BSE RISK IN CANADA, PART 3:
TWO STINKING COWS – AND THE WAY FORWARD FOR CANADA

A Web-Essay by William Leiss

New and Updated as of 28 January 2004

Summary:

The usual suspects have been rounded up, after the discovery of a second case of BSE in North America in 2003, to whistle again the tunes of complacency and inaction. Once again the name of "science" is used to justify foot-dragging and to obscure major failures in risk management and risk-based policy choices. The issue is not human health risk. The issues involve unacceptable failures in risk assessment, sloppy surveillance programs for animal disease control, and a stubborn refusal to impose a total ban on recycling ruminant protein in animal feed. It all boils down to idiot economics, where billions of dollars in losses later, Canadians are still told we can't afford to spend on necessary and cost-effective tests to restore confidence in our animal health programs. This paper proposes a sequence of specific steps to be taken in order to demonstrate to our export markets that we are serious about controlling BSE risk in Canada.

> "We probably have to do something to reassure people that this province, anyway – notwithstanding what the federal government might or might not do – is willing to put in the highest of protocols relative to testing. They've done that in Japan."
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> *Premier Ralph Klein, 07 January 2004, announcing his government's consideration of a plan to test for BSE in every cow slaughtered in a provincial facility*[1]

Finally, with Premier Klein's statement, a senior Canadian political leader has made an appropriate response to the problems of the country's beef industry following the discovery of BSE in the nation's herd. If the Alberta government follows through on

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[1] Quoted in Kelly Cryderman and Renata D'Aliesio, "More mad cow tests coming," *The Edmonton Journal*, 07 January 2004.

this proposal, there may be a safe way forward. One day a label saying "Alberta Beef" may be viewed as a trusted symbol for a preferred product in the world's markets.

Apart from the Premier's bold statement, however, confusion still reigns. The latest federal announcement, made on the eve of the new agriculture minister's futile trip to the Far East, promised an increase of testing – over a five-year period – to 30,000 animals per year. This might appear to be a bold move (except to the Japanese, of course), were it not for the fact that, about six months ago, the same officials were promising to ramp up Canada's testing to 80,000. What happened in the meantime, other than the discovery of the second Canadian BSE case? Would it not be logical to respond to the second case with a promise of more new testing, not less? Apparently, not in Canada.

The plain fact of the matter is, there may be no point at all in spending the promised $90 million of new federal money, over the coming five years, in increasing our BSE testing to 30,000 animals in 2009. The reason is, it's very likely we won't have a beef export industry at that point – unless we take a series of bolder steps, as outlined below.

The Way Forward.

Demonstrating to our export markets that we are serious about controlling BSE risk in Canada requires a systematic approach, which to date we have not done. There are a number of sequential steps to be undertaken, as follows:

1. Complete a current, quantitative risk assessment of the estimated (hypothetical) numerical prevalence of BSE in the Canadian herd, taking into account the discovery of the two cases in 2003;

2. At the same time, choose a surveillance program that is sufficiently robust in terms of current expectations around the world, rather than one based on

arbitrary assumptions and justified by a rhetorical and misleading appeal to "science";

3. Use the currently-available array of testing methods to screen large numbers of slaughtered animals for BSE, as in done in Europe and Japan;

4. Correct the remaining serious flaws in the ruminant feed ban and rendering processes.

After our governments have made a firm commitment to such a program, we should announce it to the world. We should be able to expect that, once others are convinced of our seriousness, they will begin to look to Canada again as a preferred supplier of beef in the export markets.

1. The Nonexistent Current Risk Assessment of BSE in Canada.

The U. S. Department of Agriculture has commissioned two risk assessments of BSE from the Harvard Center for Risk Analysis (HCRA), the first issued in 2001 and a second in 2003.[2] The second report, interestingly enough, attributes the potential risk of BSE in the United States solely to importation of either infected animals, or infected feed, from Canada. In the abstract we read: "In the most pessimistic case (introduction

[2] J. T. Cohen *et al.*, "Evaluation of the Potential for Bovine Spongiform Encephalopathy in the United States," 26 November 2001: http://www.hcra.harvard.edu/pdf/madcow.pdf; additional information at: http://www.aphis.usda.gov/lpa/issues/bse/bse-riskassmt.html. J. T. Cohen and George M. Gray, "Evaluation of the Potential Spread of BSE in Cattle and Possible Human Exposure following Introduction of Infectivity into the United States from Canada," no date [2003]: http://www.aphis.usda.gov/lpa/issues/bse/harvard_10-3/text_wrefs.pdf. (the USDA website (http://www.usda.gov/Newsroom/0373.03.html) has a transcript of a news conference, with George Gray, dated 31 October 2003). The second report is almost impossible to find on the USDA website. At http://www.usda.gov/Newsroom/0372.03.html, one will find the following statement: "A complete copy of the second Harvard Report can be obtained from USDA's official website at http://www.usda.gov/." Then click on the link and try to find the Report – without using the specific URL given above. Also, one cannot access the appendices to the report in which the detailed calculations are given.

of contaminated feed into the U. S. in 1990), the prevalence of infected animals peaks at 600, with 24 animals showing clinical signs (median simulation predictions)."

The purpose of this type of quantitative risk assessment is to estimate the hypothetical numerical prevalence of BSE in a nation's herd. ("Hypothetical" refers to the initial assumptions about what *might* have happened over a certain time-frame.) Such an estimate is one of the necessary preliminary steps to making an informed decision about an appropriate surveillance program – in which one has a reasonable chance of finding any actual cases. As pointed out in the first paper in this series, Canada has not bothered to do a comparable study.[3] Instead, our officials simply made the arbitrary judgment that Canada was at "negligible risk" for a case of BSE in its herds. Of course, since then we have found out, the hard way, that this was an unfounded assumption.

Now we refer to ourselves as a country "at minimal risk" of BSE, although no one at CFIA thinks it's necessary to explain what the agency thinks is the difference is between "negligible" and "minimal" risk.[4] And we continue to use different terminology when referring to other countries. Our "Canadian Bovine Spongiform Encephalopathy (BSE) Import Policies" statement lists no fewer than ten conditions, the first of which is: "For the preceding seven (7) years, the country of origin must have reported no reported clinical cases of BSE in indigenous bovines." All of the ten conditions must be met before a country is may be classified as being "free of BSE." Only seven countries meet those conditions: Argentina, Australia, Brazil (special conditions apply), Chile, New Zealand, United States and Uruguay.[5] Canada bans the importation of both "live

[3] "Finally, the Penny Drops," pp. 13-14, and the references cited there.

[4] http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/minrisexece.shtml

[5] http://www.inspection.gc.ca/english/anima/heasan/policy/ie-2001-17-4e.shtml

ruminants" and meat and meat products from all countries "not known to be free of BSE." Then why on earth do we try to persuade the United States to allow our live cattle to be shipped across the border?

Also as discussed in the earlier essay, "Finally, the Penny Drops," the EU covered Canada in its comprehensive risk assessments (published in July 2002), including us in the category where "it is unlikely but cannot be excluded that domestic cattle are (clinically or pre-clinically) infected with the BSE-agent."[6] Such analyses are done in order to provide a guide to the expected prevalence of the disease. If we wish to be regarded, elsewhere in the world, as a responsible actor in controlling BSE risk, we have an obligation to undertake a current, quantitative risk assessment, which would build its working assumptions around the discovery of the two cases in 2003.[7]

Thus *Recommendation 1* in this paper: Canada should commission an independent research group to perform a new quantitative risk assessment, taking into account current

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[6] "Report on the Assessment of the Geographical BSE-Risk (GBR) of Canada," Part II, page 33 [http://europa.eu.int/comm/food/fs/sc/ssc/out131_en.pdf]. See generally D. Heim & U. Kihm, "Risk management of transmissible spongiform encephalopathies in Europe" (2003): http://www.oie.int/eng/publicat/rt/2201/11.%20Heim.pdf

[7] In its December 2003 update (note 4 above), CFIA cites its December 2002 risk assessment (http://www.inspection.gc.ca/english/sci/ahra/bseris/bserise.shtml), and maintains that this is adequate, further referencing an article (http://www.oie.int/eng/publicat/rt/2201/a_r22110.htm), by R. S. Morley *et al.*, and http://www.inspection.gc.ca/english/sci/ahra/bseris/bserise.pdf, which is the full risk assessment document. However, *CFIA's December 2002 risk assessment covers the period 1979-1997 only!* The Morley article, which is based on the 2002 assessment, concludes its summary as follows: "The risk estimate … indicates a negligible probability that BSE was introduced and established in Canada; nevertheless, the economic consequences would have been extreme." Subsequent events have shown that the second part of that statement, at least, was brutally accurate. But the most important issue is that CFIA has never done a quantitative risk estimation for the post-1997 period.

information, for the potential (hypothetical), numerical prevalence of BSE in its national herd.

2. The Surveillance Problem.

The purpose of a surveillance strategy is to decide how many animals should be tested in order to (1) find and remove infected animals from the food supply, and (2) provide empirical evidence about the prevalence of BSE in the herd.[8] Ever since Canada's first case of BSE was discovered in May 2003, a chorus of loud voices has been heard from Canadian officials, arguing that our surveillance strategy was perfectly adequate because it was based on "science." The same voices are still heard, but the message gets odder and odder: Now we are going to do more testing, but, it is said, but only what science "dictates." Yet, if our strategy before May 2003 was as scientifically rigorous as we claimed at the time, why are we going now to include more animals in our surveillance? "Science," apparently, justifies whatever we Canadians think we ought to do – but not what other countries demand, of course.[9]

The fact of the matter is, a surveillance strategy is (hopefully) a reasoned choice, but it is still a *choice* – specifically, a *policy* choice – and, moreover, a choice based on certain working *assumptions*. Science does not "dictate" anything at all in this regard. Rather, the body of relevant science – in this case, on animal disease surveillance – is, or should be,

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[8] Those readers interested generally in information about prion diseases will find a useful directory of sources at: http://www.heynkes.de/bselinks.htm

[9] CFIA's spokesman on BSE, chief veterinarian Brian Evans, said after confirmation that the second cow came from Canada: "With the results of our previous investigation, we have always accepted the reality that a small number of additional cases could not be ruled out over the next 18-month period." Quoted in Lisa Schmidt, "DNA proves mad cow was Canadian," *The Ottawa Citizen*, 07 January 2004, A1. To the best of my knowledge, this concession had never been made publicly by CFIA before these remarks appeared.

the primary guide in the making of appropriate assumptions. But reasonable people can and do differ on what assumptions are or should be regarded as being reasonable under a given set of circumstances.[10]

Following the discovery of BSE cases in Japan, now totaling nine, and the confession of its own inadequate risk management of BSE, the Japanese government made a simple choice: In order to restore consumer confidence, every cow destined for human consumption will be tested for BSE. Following the discovery of BSE cases everywhere in European nations, the EU made a less stringent, but still dramatic choice: Test a significant portion of the population of healthy animals. In the first ten months of 2003, EU countries did BSE tests on over 7 million healthy animals.[11]

The most important single choice about a surveillance strategy has to do with *which* animals are sampled. Unless this is clearly realized, the nature of the policy choices being made by officials is not understandable. The strategy adopted by both Japan and the EU is based on sampling the entire population of animals, all of which are apparently healthy – i.e., showing no overt signs of disease, especially neurological disease. The reason for this choice is the reasonable assumption that, as a disease with a lengthy incubation period, BSE could very well be developing in animals that are apparently healthy at the time of slaughter.

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[10] See "Appendix: A Note on the Rhetoric of Science" at the end of this paper.

[11] http://www.foodstandards.gov.uk/bse/facts/cattletest Breakdowns on testing on a country-by-country basis (15 countries) are given for the period January – October 2003; there were 218 positive cases and 465 tests are pending. An additional 400,000 tests were done in Poland and the Slovak Republic during the same period. The numbers "do not include BSE suspect animals …nor 'at risk' animals (defined as those found dead-on-farm; emergency slaughtered animals, and those sent for normal slaughter but found to be sick at ante-mortem inspection)." See also: http://europa.eu.int/comm/food/fs/bse/testing/bse_results_en.html

In a system of massive testing, the animal carcasses are held overnight in refrigerated warehouses until the test results are returned.[12] There may well be cases of "false positives" in the test results, but this is not in itself a reason to avoid large-scale testing. Secondary screening (a different test) can be used to deal with false positives. Many people will be familiar with such procedures at airport screening locations.[13]

In North America to date, both Canada and the United States have made a different policy choice for their surveillance programs – namely, to examine only animals with some obvious health impairment, usually called "downers." Officials in both countries assert that their surveillance strategy is designed to detect the incidence of BSE at the level of one-in-a-million cases; however, this strategy is based on the assumption that apparently-healthy animals do not need to be tested. The USDA has provided a full explanation for its approach (so far as I can determine, there is no comparable explanation from CFIA):

> Given that the United States has an adult cattle population of approximately 45 million, if we did have BSE in this country at the one in a million level, we could assume that we would have 45 infected animals. To achieve a 95 percent confidence level in the accuracy of a random sample of adult cattle, we would have to sample and test some 3 million animals.
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> However, … USDA's program instead focused on the higher risk population of cattle: adult cattle with central nervous system clinical signs and nonambulatory cattle [estimated 195,000 cases per year]…. *An assumption is made that the 45 potential cases of BSE would all be found in the high-risk cattle population* [my italics]. Dividing the potential cases into the high-risk population (45/195,000) gives a prevalence of 0.023 percent. This is the level

[12] Sandra Blakeslee, "Jumble of tests may slow mad cow solution," *The New York Times*, 04 January 2004.

[13] See the article by S. Hrudey and W. Leiss, "Risk Management and Precaution," for a recent discussion of the issue of false positives and false negatives: http://www.leiss.ca/articles/126

> of the disease that has to be detected in the high-risk population, … [and] it is determined that, nationally, a sample size of 12,500 is needed.[14]

Here is the most recent explanation of Canada's policy from CFIA:

> The Canadian Food Inspection Agency will aim to test a minimum of 8,000 animals over the next twelve months, and then continue to progressively increase the level [to a maximum of 30,000]…. Testing will focus on those animals most at risk of BSE. These include animals demonstrating clinical signs consistent with BSE, so called "downer" animals – those unable to stand, as well as animals that have died on farm, are diseased or must be destroyed because of serious illness. A sample of healthy older animals will also be tested.[15]

These quotations enable us to see more clearly the nature of the current dispute between Canada and countries which used to import Canadian beef. Canada and the United States have similar surveillance policies, so this is not the issue so far as the cross-border movement of beef is concerned. Rather, the U. S. has a strict policy: *any* country reporting even a single case, or suspected of having unreported cases of BSE, will have its imports cut off.[16] There are 34 such countries, including Canada.

The issue is different with countries such as Japan and South Korea. Those countries do not believe that our surveillance and testing strategy is adequate to the task of accurately assessing the prevalence of BSE in the Canadian herd. It is against such

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[14] http://www.aphis.usda.gov/lpa/issues/bse/bse-surveillance.html (undated). See also the useful pieces from *The New York Times*: the article by Michael Moss *et al.*, "Mad cow forces beef industry to change course," 05 January 2004; Eric Schlosser, "The cow jumped over the U.S.D.A.," 02 January 2004; and Verlyn Klinkenborg, "Holstein dairy cows and the inefficient efficiencies of modern farming," 05 January 2004. In early January the U. S. invited an international panel to review its policies: http://www.usda.gov/Newsroom/0457.04.html

[15] http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/bseesbsurvfse.shtml

[16] http://vm.cfsan.fda.gov/~comm/bsefaq.html

countries that Canadian politicians launch their tirades about lack of respect for "science." Such pronouncements are nonsensical, and we really ought to stop issuing them. The dispute is not about the science of animal health. Rather, it is about *the reasonableness of the assumptions on which our surveillance strategy is based* – in particular, our focus on testing sick animals.

Reasonable people can disagree on this point. The position taken by Canada and the United States is not unreasonable in itself.[17] However, it is by no means the only position one can take that is justified by a scientific approach. It is just as reasonable, and just as "scientific," to argue, as the Japanese do, that since we Canadians have no idea about the real prevalence of BSE in our herd, we should do substantially more testing – especially, testing of apparently health animals.

Recommendation 2 in this paper is that Canada should stop trying to impose on its former trading partners a *unilaterally-determined* and *arbitrary* surveillance strategy. Rather, we should negotiate in good faith a mutually-determined, enhanced surveillance and testing regime. Whether or not this will require testing every cow sent to slaughter is an open question.[18] The main point is, we have no right to impose our

[17] But here is the reaction of Dr. David Westaway, a molecular biologist and specialist on prion diseases at the University of Toronto, to our most recent announcement about increasing testing to 8,000 annually: "Whoop-de-do. Eight thousand a day would be good. They've got to find the other animals [with BSE]. They can't just leave things in limbo, and they're not going to find the rest of the other animals by screening 8,000." Quoted in Kelly Cryderman, "Test plan gets mixed reviews," *The Edmonton Journal*, 09 January 2004. For additional background on this point see the important article by Andrew Nikiforuk, "Diagnosing BSE: An issue comes to a head," *The Globe and Mail*, 08 January 2004, A17.

[18] It is often alleged that such a policy would be prohibitively costly. Here is one estimate: "Testing all the animals in Canada's herd would cost $30 million to $60 million annually, according to Canadian beef industry officials." (Gina Teel, "More testing urged to fight mad cow," *The Calgary Herald/Canwest News Service*, 04 January 2004.) Well, by way of offering some

own definition of the situation on others – not if we wish to have any hope of regaining our export markets, that is. Premier Klein's recent statement contains the heart of the only approach that is likely to succeed: So far as testing is concerned, we will do whatever is necessary to restore others' confidence in our product.

3. Testing Methods.

Canada's second case of BSE has stimulated an increased discussion about the range of post-mortem tests for the disease, which cannot be detected, not yet at least, in live animals. In order to promote an informed discussion on this topic, my research chair program commissioned a paper on BSE testing, which is now available on this website.[19] For example, using the luminescence immunoassay, manufactured by Prionics AG of Switzerland, a lab worker can screen 200 samples in three hours.[20] Recently CFIA announced that it was "adding the Prionics Check-Western rapid test as a routine screening tool to further support the national BSE surveillance program" and that it is evaluating other such tests.

4. The Matter of Rendering.

The last area of policy choices related to a new strategy for Canada has to do with the use of ruminant (cattle) protein in animal feed. I argued in the first paper in this series that Canada's policies in this regard are insufficiently precautionary. In particular, the

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perspective on the numbers, economic losses to Canada from the first case already total about $4 billion, and that figure is still rising.

[19] Mike Tyshenko, "BSE Risk in Canada, Part 2: Methods of Testing for Bovine Spongiform Encephalopathy" (14 January 2004).

[20] Donald McNeil Jr., "Mad cow case may bring more meat testing," *The New York Times*, 26 December 2003.

two key issues are: (a) inadequate procedures at animal feed-processing mills, and (b) the use of ruminant blood in the feeding of calves.

(a) Feed mills: The earlier paper referred to a U. S. FDA audit in 2001, reporting a number of cases of lack of compliance with the ruminant feed ban, including cases where feed bags supposed to be labeled "do not feed to ruminants" were not so labeled.[21] We now have some evidence of similar problems in Canada at the Edmonton feed plant which might be a source of infected feed.[22] Taken together, there is already enough evidence to suggest that practices at the North American feed industry are almost certainly contributing to the endless recycling of some amounts of near-indestructible prions in animal protein.[23]

(b) Use of ruminant blood: Fully *six years ago*, an expert group at Health Canada "warned CFIA that Canada's policy of allowing animal blood to be rendered back into animal feed could not be considered safe." CFIA refused to take that advice. In August

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[21] **http://www.fda.gov/cvm/index/updates/bse72001.htm** (06 July 2001); "U.S. Department of Justice Files Consent Decree Of Permanent Injunction Against X-Cel Feeds, Inc. Based on Violations of FDA's 1997 Animal Feed Rule," 11 July 2003, available at: **http://www.fda.gov/bbs/topics/NEWS/2003/NEW00924.html**

[22] Chad Skelton, "Plant probed for mad-cow link had labeling problems," *The National Post*, 02 January 2004, A4; Jason Markusoff, "Investigators draw possible link between 2 mad cow cases," *The Edmonton Journal*, 31 December 2003. The reporters have commented on the lack of responsiveness, on the part of both federal regulators and industry personnel, to requests for a more detailed accounting of feed-mill practices.

[23] On 16 January 2004 *The Globe and Mail* ("U. S. cites six plants in Canada for feed violations," page A6) reported that the U. S. FDA had added six more Canadian animal feed plants – to the list of eight cited earlier – to its "import alert" list. The FDA statement said that the "firms listed … have attempted to import feed products containing animal material of indeterminate origin."

2003 CFIA's chief vet, Brian Evans, would only say that a ban on this practice is "under active consideration" – *five years* after Health Canada's advice was given![24] Stanley Prusiner, the scientist who discovered the prion particle, has referred to this practice as "a really stupid idea."

New paragraph as of 28/01/04:

On 26 January 2004 the U. S. Department of Health and Human Services announced that the U. S. Food and Drug Administration would implement a series of new rules, including a ban on feeding mammalian blood to ruminants as a food source, stating: "Recent scientific evidence suggests that blood can carry infectivity for BSE." In addition, the new rules "will further minimize the possibility of cross-contamination of ruminant and non-ruminant animal feed by requiring equipment, facilities, or production lines to be dedicated to non-ruminant animal feeds if they use protein that is prohibited in animal feed."[25] When CFIA will follow suit is anybody's guess.

Recommendation 3 is: Canada should ban all recycling of ruminant protein in animal feed, effective immediately. High-temperature incineration, or some other method for destroying the prion particles, should be used to dispose of this material.

Recommendation 4 is that Canada should commission a comprehensive, *independent* audit of its animal feed mills, making the audit report publicly-available.

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[24] Bill Curry, "Food agency doubted disease could hit humans," *The National Post*, 29 August 2003, A8.

[25] http://www.hhs.gov/news/press/2004pres/20040126.html

Conclusion.

At the present time it is impossible to say whether Canada will ever have a significant beef export industry in the future. The second case of BSE has intensified the crisis afflicting the Canadian beef industry, especially farmers in Alberta, where 70% of the industry is located. One wonders at the wisdom of rebuilding a food industry that is designed to export three-quarters of what it grows, which, as we have seen, makes us extremely vulnerable to the closing of borders to our exports. (By way of contrast, the U. S. exports only 10% of what it produces.) Animal-health issues can only be expected to be more, not less, troubling in the years ahead. For example, it may be only a matter of time before one of the worst scourges, foot and mouth disease, returns to North America.[26]

Now is the time to be thinking ahead to what kind of beef export industry Canada should have, once the current BSE episode is behind us. In the meantime, the public awaits further developments stemming from Premier Klein's innovative policy turn: Canada must do whatever is needed to restore the confidence of our export markets in Canadian beef. Now Alberta officials must try to get their federal counterparts to cooperate with the new approach and make it a national policy.

Alas, this could turn out to be even harder than trying to persuade the Japanese that our pathetic responses to BSE in Canada so far have been worthy of their attention.

[26] Joe Paraskevas, "Officials plan foot and mouth defence," *The Ottawa Citizen*, 03 January 2004, A6.

Appendix: A Note on the Rhetoric of Science

Ever since the BSE crisis erupted in May of 2003, politicians on both sides of the Canada – United States border have used a common theme in their speeches: Our policies on matters of beef are based on "science." This rhetorical appeal to science reached its apex recently when a senior Canadian political leader said, "science dictates that international borders be re-opened to Canadian beef." The fact that both sides use the same language, and that the border remains closed despite repeated Canadian entreaties to open it, should be a clue to the fact that either science or language is being misused. Another clue suggesting something is amiss is that none of those telling the public what science supposedly dictates is actually a scientist.

The truth of the matter is actually quite simple and straightforward: Borders are closed to Canadian beef not because of the "poor science" being practiced in other countries, as compared with the "good science" practiced here at home. No, borders are closed because of *policy* choices – in particular, the kind of policies adopted some time ago, and still maintained, by Canada. As noted in the text above, our current BSE Import Policy stipulates that we will restrict imports of live cattle and beef product from all countries except those which, for "the preceding seven (7) years, … have reported no reported clinical cases of BSE in indigenous bovines." Despite the awkwardness of expression in this statement, its meaning and intent are clear: Others' borders are closed to Canadian beef because of policies which Canada imposes on the others, and, unless this policy is changed by mutual agreement, they will remain closed – either entirely or partially – for Canadian products until at least the year 2011.

What needs discussing are policy choices, not how "science" is practiced here and abroad. On the table for urgent discussion is what new policy choices Canada is going to make, specifically in our surveillance and testing programs, that will satisfy our former export markets on the one key point: namely, that through these new programs we will be able to determine, with a high degree of confidence, the current prevalence of BSE in our nation's cattle herd. And *if* one of those new programs is the testing of every animal which is slaughtered for beef, then we might be able to export beef once again, much sooner than year 2011, to certain markets at least, such as Japan – where a similar *policy* choice was made some time ago by its government, as a means of restoring consumer confidence in the products of its own cattle herd.

These new policy choices should now be up for debate, although many are still resisting the inception of such debate. In the meantime, one thing we should *stop* doing is throwing gratuitous insults at our prospective trading partners. When we say, as we have done repeatedly since May 2003, that our policy choices are based on science and others' are not, what we are saying in effect is: We are enlightened, rational, and clear-thinking, whereas you are unenlightened, irrational and muddle-headed. These are the types of accusations that tend to stick in people's throats.

The websites cited in this paper all were accessed in the period January 14-28, 2004.