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Foot-and-Mouth Disease and Argentina's Beef Exports:  
The WTO's *US – Animals* dispute

Chad P. Bown and Jennifer A. Hillman



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## **Abstract**

This paper provides a legal-economic assessment of the Panel Report in US – Animals, one of a growing list of WTO disputes arising due to problematic conditions under which an importing country closes and re-opens its market after an infectious-disease outbreak in an exporting country. The US banned imports of beef from Argentina following a 2000 Argentine outbreak of highly contagious foot-and-mouth disease (FMD), a disease not found in the United States since 1929. The US refused to relax its import ban, and Argentina filed a WTO dispute in 2012, more than six years after its last FMD outbreak. Our analysis starts with Argentina’s claim that the gap between its first requests – in 2002 – to restore its trading rights and no action by the US as of 2012 constituted “undue delay.” We rely on simple insights from economic research on asymmetric information problems – moral hazard and adverse selection – to describe the difficulties ultimately confronting the World Organization for Animal Health (OIE) and the WTO’s SPS Agreement in dealing with problems like FMD. Such an environment creates disincentives for socially efficient behavior that were clearly realized in this particular episode. The exporting country has an incentive to hide information on outbreaks and report being disease-free too quickly, and the importing country has no incentive to quickly undertake the costly effort of conducting the necessary inspections to restore the exporter’s market access. Finally, we address the Panel Report’s treatment of alleged discrimination that arose both across different FMD-impacted countries and across FMD-impacted and non-impacted geographic zones within Argentina, and we touch on the Panel Report’s shift in approach regarding the obligation of the US to take into account the special needs of developing countries such as Argentina.

## **Keywords**

WTO, dispute settlement, SPS Agreement, animal disease

**JEL Classification:** F13





## 1. Introduction\*

In 2001, the US Department of Agriculture issued a regulation prohibiting the importation of fresh, chilled or frozen beef from Argentina. The 2001 import ban was motivated by Argentine outbreaks of foot-and-mouth disease (FMD), a highly contagious virus that spreads quickly and causes significant pain, distress, and frequently death to animals that contract it. In 2012, more than eleven years after the US had closed its export market to Argentine beef, Argentina filed a request for consultations with the WTO and launched a formal dispute. This paper provides a legal-economic assessment of the Panel Report in the subsequent *US – Animals* dispute, which observed:

“Given the virulence and the potential rapid spread of the disease, and the significant direct and indirect costs associated with eradication of an outbreak, most countries that have eradicated the disease impose strict sanitary measures on imports of animal products.”<sup>1</sup>

While Argentina and many other countries have experienced FMD outbreaks in recent decades, the US has not had a reported case of FMD since 1929. The US maintains a ban from FMD countries on the importation of fresh meat and other animal products from cattle, sheep, goats, deer, and swine, as these are the species that are susceptible to FMD.<sup>2</sup> Under US regulations, FMD is presumed to exist in all regions of the world except those declared to be free of FMD by the US Animal and Plant Health Inspection Service (APHIS). APHIS is part of the US Department of Agriculture and is tasked with “protect[ing] the health and value of American agriculture and natural resources.”<sup>3</sup>

US law permits imports from regions or countries that have not been declared free of FMD *provided* the regions comply with sanitary protocols agreed to with APHIS. For Argentina, the US had set forth such protocols in 1997 via 9 CFR 94.21, which included conditions relating to the movement and slaughter of cattle and a requirement that “FMD has not been diagnosed in Argentina within the previous 12 months.” Between 1997 and 2001, the US imported substantial volumes of Argentine beef pursuant to these protocols, but following FMD outbreaks in Argentina beginning in 2000, the US repealed the protocols in 2001, leaving Argentine beef subject to the general prohibition on imports unless the region is declared FMD-free.

In 2002 and 2003, Argentina began the process of requesting that the international community – including the United States – reopen their markets to Argentine beef exports, claiming that it was now once again FMD free. Such requests turned out to be premature; as Table 1 indicates, Argentina continued to experience FMD outbreaks until February 2006.

This dispute concerns the US repeal of 9 CFR 94.21, the US failure over many years to declare any regions of Argentina to be FMD-free, and Argentina’s 2012 challenge to those two measures under the WTO’s Agreement on Sanitary and Phytosanitary (SPS) Measures.<sup>4</sup>

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<sup>1</sup> Panel Report at para 2.3.

<sup>2</sup> In the US Code of Federal Regulations (CFR), see 9 CFR 94.1 “Regions where rinderpest or foot-and-mouth disease exists; importations prohibited”; updated list of countries are published in APHIS (2016a).

<sup>3</sup> APHIS (2016b) also indicates, as specific examples that motivate its mission, “if foot-and-mouth disease or highly pathogenic avian influenza were to become established in the United States, foreign trading partners could invoke trade restrictions and producers would suffer devastating losses.”

<sup>4</sup> A number of related disputes involving claims under the SPS Agreement have been covered by contributions to this series including Horn and Weiler (2003) *EC-Asbestos*; Neven and Weiler (2006) *Japan – Apples*; Howse and Horn (2009) *EC – Approval and Marketing of Biotech Products*; Bown and Trachtman (2009) *Brazil – Retreaded Tyres*; and Hoekman and Trachtman (2010) *EC – Hormones*; and Bown and Hillman (2016) *India – Agricultural Products*. While Argentina raised claims under Article I:1 and XI:1 of the GATT, the majority of its claims were SPS claim. The Panel, having found numerous violations of the SPS Agreement, exercised judicial economy and did not address the GATT claims.

The currently understood international standards for determining which areas of the world are free from diseases like FMD began in the early 1990s. At that point, the World Organization for Animal Health (OIE) received a mandate from its International Committee, composed of the Delegates of OIE Member Countries, to draw up a list of Member Countries, or zones within countries, that would be officially recognized as free from certain specific diseases. The procedure applies to four priority diseases: rinderpest, foot-and-mouth disease (FMD), contagious bovine pleuropneumonia (CBPP) and bovine spongiform encephalopathy (BSE). Each year, the disease-free status of Member Countries is reviewed by the OIE and, where appropriate, ratified and published. Argentina was on and off the OIE's FMD "disease free" list at various times during the period examined by the Panel in this case.

The rest of this paper proceeds as follows. Section 2 describes some of the salient economic issues underlying this dispute, including key export and import markets for beef over the 1996-2015 period. This highlights both overall trends and how trade in these products can fluctuate due to economic shocks and disease-induced policy shocks. We then turn to how economists approach public policy problems associated with FMD by describing it as a set of informational asymmetry problems.

Section 3 begins our legal-economic assessment of the Panel Report. The first issue involves the timing of the US change in policy toward Argentine beef from regions that had been previously infected with FMD. The second involves on whom the burden falls for conducting inspections, once there has been repeated outbreak episodes and premature claims of disease eradication. We rely on a simple economic framework provided by research on informational asymmetry problems to argue that the experience detailed in the Panel Report reveals that the OIE and SPS Agreement have not yet struck the right balance. In this case they failed to incentivize both accurate information sharing – between exporting and importing country governments, regarding the timing of disease outbreaks and their resolution – and the appropriate time for re-opening of foreign market for international commerce once products were assured to be disease-free.

Section 4 then turns to a number of other issues arising the report. These include the question of discrimination across different FMD-impacted countries and MFN treatment, as well as discrimination within Argentina across its different geography areas in order to tackle the issue of regionalization. We also briefly comment on the apparent shift in willingness to place more substantial obligations on developed countries to take into account the special needs of developing countries. Finally, Section 5 concludes.

## **2. The Economics of Beef Markets and National FMD Policies**

This section describes the international trade flows of beef at issue in this dispute and the market failures that arise in national markets due to diseases like FMD.

### ***2.1 The United States' import market for beef and Argentina's exports of beef***

In 2015, the United States imported over \$6 billion in fresh, chilled or frozen beef products. In real terms, as Figure 1 illustrates, US beef imports were more than 3.5 times higher in 2015 than in 1996. However, US beef imports also exhibit substantial fluctuations during this period; the US beef-producing industry itself experienced negative shocks, including four outbreaks of BSE between 2003 and 2012.<sup>5</sup> The fact that various foreign markets were closed to US beef exports due to BSE during the period also likely contributed to the political efforts that National Cattleman's Beef Association employed between 2003 and 2015 to discourage lifting the ban on imports from Argentina.

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<sup>5</sup> This likely had at least two offsetting effects on the US beef market. In certain years, US production was down because of BSE, and this served to boost import demand for foreign beef. On the other hand, a number of foreign markets remained closed to US beef exports during this period, leaving US produced beef to be sold in local markets, with a consequent dampening of demand for imports.

US beef imports have also fluctuated in some years in ways that can be tied to major economic or animal health shocks, at both the bilateral and multilateral level (see Figure 2). For example, total US imports of beef dipped in 2003 partly because of a BSE outbreak in Canada that led to a temporary US bilateral import ban. Imports then increased rapidly in 2004 as the ban was lifted. Furthermore, the real value of US beef imports also fell by 10 percent in both 2008 and 2009 during the trade collapse associated with the global economic crisis. US beef imports rebounded strongly shortly thereafter and grew by 138 percent between 2009 and 2015.

As Figure 2 illustrates, over 92 percent of US beef imports in 2015 derived from only four countries – Australia, Canada, New Zealand, and Mexico. Of these, Canada's share of the US import market has declined considerably – from a peak of 48 percent in 1999 to only 17 percent in 2015.<sup>6</sup> New Zealand's market share has remained relatively constant, while Mexico and Australia have increased their share of the US import market considerably over the period. This may be partially explained by the US implementation of free trade agreements which lowered bilateral beef tariffs and expanded the quantitative limits of the tariff rate quotas for selected countries. Nevertheless, the fact that countries of great geographic distance from the United States – e.g., Australia and New Zealand – make up such a sizeable share of the US import market indicates that beef may not be a geographically privileged product. Thus it may be possible for Argentina to successfully export beef to the United States under the right conditions.<sup>7</sup>

Figure 3 also supports this notion by illustrating US imports of beef from a number of smaller countries from Latin America. US has considerable beef imports from Costa Rica and Nicaragua. Despite its own FMD outbreak that cut its exports to the US to zero in 2001, US imports of beef from Uruguay rebounded to more than \$200 million by 2015. Finally, US imports from Chile – another country mentioned in the dispute described below – have remained negligible, despite the fact that Chile has been determined FMD free in the 2000s.

US beef imports from Argentina peaked at roughly \$75 million (in 2015 constant dollars) in 1999. At that point, Argentina made up 2.7 percent of the US beef import market. Figure 3 also illustrates how the Argentina FMD outbreak that triggered the new US import ban in 2001 essentially cut Argentina's exports to the US to zero by 2002. Argentina's 'loss' of \$75 million in annual US exports is comparable to the average change in trade flows in disputed products between complainants and respondents as measured across all WTO disputes surveyed in Bown and Reynolds (2015, Table 3). By itself, this suggests there is nothing unusual about Argentina's complaint. Finally, the figure also demonstrates the limited impact of the recent (effective as of October 2014 for Patagonia and September 2015 for Northern Argentina) post-WTO panel decisions by the US to reauthorize imports from Argentina.

Figure 4 illustrates both Argentina's exports of beef to the world over this period and provides information on destination-specific exports to certain foreign markets. First, after the FMD outbreak beginning in 2000, Argentina's total beef exports fell 80 percent from two years earlier and bottomed out at roughly \$150 million in 2001. Once the FMD was addressed and the OIE recognized part of Argentina as FMD-free, Argentina's global beef exports quickly responded. They peaked at nearly \$1.7 billion in 2009, though they have declined considerably between 2009 and 2015.

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<sup>6</sup> Canada's declining share of the US import market may be associated with a number of factors, including liberalization of the US market for live animals (cattle) that has resulted in some reorganization of the North American beef supply chain. Furthermore, the US country of origin labeling regulation for meat products – imposed between 2009 and 2015 (Bown and Brewster, forthcoming; Greene, 2015) – likely increased US meatpackers' costs and thus contributed to an increase in US import demand over the period (Figure 1).

<sup>7</sup> It is also worth noting that Argentine beef tends to be grass-fed and thus has a different taste profile from most US beef, which is a heavily grain-fed product. High-value beef cuts could command a sufficient price premium as to overcome any geographic disadvantage of distance from the US market.

Some of the key foreign markets for Argentina's beef exports may also help to explain its frustration with the US pace of addressing its request to resume bilateral exports. Specifically, Figure 4 shows that in some years since the FMD outbreaks, high-income EU countries such as Germany, Netherlands and Italy have combined for roughly 50 percent of total Argentina beef exports; e.g., exports to these countries alone were \$750 million in 2008.

Two final points worth noting from Figure 4 are that some important beef export markets for Argentina during this period were other emerging economies and that trade with these markets involved considerable volatility. For example, the share of Argentina's exports to Chile and to Russia peaked at 23 percent in 1997 and at 35 percent in 2006, respectively; yet in other years those markets account for single digit shares of Argentina's beef exports. Most recently, Argentina has enjoyed major export growth to China. As late as 2011 Argentina's beef exports to China were zero; by 2015 they were \$170 million, or 20 percent of Argentina's total beef exports.

## ***2.2 Market failures, informational asymmetry problems due to FMD, and national policies***

Next consider a simple, closed economy model designed to represent Argentina's domestic market for beef in the presence of FMD. In such a model, FMD is a negative externality because an outbreak in one farmer's herd generates costs that go beyond that particular farmer. Because the disease is so infectious, an outbreak could easily spread to another farmer's cattle, thus imposing losses to other farmers. The FMD externality indicates that, if left unabated by government policy, market failures are likely to arise. Thus there is a potential efficiency-enhancing role for national governments to design and implement policies to address FMD.<sup>8</sup>

Economists typically consider the problems associated with FMD as arising from two essential characteristics. First, an FMD outbreak is assumed to occur with some positive probability. Second, when an FMD infection actually arises, only sometimes is this information actually known to authorities.

First, even though FMD will occur with some positive probability, the nature of the disease implies that farmers can reduce its likelihood if they undertake costly investment in biosecurity measures. Such investments might include limiting herd movement, reducing inbound exposure to outside contaminants, and cleansing and disinfecting of premises. However, since not all benefits of the costly investment accrue to the farmer – i.e., recall that one farmer's effort to thwart a potential FMD outbreak provides externality benefits to other farmers – any individual farmer will tend to invest in prevention only up to the point that it makes sense from a private (profit-maximizing) perspective. The existence of investment benefits that spill over beyond the farmer into society implies that markets on their own will fail unless governments intervene with the appropriately-tailored policy.

The government could mandate that the farmer undertake such investments through law, or it could even incentivize such investments through subsidies. However, a separate a well-known real world problem arises when governments implement such policies in practice: the informational asymmetry associated with the farmer's effort to 'comply' with the policy. In practice, how does the government know if the farmer is actually following the biosecurity protocols? Government monitoring of individual farmers to prevent shirking is too costly. In economics, this informational asymmetry leads to what is called a "moral hazard" (hidden action) problem.<sup>9</sup>

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<sup>8</sup> This section draws heavily from Wolf (2013), which provides a very useful introduction to the economic incentive problems facing policymakers in the event of the infectious diseases affecting cattle. Motivation for the indemnity policy discussion that follows is that Argentina's Servicio Nacional de Salud Animal (SENASA) issued indemnity payments to farmers during the period of this FMD outbreak; Rich (2005, p. 12) provides a discussion.

<sup>9</sup> The classic example of moral hazard arises in the design of car insurance. If the car is fully insured, and since the driver's actions cannot be perfectly monitored, a driver has insufficient incentive to park it in a safe area or to avoid accidents. A

Second, it is possible that FMD episodes may sometimes go undiscovered by anyone aside from the farmer. Certainly the farmer is in the best position to observe and report it, and the more quickly the FMD is reported to the government, the more quickly the outbreak can be contained and the societal costs limited. However, again, a market failure can arise due to the divergence between social costs and private costs to the farmer associated with whether and how quickly she reports an outbreak. If she reports the FMD, she will experience losses to her herd with certainty. If she does not report FMD, there is a chance she will be able to get away with it and experience smaller losses – e.g., perhaps only partial loss of a herd. And yet if she does not report FMD, there is a greater chance that the outbreak spreads and imposes greater external costs to society.

In the absence of any policy intervention, the market equilibrium outcome of this problem would result in the farmer under-reporting suspected cases of FMD because the failure to notify imposes costs to society (FMD outbreaks on other farms) beyond the private costs to the individual farmer. In economics, this informational asymmetry leads to what is called a “adverse selection” (hidden information) problem.<sup>10</sup>

Economists typically implement a ‘principal-agent’ framework to evaluate the implications of policies designed to address the economic incentives created by such informational asymmetries. The government (the principal) represents the national or societal interest and seeks to design a policy that would incentivize the farmer (the agent) to act in the societal best interest, as opposed to the farmer’s own private interest alone.

Gramig, Horan, and Wolf (2008) develop a formal model that includes both of these informational asymmetries to examine the tradeoffs associated with FMD. In particular, they examine the implications of a government having access to an indemnity payment program, which is a policy that guarantees to pay a farmer a set price in the event that the farmer truthfully reports an outbreak of FMD. One critical element is the size of the guaranteed payment relative to the expected costs to the farmer of the lost herd due to the government response (e.g., culling) and lost business once the FMD outbreak is publicized.

Their baseline analysis reveals two offsetting effects of a guaranteed indemnity payment program. First, providing a higher guaranteed payment does encourage farmers to report the outbreak of FMD; this helps to address the adverse selection problem. But second, a higher payment decreases the incentive for farmers to undertake the biosecurity investment necessary to prevent an FMD outbreak in the first place. Because the farmer is more likely to be fully compensated for an FMD outbreak, a higher guaranteed payment exacerbates the moral hazard problem.

Put differently, a lower guaranteed indemnity payment addresses the moral hazard problem as it places more of the burden on the farmer to incentivize their investment in biosecurity. However, the lower payment suggests that the farmer is less likely to report if she discovers an actual FMD episode. The low payment increases the incentive for the farmer to try to get away with it unnoticed, and the adverse selection (hidden information) problem is exacerbated.

Therefore, one of the important insights of the Gramig-Horan-Wolf approach is that when there are two separate informational asymmetry problems – such as what arises in the national context with FMD – a “one-size-fits-all” public policy of a single indemnity payment scheme does not provide the

(Contd.) \_\_\_\_\_

solution to the problem was for insurers to issue deductibles, so that some of the risk burden was shifted back onto the driver that would thus induce the driver to engage in behavior jointly beneficial to the driver and the insurer.

<sup>10</sup> The classic example of adverse selection arises in the market for used cars and is referred to as the ‘lemons’ problem (Akerlof, 1970). The informational asymmetry problem in the used car market is that buyers cannot tell whether the used car being offered to them is high quality or low quality (a lemon). Because of this unobservability, the consumer offers a price that is the average between the low and high quality types of cars. But since this price is less than the valuation of the high-quality car, potential sellers of high quality cars will exit the market. Thus, the only market transactions that occur end up being for low-quality cars.

government enough firepower to create the right incentives for farmers. They show that access to a second policy to complement the indemnity – such as an appropriately sized “fine” for failure to report a disease – is required if the goal is to elicit both the socially appropriate level of farmer biosecurity investment and the socially optimal level of FMD reporting.

It is clear from the *US – Animals* dispute – as we further detail below – that Argentina’s public policy was not able to quickly or effectively deal with its FMD outbreak. This episode revealed problems with both its investment in biosecurity and with its truthful, accurate, and timely reporting. Nevertheless, it is also clear that the Panel Report itself was not directly concerned with Argentina’s *ex ante* design or *ex post* implementation of its indemnity payments or other public policy toward FMD. The Panel was tasked with evaluating the US failure to reopen its market to Argentina’s beef exports.

Nevertheless, this simple model also highlights how informational asymmetries created by the possibility of an FMD outbreak pose significant challenges for the design of not only national, but also global policies. This then suggests an important role for the OIE and the WTO’s SPS Agreement to address the incentives faced by importing and exporting countries, as well as the exporting country’s own (domestic) policies, in order to create appropriate incentives for prompt and accurate reporting.

### **3. Legal-Economic Analysis: Undue Delay and the Burden of Proof**

This section provides our assessment of the main issues arising in the *US – Animals* Panel Report. Table 2 summarizes the main claims in the dispute and the Panel’s key determinations.

#### ***3.1 The timing of US market reopening and the issue of undue delay***

Argentina’s first major contention in the 2012 dispute was that the US delay in responding to its request to resume import protocols for beef from Northern Argentina and for recognition of Patagonia as FMD-free were “undue” and therefore violated the WTO’s Agreement on Sanitary and Phytosanitary Measures (SPS Agreement). In particular, Annex C(1)(a) of the SPS Agreement requires that an importing country’s control, inspection and approval procedures “are undertaken and completed *without undue delay* and in no less favorable manner for imported products than for like domestic products.” As additional context, Argentina also claimed that it was discriminated against given that the US took only two years to approve imports from Uruguay after its last outbreak of FMD, while Argentina’s approval had not been considered at the time of the establishment of the Panel, or nearly seven years after its last FMD outbreak.<sup>11</sup>

The US pointed to a number of delays that it said were caused by Argentina’s Servicio Nacional de Salud Animal (SENASA’s) slow responses to requests for information, to changes in Argentina relating to surveillance regulations and slaughterhouse standards, to time needed to respond to the FMD outbreaks that did occur, to a labor strike at SENASA in 2005, and to US laws on regulatory flexibility and paperwork reductions.

The arguments and the Panel’s analysis raise a number of questions. What is the appropriate benchmark for measuring what constitutes “undue” delay? If any errors or delays have occurred in the

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<sup>11</sup> The arguments were slightly different for exports from Northern Argentina versus those from Patagonia. For Northern Argentina, the request was simply to reinstate the privileges Argentina had from 1997-2001 to import pursuant to specific protocols because much of the scientific work was done prior to 1997 and no outbreaks had occurred since 2006. For Patagonia, the request was to declare Patagonia (both Patagonia North and Patagonia South) to be FMD-free, based on the fact that there had been no FMD outbreaks in Patagonia South since 1976 and the OIE had continuously recognized it to be FMD free since 2002, while Patagonia North had not had an outbreak since 1994 and had been declared FMD free by the OIE since 2007.

exporting country, do they justify further delays by the importing country? If there has been political interference in the process, is that an automatic violation of Annex C of the SPS Agreement?

At the outset, the Panel noted the US claim that not every delay in undertaking or completing an approval procedure is contrary to the provisions of Annex C(1)(a). The Panel also noted the US claim that the length of the approval process for Argentine exports conducted by other WTO members is not a reliable benchmark. Instead, the Panel accepted the interpretation by the panel in *EC—Approval and Marketing of Biotech Products* that a “delay” is “a period of time lost by inaction or inability to proceed” and further noted that OIE guidelines and the US’s APHIS standard processing times serve as important indicators of a reasonable length of time.<sup>12</sup> (Para 7.117).

The Panel then engaged in a two-part analysis. First, it determined that there were delays in both the approval process for permitting beef imports from Northern Argentina and in the process of granting FMD-free status to Patagonia. Second, in order to assess whether the delay was “undue” – i.e., unwarranted, or otherwise excessive, disproportionate or unjustifiable – the Panel examined each US justification. It concluded that three of four periods of delay were not justified, but that one was, given SENASA’s delay in providing information in response to reasonable US requests. For one period (time between proposed rule to permit imports and promulgation of final rule), the Panel assessed whether a period of over one and a half years was reasonable. The Panel noted that it took APHIS only four to 13 months to assess whether to permit imports from Uruguay, Santa Catarina (a region in Brazil) and Japan, concluding that a period of over one year was “neither ordinary nor expected.” (para. 7.154). Here, the Panel faulted the US for a process that falls outside of the “ordinary” while recognizing that APHIS does not have a clearly articulated timeline by which to judge its determination. The Panel may have been influenced by the US having taken no action to re-open to Argentine beef despite nearly thirteen years having passed since Argentina’s initial November 2002 request.

A further source of comfort to the Panel appears to come from its perception that APHIS may have slowed down its process due to political pressure from the US Congress. In 2009, the Congress passed the Omnibus Appropriations Act which prohibited the payment of the salaries or expenses of any person for any activities that would allow imports of meat from Argentina until the US Secretary of Agriculture had reviewed US animal health aspects of the proposal to permit Argentine imports and issued a report to the Congress on his findings. Argentina consistently pointed to the passage of this Act as evidence that the delay was not supported by scientific considerations, but rather was due to political pressure on APHIS.

### **3.2 Burden of proof**

This dispute also revealed a clear tension raised by the SPS Agreement concerning the allocation of the burden of proof. The SPS Agreement places the burden on the importing country. Yet, in this episode, Argentina was required to demonstrate the absence of FMD, the maintenance of effective surveillance techniques, and the ability to sequester the disease so that it does not spread across regions. On the other hand, US law required that the US rely on its own procedures, including its own on-site inspections, to determine that Argentina had adequately done so.

The SPS Agreement was brought into the WTO as part of the Uruguay Round’s “single undertaking.” Only 43 Contracting Parties had signed on to the Tokyo Round’s Standards Code which contained pre-WTO disciplines on SPS measures.<sup>13</sup> The new SPS agreement stemmed in part from the perception that the Standards Code had failed to stem disruptions of trade in agricultural and food

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<sup>12</sup> Panel Report, *EC—Approval and Marketing of Biotech Products*, para. 7.1495.

<sup>13</sup> For a discussion of the history of the SPS and TBT agreements and their relationship to the GATT, see Marceau and Trachtman (2006).

products and that the standards in place were too widely divergent across countries. The new SPS Agreement became binding on all WTO members.

The SPS Agreement places the initial burden on those importing countries that impose SPS measures, requiring that any measures adopted be applied only to the extent necessary to protect human, animal or plant life or health, are based on scientific principles, and do not arbitrarily or unjustifiably discriminate between Members. But this means countries wishing to export to such countries must have in place their own internal SPS systems, and maintain sufficient records and administrative support to demonstrate that their agricultural products are in compliance with all of the requirements of the importing Member's SPS measure. While the SPS Agreement and its Annex C place the burden for control, inspection and approval on the importing member, an extensive burden also falls on the exporting country. And the burden can effectively shift from the importing country to the exporting country following an outbreak of a contagious disease.

Argentina and the US both bore some of the initial burden for conducting a risk assessment in 1997, long before the more recent FMD outbreaks and WTO dispute. They worked in the 1990s to craft a set of mitigating protocols to bring imports of Argentine beef into compliance with US standards for protection against FMD, with Argentina continually required to certify that its exports met the requirements and to notify the US (and the OIE) of any potential outbreaks. The risk assessment and protocol opened up the US market to Argentine beef between 1997 and 2001. As we observed from Figure 3, US imports of beef from Argentina increased to \$75 million annually during this period.

When cattle from neighbouring countries were illegally imported into Argentina and outbreaks of FMD began occurring in 2000, the US banned further imports and effectively shifted the burden back to Argentina to prove that it was able to control for FMD. Argentina then requested that APHIS come for site visits, both in Patagonia and Northern Argentina, and Argentina was required to provide extensive information and data in advance and as follow-up to each of the five site visits that did occur between the fall of 2000 and February of 2009.<sup>14</sup> However, as the record makes clear, there were often long intervals between such visits, with repeated requests by Argentina for the visits to occur, as they were a prerequisite to obtain approval either to resume beef exports or to be declared FMD free. However, even Argentina's initial request may have been premature. Argentina sought authorization to export beef to the US in November 2002 pursuant to the 1997 protocols— even though sporadic outbreaks of FMD continued to arise, particularly in Northern Argentina, until 2006.

This dispute also raises questions on the burden borne by exporting countries and the incentives associated with costs for both compliance and inspection. The US incurred a significant burden to perform a full risk assessment in the course of promulgating a final rule in 1997 to permit the initial imports of Argentine beef. That rule was clearly tied to commitments made by the US as part of the Uruguay Round and the adoption of the SPS Agreement in 1994.<sup>15</sup> The rule was preceded by site visits to Argentina, the promulgation of a proposed rule to permit Argentine imports, a 150-day comment period, four public hearings in four cities throughout the US, and responses to the 113 comments received.<sup>16</sup> The final rule was accompanied by an assessment of economic impact of permitting imports from Argentina and contained certain specific “mitigating measures,” including that the meat

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<sup>14</sup> The site visits noted in Appendix 1 of the Panel Report were: 1) September 27-October 6 2000, APHIS in conjunction with OIE staff, visited to gather information for a risk assessment following a number of outbreaks, 2) December 1-5, 2003, APHIS and the Canadian Food Inspection Agency conducted a site visit in Patagonia, 3) May 30-June 3, 2005, APHIS conducted a site visit in Northern Argentina, 4) September 6-8, 2006, APHIS visited the areas affected by FMD outbreaks, and 5) February 23-26, 2009, APHIS conducted a site visit to Patagonia.

<sup>15</sup> The background to the final rule states: “In proposing the amendment to the regulations [to permit imports from Argentina], we stated that we considered the proposed regulatory changes to be consistent with and to meet the requirements of international trade agreements that had recently been entered into by the United States.” 62 Fed.Reg. 34385 (June 26, 1997).

<sup>16</sup> See 62 Fed. Reg. 34385-34394 (June 26, 1997) and 61 Fed Reg 16978-17105 (April 18, 1996).



had to come from premises where FMD had not been present during the prior 12 months, where the cattle had not been vaccinated for FMD (which masks the symptoms), and all bone and lymphoid tissue was removed before exportation.

Following more than two thousand FMD outbreaks that occurred in Argentina in 2000 and 2001, how many of these steps should the US be required to undertake all over again? Viewed differently, what should Argentina be required to do in advance of requesting renewed access to the US? The SPS Agreement does not address the issue, other than Annex C's general placement of the burden for control, inspection and approval on the importing country and its requirement that any fees charged for procedures performed are not discriminatory as between domestic and imported products.

Both sides attempted to use the 1997 ruling to their advantage. Argentina claimed that little had to be done to reinstate its previous status, since so much work had gone into the 1997 final rule. The US contended that its delays were justified by the substantial new data and extensive new work required in light of the thousands of FMD outbreaks.

Argentina also urged reliance on OIE's various recognitions of particular regions in Argentina as FMD-free as grounds to claim that the US did not need to start its assessment from scratch. Clearly, reliance on OIE as an independent international organization responsible for health standards for international trade in animals and animal products could be a cost-effective solution to the current allocation of the burden to importing countries. But, as this case demonstrates, importing countries are likely to be highly resistant to ceding control over inspection or approval procedures. Moreover, OIE typically does not perform an on-site inspection itself; its information dissemination role depends on the data and responses to questions typically submitted by the exporting country. As we have described in Section 2, the existence of informational asymmetries even only at the national level – between farmers and the government – can lead to significant market failures.

The US regards OIE approval as at best a prerequisite for placing a country or region on its list for potential site visits. The US generally does not grant an approval for imports following a disease outbreak without first successfully completing its own site visit and verification of data and control procedures submitted by the exporting country.

### ***3.3 Generating the right economic incentives in light of these informational asymmetries***

The OIE is an international standards-setting organization supported by its members, which include Argentina, the United States, and nearly 180 other countries. It provides global public goods.<sup>17</sup>

Consider again the basic informational asymmetry problem between the Argentine government and its farmers described in Section 2. The OIE supports member country governments that seek to design and implement efficient and effective national policies to address FMD. An important OIE role is to help Argentina's government incentivize farmers to invest in biosecurity measures to reduce outbreaks while also encouraging them to report outbreaks expeditiously when they arise.

However, this dispute reveals that the environment created by the OIE and SPS Agreements has not yet struck the right balance to ensure that foreign markets reopen in an appropriate and timely manner after an FMD outbreak. Two major concerns stand out in particular.

The first concern is due to Argentina's lack of credibility in truthfully reporting information. First, Argentina was not entirely forthcoming about the initial outbreak. The Panel Report (Appendix 1) notes that SENASA "out of concern for maintaining the international status of exports...decided to keep the FMD situation confidential until further data would permit a better evaluation of the situation." Second, in July 2003, the OIE faced a request by Argentina to recognize Northern Argentina as FMD-

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<sup>17</sup> Bown and Hillman (2016) provide a thorough introduction to and discussion of the general, global public good- provider role that the OIE plays related to trade in animal products impacted by infectious diseases.

free where vaccination is practiced, only to one month later suspend the designation due to new outbreaks. This suggests that current OIE incentives are not sufficient to prevent Argentina from claiming “too early” that it was FMD-free. Third, the US claimed that Argentina kept changing the rules on what could cross the line between Patagonia and North Argentina, as Argentina claimed each time that Patagonia had been effectively isolated from the outbreaks in Northern Argentina. Clearly the US remained sceptical of Argentina’s ability to control the movement of cattle or beef internally and at the border with its neighbours. Overall, this hurt Argentina’s credibility and the resulting lack of trust weakens a system reliant on accurate and timely self-reporting to the OIE.

The second concern is that the OIE could not eventually incentivize the United States to re-assess Argentina’s FMD status more quickly to re-open its import market. This could also undermine the system if such reticence makes a country like Argentina less likely to report an FMD finding in the first place – hoping the finding doesn’t turn into an FMD outbreak and the exporter gets discovered – because it is worried about being shut out of foreign markets for an excessive period of time.

Therefore, a second and separate informational asymmetry made obvious by this dispute is one that arises after an outbreak and that involves whether an exporting country like Argentina is truly FMD free. This asymmetry is between Argentina’s government and the outside world. As the OIE makes clear, this information is critical and relevant because FMD can spread across borders through international commerce in both cattle and beef products.

There are two main problems with the current incentive structure. First, it places most all of the costs of determining whether the exporting country (Argentina) is FMD free on the importing country (the United States). Furthermore, much of the benefits of being deemed FMD-free would be enjoyed by the exporting country (Argentine beef producers). This over-incentivizes the exporting country (Argentina) both to shield information on outbreaks and to potentially request FMD-free status, even when it is not, because there are expected benefits from the change in status and no explicit costs to the exporter when requesting the status change. Second, there is no explicit alternative for the OIE or Argentina to incentivize the importing country (the US) to speed up the costly process of undertaking a new scientific analysis even if Argentina’s truthfulness had not been an issue. As this episode illustrates, Argentina’s only recourse was to file a formal dispute in which it would eventually be authorized to retaliate (impose costs on the US) if the importer refused to comply.

One proposal would be to institutionalize a system that would have more burden- (cost-) sharing between the exporting and importing country in covering the costs of such inspections. If the act of requesting an inspection entailed some cost to the exporting country, this would help alleviate the informational asymmetry problem that the exporter requests foreign inspections too soon – i.e., before it is actually FMD-free. When reputational effects are important, an apparent abuse of asymmetric information can also hurt the credibility of its regulators with the outside world. While more analysis is needed to fully evaluate such a proposal, the intuition is that it would work like a deductible in an insurance contract. Under moral hazard, sharing the cost burden may help to better align the incentives of the importing and exporting countries.

## **4. Additional Issues Raised in the Panel Report**

### ***4.1 Discrimination***

Like the rest of the WTO Agreements, the SPS Agreement (Article 2.3) contains provisions prohibiting arbitrary or unjustifiable discrimination between WTO Members where similar conditions prevail.

Argentina claimed that the US measures arbitrarily discriminated against Argentina both substantively and procedurally. The first substantive claim of discrimination compared US imports

from Uruguay with those from Northern Argentina, since both regions had FMD outbreaks at roughly the same time, both were recognized by the OIE as FMD-free where vaccination is practiced, and both had similar physical situations and institutional structures for dealing with FMD. The second claim compared Chile and Santa Catarina (a state in southern Brazil) for imports of animal products from Patagonia since all three regions had their last FMD outbreaks around the same time and the OIE recognized all as FMD-free where vaccination is not practiced.

Argentina's procedural claims were that the US maintained a prohibition on imports from Northern Argentina and Patagonia for more than a decade while other WTO Members were given risk assessments quite rapidly after having outbreaks and were "given import permission accordingly." Argentina specifically cited Uruguay, which had an FMD outbreak in 2001 but was allowed to export beef to the US less than two years later in 2003; the UK is currently on the APHIS list of FMD-free regions despite outbreaks in 2000-2001 (same as Argentina) and again in 2008; Japan is likewise on the APHIS FMD-free list despite an outbreak in 2010, which was followed by a risk assessment conducted just one year after the outbreak.

The US contended that the conditions in Argentina were not similar to those in Uruguay, Santa Catarina or Chile, citing differences in the geographical size of area and the size of herds in the various regions, the geography and length of land-borders over which FMD could be spread, the volume of veterinary resources available to check for and treat FMD, and the recent FMD history. The US also emphasized that Argentina intentionally kept the full extent of the 2000-2001 FMD outbreaks confidential while at least Uruguay promptly reported its outbreaks. The US rejected common OIE recognition as sufficient to conclude that similar conditions prevailed in the various regions because the OIE did not take into account whether the region accepted imports from FMD-infected regions, or the region's veterinary capacity to detect, prevent and control FMD.

In analyzing the competing claims, the Panel engaged in a three-part analysis of Argentina's claims of discrimination. The first considered whether similar or identical conditions prevail between the two regions. The second examined whether the US measures discriminate between the two regions. The third addressed whether the discrimination is arbitrary or unjustifiable. The Panel ultimately answered each question in the affirmative for two of Argentina's claims of discrimination, but found that Argentina had not demonstrated that similar conditions prevail between Northern Argentina and Patagonia compared to either the UK or Japan and hence found no violation of Article 2.3 for the UK and Japan claims.

For the first step in the analysis, the Panel stated that the test for similar conditions prevailing was whether the risk of FMD-introduction posed by imports from the two regions and their ability to meet the US Appropriate Level of Protection (ALOP) if subject to comparable mitigating protocols is the same. The Panel recognized that finding similar conditions in two countries required not only an assessment of disease-prevalence at a given point in time but also of the "credibility" of the sanitary measures in place to prevent and control FMD, including the veterinary capacity and infrastructure for control. In assessing whether any discrimination found to exist was "arbitrary or unjustifiable," the Panel looked to whether the distinction between the two sets of imports "bears a rational connection to the objective" of the measures. For both of the claims where the Panel found discrimination, one key factor was its prior finding of "undue delay", thereby suggesting that procedural discrimination can affect the outcome of a substantive discrimination determination.

The Panel's analysis also raises the question of just how similar conditions have to be in order for a claim of discrimination to prevail. Obviously in the SPS context, identical conditions are almost never going to occur, as the size of the land, number of animals, concentration of animals and number of veterinarians is always going to vary from state to state and region to region. Here, the variance with Uruguay was arguably quite large yet the Panel found similar enough conditions to warrant finding discrimination.

## 4.2 Regionalization

This dispute, like a number of the recent SPS cases, raises the issue of how and when importing countries must “adapt” to regional conditions, including pest- or disease-free areas that arise in exporting countries.<sup>18</sup> This is addressed in both Article 6 of the SPS Agreement and the OIE’s Terrestrial Code. Article 6 in particular places a burden on importing countries to recognize regions or areas that are disease-free, specifies some of the factors that are to be considered in determining the existence of such areas, and then places a burden on exporting members claiming such regions to provide evidence of the region’s disease-free status.

Here Argentina contended that the US refusal to recognize Patagonia as FMD-free or to permit imports of animals or animal products from Patagonia constituted a violation of Article 6.1. Argentina claimed that the US failed to take into account: the level of prevalence of FMD in Patagonia South, which has been FMD-free since 1976, or Patagonia North, which has been FMD-free since 1994; the eradication and control programs put in place by SENASA; and the criteria and guidelines developed by OIE, which had recognized the FMD-free status of Patagonia South in 2002 and Patagonia North in 2007.

The US claimed that it was still in the process of adjusting its measure at the time of establishment of the Panel, as APHIS was still engaged in information exchanges with SENASA and was uncertain as to whether Argentina objectively demonstrated that Patagonia was, and was likely to remain, FMD-free. The US rejected Argentina’s claim that the OIE FMD-determination constituted a “criteria or guidelines” under Article 6.1. The US claimed that its regulations meet the criteria of Article 6.2 but that once Argentina sought US recognition of Patagonia as FMD-free and the process of evaluating that claim began, the existing US ban on imports was transformed into a provisional measure under Article 5.7 of the SPS, which requires that the US review its measure within a reasonable period of time. The US claimed that it was doing just that when the Panel was established.

The Panel, largely based on its previous findings concerning undue delay, found that the US had indeed violated Article 6.1. The Panel noted its finding that APHIS itself was satisfied that it had sufficient information concerning the FMD situation in Patagonia to conclude its review in 2009.<sup>19</sup> As a result, the Panel found both that the US had not completed its review without undue delay, in violation of Article 8 and Annex C and that it had not reviewed the “provisional” measure within a reasonable period of time within the meaning of Article 5.7.

## 4.3 Special Consideration for Developing Countries

Argentina also claimed that under Article 10.1 of the SPS Agreement, the US must give developing countries a priority in the queue for inspections, risk assessments and rulemakings. Argentina indicated that in this case, the US acted with alacrity in re-opening access to the US market for beef from the UK and Japan, while failing to act on Argentina’s request for more than nine years, thereby violating Article 10.1. The US claimed that Argentina never identified any particular special need related to its developing country status and therefore cannot now claim that the US failed to address such unidentified needs.

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<sup>18</sup> This is also an issue in the ongoing *Russia – Pigs (EU)* dispute. Bown and Hillman (2016) provide a discussion of a number of legal-economic issues that arise concerning regionalization as seen through the lens of the *India-Agricultural Products* dispute.

<sup>19</sup> The Panel specifically noted after the 2009 site visit, APHIS did not request any additional information from SENASA concerning the FMD situation in Patagonia, that on April 27, 2009, APHIS sent a letter to SENASA stating that no additional information was required, and in June and October 2011, the US stated in meetings of the SPS Committee that APHIS had concluded that imports from Patagonia presented a negligible risk of FMD.

The Panel started by stating explicitly that Article 10.1, notwithstanding its somewhat vague “take account of” language, creates an enforceable obligation on the US. The Panel largely agreed with the US. In doing so, the Panel subtly shifted the burden of proof from prior reports that had placed the burden squarely on the developing country to prove its claim that the importing country did not take account of developing country Members’ needs, such as in *EC-Approval and Marketing of Biotech Products*. Here, the Panel expressly provided for a shift in the burden to the importing country to show how it took account of the special needs of the developing country *if* the developing country demonstrates that its special needs were expressly identified and shows a lack of documentation of consideration for that special need. Argentina claimed that its special need for priority access to the approval process was communicated to the US but the US failed to give Argentina speedier processing. The Panel ruled that the phrase “take account of” does not mandate always putting developing countries at the front of the line for risk assessments since importing countries must weigh and balance a wide variety of interests in determining when and how to conduct its inspections and risk assessments and that Article 10.1 cannot be read to require always moving developing countries to the front of line.

## **5. Conclusion**

This dispute is the 24<sup>th</sup> case involving trade in cattle-related products – e.g., dairy, beef, hides, etc. – indicating the significance of trade frictions in this sector, with SPS measures in particular often having a dramatic impact on trade. Indeed, Argentina’s global exports of beef fell by more than 80 percent in the years following its FMD outbreaks in 2000. While trade with a number of Argentina’s partners was restored fairly quickly once the FMD outbreaks ceased and the disease was under control, the United States maintained its ban on Argentine imports for nearly 10 years after Argentina requested that it be lifted and for nearly seven years after the last outbreak of FMD was detected anywhere in Argentina. This led Argentina to eventually initiate a WTO dispute with the United States in 2012.

This prolongation allowed the Panel to find that the US had not completed its procedures without “undue delay” despite the lack of any firm timelines in the SPS Agreement itself. And that finding contributed to a cascade of additional violations. These included that the US ban was not based on international standards, that the ban was not based on a risk assessment, that the ban was discriminatory, and that the ban was not applied in accordance with the SPS Agreement. It also may have allowed the Panel to duck one of the difficult questions raised in this case: if the OIE designates a country or a region as FMD-free, does that constitute an international standard that other WTO members must recognize? Does it create any form of rebuttal presumption in favor of recognition?

The *US – Animals* dispute also highlights how conflicting incentives continue to arise under the current system and remain a problem due to the nature of the informational asymmetries involved at the intersection of infectious animal diseases and international trade. As the importing country maintaining import controls, the burden was on the US to carry out the necessary procedures to determine whether Argentina had returned to FMD-free status. Yet the US had little economic incentive to do so, and considerable distrust in the information that Argentine government was publicly reporting. This last point appears well justified; the evidence clearly revealed Argentina was displaying problematic behavior in its inaccurate announcements regarding the outbreak, spread, and containment of the disease. Nevertheless, this behavior is largely consistent with basic the economic theory behind informational asymmetries and market failures. In the presence of possible FMD outbreaks, exporting countries are over-incentivized to claim that they are disease free – either by not reporting an outbreak or by prematurely reporting the successful resolution of an outbreak – even when they are not.

In light of the importance of both infectious diseases and trade in animal products, more thorough analysis is needed to carefully consider alternative designs to the public policies and global institutions

tasked with creating the right incentives for these actors. One proposal worth investigating is whether a reallocation of the cost burden of exporter recertification partially onto the exporting country would better incentivize globally efficient behavior by farmers, as well as exporting and importing country governments.

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**Table 1: Timeline and Critical Dates of Interest**

<b>Date</b>	<b>Event</b>	<b>Elapsed Time from Argentina's Request to Resume Exports (Nov. 2002)</b>
<b>1929</b>	<b>Last outbreak of Foot-and-Mouth Disease (FMD) in US</b>	
Aug. 1997	US authorizes importation of Argentine beef following a June 1997 risk assessment and rulemaking	
2000-2001	Hundreds of outbreaks of FMD (both O and A types) in various parts of Argentina	
June 4, 2001	US publishes rule prohibiting imports of beef from Argentina (becomes final rule on December 11, 2001)	
May 2002	OIE recognizes Patagonia South as FMD-free zone	
<b>Nov. 2002</b>	<b>Argentina requests authorization to resume beef exports to US</b>	<b>0</b>
Dec. 2002- Aug. 2003	Meetings and exchanges of information between Argentine and US officials	
July 2003	OIE recognizes northern Argentina as FMD-free without vaccination	
<b>Aug. 2003</b>	<b>Argentina requests APHIS to recognize Patagonia as FMD free</b>	273 days/9 months
Sept. 2003	Outbreak of Type O in Province of Salta; OIE suspends FMD-free status	
Sept. 2003- 2006	Numerous exchanges of information between APHIS and Argentina's SENASA, number of US visits to Argentina	
May 2004	OIE confirms recognition of Patagonia South as FMD-free without vaccination	
<b>Feb. 5, 2006</b>	<b>Last outbreak of FMD (in province of Corrientes) noted in the panel record</b>	<b>1,179 days</b>
Jan. 5, 2007	APHIS publishes proposed rule in Federal Register to change disease status of Patagonia South to FMD-free; beginning of 60-day comment period	1,512 days/4 years and 1+ month
May 22, 2007	OIE reinstates FMD-free status of Northern Argentina and Patagonia North	
Oct. 15, 2008	APHIS proposed site visit in December 2008	
Feb. 2009	APHIS site visit to Patagonia	
Feb. 26, 2009	2009 Omnibus Appropriations Act passes Congress with language: No funds can be used for any activity that would allow the importation of meat from Argentina; calls for report to House and Senate Appropriations Committees	2,295 days/6 years and 3+ months
Apr. 27, 2009	APHIS sends SENASA letter stating that no additional information was required to proceed with APHIS rulemaking	
Sept. 30, 2009	2009 Omnibus Appropriations Act expires	
Summer 2010	Letters exchanged between APHIS and SENASA	
June 30, 2011	US statement before SPS Committee that APHIS had "completed the risk analysis regarding the region north of the 42 <sup>nd</sup> parallel and would subsequently draft a proposal to allow importation of beef under certain conditions."	3,150 days/8 years and 7+ months
Oct. 19, 2011	US statement before SPS Committee that APHIS had "completed the assessment and was drafting a proposal to allow the importation of beef under conditions."	3261 days/8 years and 11+ months
<b>Aug. 30, 2012</b>	<b>Argentina requested consultations about the US ban on its beef exports.</b>	<b>3,577 days/9 years and 9+ months</b>
Dec. 6, 2012	Argentina requested the establishment of a panel	
Jan. 28, 2013	DSB established the Panel	
July 24, 2015	Final panel report circulated	
<b>Aug. 31, 2015</b>	<b>Panel report adopted</b>	<b>4,673 days/12 years and 9+ months</b>

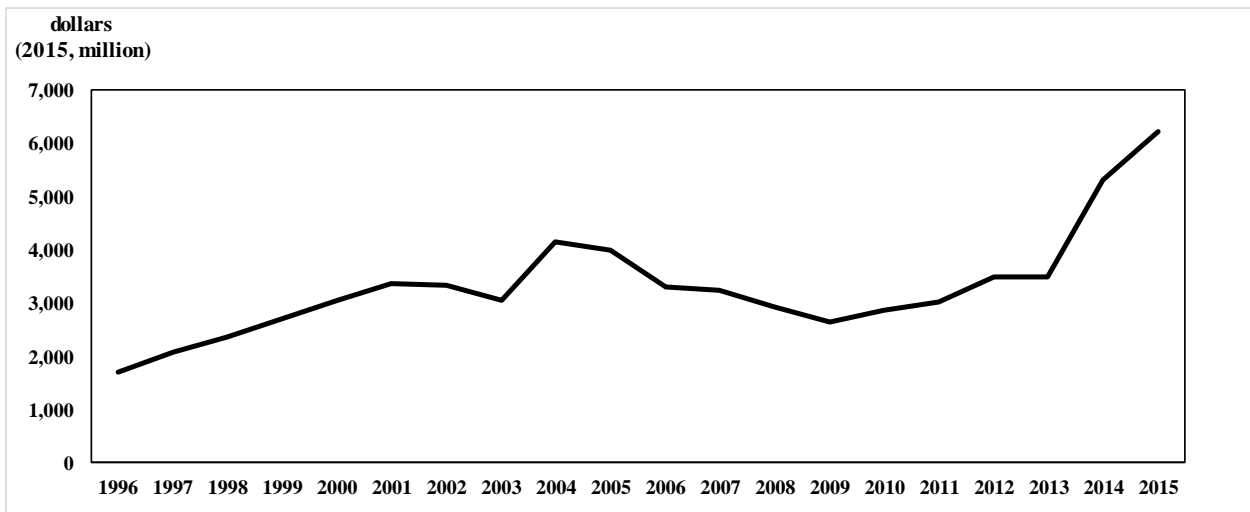
Source: compiled by the authors from Panel Report and minutes of the SPS Committee.



**Table 2: Legal Elements of US – Animals**

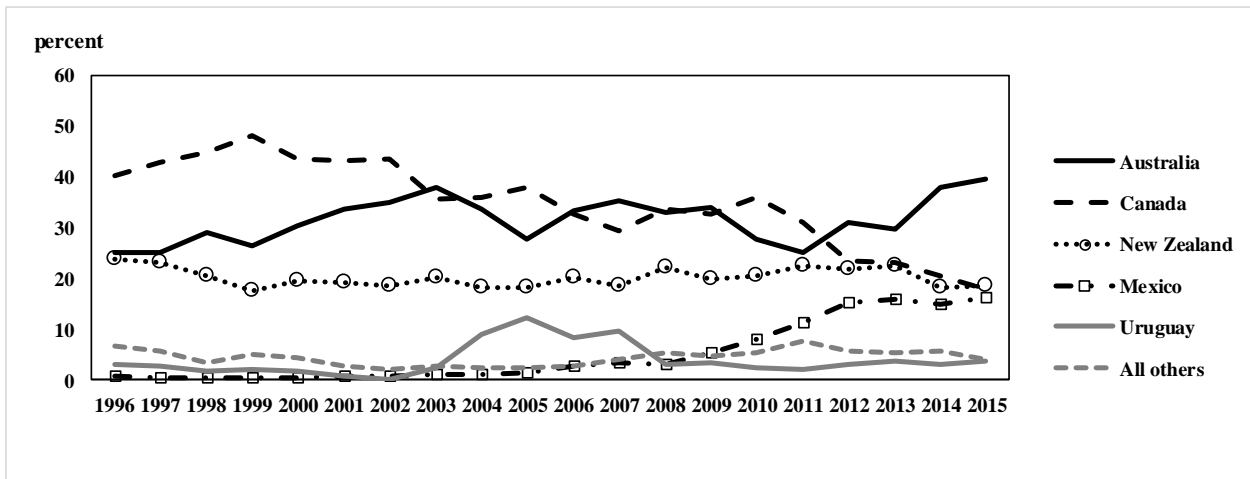
<b>SPS Agreement Provision</b>	<b>Claims by parties</b>	<b>Panel determination</b>
<b>Article 8 and Annex C--</b> requirement to complete procedures without “undue delay”	Argentina: Nearly 10 years to process request to resume imports is “undue” US: Argentina outbreaks and failure to provide information caused some of delay	Violation of Article 8 and Annex C; delay was undue
<b>Article 3.1</b> —requirement to base measures on international standards (i.e., OIE Terrestrial Code)	Argentina: US measure not based on OIE guidelines for imports from FMD-free regions (w/ or w/out vaccinations) US: OIE designation of region as FMD free is not “international standard” per 3.1 of SPS Agreement	Violation of 3.1 and 3.3: OIE permits trade in beef from countries in which vaccination against FMD occurs; did not reach whether OIE recognition is international standard; violation of 3.3 b/c violation of Art 8 and Annex C, 5.1, 2.2, 5.6, 2.3, 6.1 and 1.1
<b>Article 5.1 and Article 2.2</b> —requirement for a risk assessment	Argentina: No risk assessment was done; If no risk assessment was done, automatic violation of 2.2, US ALOP not clear and varies by country US: 2001 regulations (ban) was based on risk assessment; OIE—FMD extremely dangerous and contagious; before trade, importing country must be satisfied that its animal health status will be adequately protected	Violation of 2.2 because violation of 5.1; no risk assessment
<b>Article 5.4</b> –ALOP should take into account objective of minimizing negative trade effects	Argentina: US has no coherent ALOP US: Art 5.4 is not mandatory	No finding b/c no affirmative obligation in Art. 5.4
<b>Article 5.6</b> —requirement that measures not be more trade restrictive than necessary	Argentina: US could have used OIE TC or 9 CFR 94.22 which is less trade restrictive US: insufficient evidence for less restrictive alternative; OIE TC not OK b/c US doesn't accept vaccination	Violation: US could have used protocols in 9 CFR 94(1)(a)
<b>Article 2.3</b> —requirement not to discriminate arbitrarily between different WTO Members	Argentina: permits imports from Uruguay but not Northern Argentina; permit imports from Santa Catarina and Chile but not Patagonia US: regions are different; Argentina intentionally kept outbreaks confidential	Violation: discrimination against Northern Argentina and Patagonia vs. Uruguay, Santa Catarina and Chile
<b>Article 6.1</b> —requirement to adapt measures to regional conditions	Argentina: US required to recognize Patagonia as FMD-free, OIE had already recognized US: still in process of adapting to regional conditions at time of panel request	Violation: undue delay and failure to adapt to regional conditions
<b>Article 10.1</b> —requirement to take into account special needs of developing countries	Argentina: US should made doing risk assessment for Argentina as developing country a priority US: does take developing status into account	No violation: Argentina did not satisfy burden of proof
<b>Article 1.1</b> -SPS measures should be applied in accordance with SPS Agreement	Argentina: If violate other provisions of SPS Agreement, then violate Article 1.1 US: No response	Violation
<b>GATT Article 1</b> -MFN	Argentina: MFN violation	Not necessary to rule since found violations of SPS Agreement
<b>GATT Article XI.1</b> -no quantitative restrictions	Argentina: ban on imports is quantitative limit	Not necessary to rule since found violations of SPS Agreement

**Figure 1. Total US Beef Imports, 1996-2015**



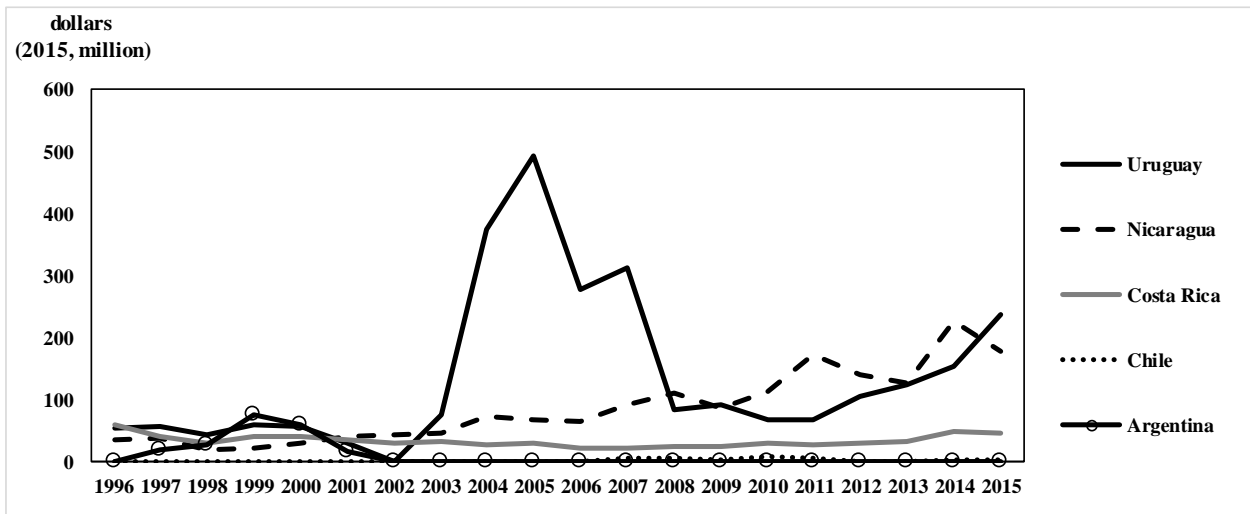
Source: constructed by the authors with data from USITC Dataweb for fresh and chilled beef (HTS 0201) and frozen beef (HTS 0202).

**Figure 2. Shares of the US Import Market for Beef, 1996-2015**



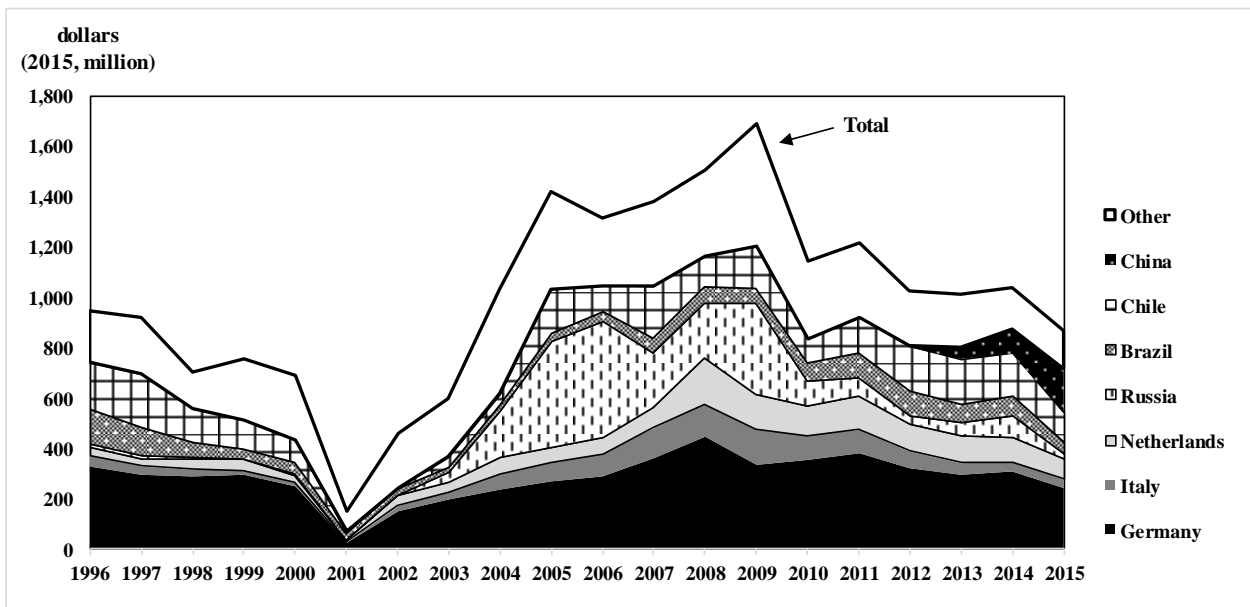
Source: constructed by the authors with data from USITC Dataweb for fresh and chilled beef (HTS 0201) and frozen beef (HTS 0202).

**Figure 3. US Imports of Beef by Selected Source Country, 1996-2015**



Source: constructed by the authors with data from USITC Dataweb for fresh and chilled beef (HTS 0201) and frozen beef (HTS 0202).

**Figure 4. Argentina's Total Exports of Beef and by Selected Destination Market, 1996-2015**



Source: constructed by the authors with data from UN Comtrade for fresh and chilled beef (HS 0201) and frozen beef (HS 0202).

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