a border restriction was the melamine (and cyanuric acid) adulteration of pet foods that originated in China but came via the US border into Canada. The feed industry had to ascertain that none of the contaminated high protein ingredients (e.g. wheat gluten, soybean meal) used in the pet foods were used in any animal feed. Urea used in ruminant feed and pellet-binders used in feeds for all species were also implicated. Suppliers had to verify their sources and letters of verification had to be written, and some feed ingredients had to be tested for melamine and cyanuric acid. A final example was Star-Link corn. This GM-corn was deemed suitable for animal feed in the US, but not so for livestock in Canada.

For these reasons, any type of border closure has direct economic impact on the feed industry and in turn, on livestock producers. One of the main reasons for a border closure is the outbreak of a reportable or foreign animal disease (FAD).

EMERGENCY DISEASE RESPONSE PLAN (EDRP)

The Ontario Agri Business Association (OABA) recognizes the devastating impacts of a FAD on its' crop and livestock sectors. The feed industry also recognizes that it can be a possible vector for the spread of disease since feed trucks and sales personnel visit many farms. On the other hand, the feed industry has embraced food safety principles through the adoption of HACCP and Good Manufacturing Procedures (GMPs). The emphasis of food safety is on proper record keeping and the establishment of standard operating procedures (SOPs). As such, the feed industry feels that it already has some of the tools necessary to develop strategies to mitigate the spread of disease.

The biggest challenge that exists with a FAD is the 'grey period' where a disease is suspected but not diagnosed. The federal government will assume control when a reportable disease is confirmed. However, this period of confirmation can take up to 72 hours, enough time for a rapid spread of the disease, including across a border. The lack of an Animal Health Act in Ontario prevents any regulated action at the particular farm or location that has the suspected outbreak. Similarly, no compensation programs are in place for a producer who may have to

withhold shipments because of a suspected disease. Finally, a producer may choose not to disclose any information which means that regular traffic can flow on and off that farm. With these issues in mind, OABA has developed an Emergency Disease Response Plan (EDRP) to reduce the risks of disease spread via company vehicles and personnel. Other components of this plan such as insurance for losses and possible liability require development.

POSSIBLE COMPONENTS OF A BORDER CLOSURE PLAN FOR THE FEED INDUSTRY

A Border Closure Plan for the feed industry would just be one component of a larger provincial and federal plan. Several plans appear to exist, and some coordinated approach is required. The question currently is who does the coordination? None-the-less, the feed industry does need to establish some type of framework with the expectation that this plan would be one component of a joint federal and provincial plan.

The following list is specific for the feed industry. It is incomplete but hopefully establishes the groundwork for a more comprehensive plan.

1. Border closure definition –
 - a. Cause and location
 - b. Extent
 - c. Time line
2. Species affected
3. Feeding programs
4. Feed ingredients affected, and alternative sources.
 - a. Product surplus
5. Personnel and Truck movement.
6. Insurance programs.
7. Human toll
8. Risk analysis

1. **Border Closure Definition.** The cause and location will most likely determine the course of actions to be taken, including the duration of any closure. Compartmentalization and zoning, as suggested by the OIE in Europe, is one method of containing disease, and can be a specific definition of a border closure. Other issues need to be considered. If the problem was a disease, did it occur in Canada or the US? Can people, trucks or feed act as fomites to transmit the disease? Can the closure be safely relegated only to certain states and provinces, so that trade can continue between unaffected locations? Could a time line be drawn as to how long the border closure should last? The type of disease will impact on animal movement at the border. Certain diseases would only affect one species, whereas a disease such as Foot-and-Mouth would affect all cloven-hoofed animals. The plan needs to consider and accommodate as much of these permutations as possible.

2. **Species Affected and Transmissibility between Species.** The assumption is often made that for disease situations between the US and Canada, only the non-quota species (beef, swine) would be affected. If a disease such as Foot-and-Mouth occurred, then the impact is on all cloven-hoofed animals, including dairy heifers. In addition and as mentioned below, species other than beef and swine can also be affected if feed ingredients become limiting.

We all know that the Ontario swine industry is extremely vulnerable to a border closure threat. We have a window of a few days before the system become overwhelmed with weaner and growing-finishing pigs. The slaughter capacity for pigs in any disease situation in Canada is very limiting, and feasible solutions are required. Finding a humane slaughter method is also another challenge. If the disease occurred in the US, then the problem is still border closure, but the issue is what to do with healthy, edible animals. The plan has to include housing, feeding and slaughtering contingencies for weaners and growing pigs.

3. **Feeding Programs.** The cattle industry had to deal with a border closure with BSE. Cattle can be placed on back-grounding diets and/or on pasture that will decrease the rate of gain. In Canada, domestic consumption of beef increased. The situation is not the same with pigs. If no market exists for these animals, and slaughter options are delayed, the feed industry would produce diets that are maintenance based rather than production based. Housing would be the bigger issue to consider.

Nutrient requirement data for maintenance of growing pigs do exist, and diets can be formulated and kept as part of the feed industry's border closure plan. However, these diets should be tested with the genetically-leaner pigs of today. In addition, animal behaviour issues would need to be addressed and monitored. Compensation programs would be required to cover the costs for feed, as well as for the housing and maintenance of these animals.

It is expected that some type of humane abortion program would be developed for sows to reduce the flow of nursery pigs on the market.

4. **Feed Ingredients.** In most cases, border restrictions on feed ingredients are expected to be limited in scope, and the challenge would be to find suitable substitutes. However, as indicated with vitamin D during the BSE-crisis, logic is not always used by regulatory authorities. Disruption of feed ingredient flow will likely affect all species of livestock, so all stakeholders should be concerned. In the event of a full blown border closure due to, for example, a pandemic, feed ingredient availability would most likely be far down on the list of priorities. Some border closure plans (Canadian Chamber of Commerce, 2006) propose that movement of certain products across the border would still be necessary, providing that human (and livestock) safety can be maintained. Products such as medical supplies and certain essential ingredients necessary for life would most likely fall under this category. The inclusion of such contingencies within an official border closure plan is necessary at this stage rather than attempting to implement them during an actual crisis.

Ingredients in typical pig diets that would be affected by border closure are indicated in Table 1. Most of the major ingredients are available locally. Some accommodation should be made for those imported ingredients that are essential, and what steps can be taken to maintain an inventory in Canada, or what alternative sources are available.

Table 1: Ingredient availability from local sources (LS), other provinces (OP), United States (US), Europe (E), and Asia, primarily China (A).

Ingredient	Starter	Grower-Finisher	Sow
Corn	LS	LS	LS
Soybean meal	LS	LS	LS
Whey based product	OP		
Porcine plasma	US		
Oat groats	LS		
Herring meal	OP		
Corn distillers solubles		LS	
Canola meal		LS	LS
Wheat, wheat by-product		LS	LS
Soy Hulls			LS
Bakery by-product	LS	LS	LS
Soybean oil	LS		
Animal-vegetable fat	LS	LS	LS
Limestone	LS	LS	LS
Dicalcium phosphate	US	US	US
Magnesium oxide		A	
Salt	LS	LS	LS
Lysine	US, A	US, A	US, A
Methionine	US, E, A	US, E, A	US, E, A
Tryptophan	US, E, A	US, E, A	US, E, A
Threonine	US, E	US, E	US, E
Choline	LS	LS	LS
Zinc oxide	US, A	US, A	
Copper sulphate	US, A	US, A	
Pellet binder	US	US	US
Trace mineral-vitamin pack	US, E, A	US, E, A	US, E, A
Medications			
Other additives			

One key concern is the supply of vitamin and trace mineral premixes. Premix and drug suppliers maintain very low stock levels of these products, so any disruption to border flow can be problematic within a few weeks.

Another impact of feed ingredient shortage is usually an increase in price. For a border stoppage to pig flow across the US border, the ability for feed companies to provide low-cost diets may be a challenge.

Feed ingredient shortages may also impact on certain specialty markets. Antibiotic-free and/or organic diets that are dependent upon ingredients such as essential oils, probiotics etc. may not be possible if these products are restricted at the border.

a. **Product Surplus.** Slaughter of weaner and grower pigs would likely result in the availability of inexpensive porcine meat and bone meal. While alternative uses such as bio-diesel may be explored, feed has always been a useful and nutritious means of recycling this by-product. Poultry diets in Ontario typically contain from 5 to 7.5% meat and bone meal. Research has indicated that levels of up to 25% may be possible in broiler, turkey and layer diets. Re-use of this product is possible at levels of 10 to 15% in grower-finish diets and from 5 to 10% in sow diets (Patience et al., 1995). Though less common since the advent of BSE and with producer and consumer concerns to be aware of, porcine meat and bone meal can be used in ruminant grain diets up to 4% and up to 9% in supplements.

5. **Feed Truck Movement within Restricted Areas.** For a disease situation in Ontario where restricted zones are established, feed companies may need to cooperate to ensure delivery of feed while maintaining biosecurity. An example would be a feed company located within a restricted zone providing feed to one of its' competitor's farms, or the transfer of feed from one truck in a clear zone to another in the restricted zone.

The EDRP Plan developed by the Ontario Agri Business Association covers biosecurity measures for feed trucks and feed personnel during the grey period of a FAD.

6. **Insurance Programs.** No compensation programs currently exist for agri-business in the event of a FAD. Currently, any costs incurred for biosecurity procedures that occur during an alert situation are covered by companies. These procedures include the clean-out of trucks and truck cabs, the use of biosecurity equipment, etc. No compensation is provided for lost business. Costs involved with feed shipments across the border during the BSE crisis and for the BTA were borne by the individual companies. In the event of a border closure, the cost of providing feed to farms deriving no income from livestock has to be covered. The Ontario Livestock and Poultry Council (OLPC) which is leading the way in dealing with FAD challenges is investigating the provision of insurance coverage for livestock producers. Other stakeholders also require similar programs.

Feed companies need to ensure that their liability insurance covers possible claims made for the spread of disease.

7. **Human Toll.** The human impact on livestock producers during any disease or border closure crisis can be overwhelming. Feed company personnel interact closely with producers. Feed is also one of the major cost items on most livestock operations. Situations impacting the welfare and livelihood of livestock producers exact a toll on these service providers.

8. **Risk Analysis.** Cost of the BSE crisis to the Ontario economy has been pegged at approximately \$945 million (OMAFRA, 2007). No estimates are available of what the BSE crisis cost the Ontario and Canadian feed industry. The avian influenza outbreak in BC prompted the closure of two feed mills. Risk analysis is needed not only to provide some estimate of potential economic losses for Agribusiness but also to assist in possible insurance coverage.

The purpose of this paper was to investigate the role that the feed industry could play if a border closure were to occur. One conclusion from this exercise is that there appears to be an urgent need not only for the feed industry, but agribusiness as a whole to develop some type of contingency plan to deal with border closure. Similar to the situation with foreign animal diseases, all stakeholders need to be involved in this plan. The preparation and thought that goes into the plan today would be invaluable if and when a border closure crisis occurs.

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