# ANGRY BIRDS: HOW EFFECTIVE IS NAFTA'S ONGOING FIGHT AGAINST AVIAN INFLUENZA?

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## ABSTRACT

This paper initiates an exploration into the unique causes behind NAFTA's inability to effectively address avian influenza thus far. It posits that the structural

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bilateralism and regulatory fragmentation which characterized agriculture's entry into NAFTA gave way to uneven levels of protectionism and governance. Failure to effectively address avian influenza has had serious economic consequences, and it could have far-reaching social and justice implications. This paper offers ways in which NAFTA can address avian influenza more effectively, especially in light of a new layer of regulation that may soon emerge in the form of the Trans-Pacific Partnership.

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## INTRODUCTION

Avian influenza outbreaks undermine consumer confidence in food safety, impair the perception of public health, and cripple the ability of corporations to maximize business opportunities. In order for countries, such as the three members of the North American Free Trade Agreement (NAFTA),[1] to successfully engage in transnational trade, it is imperative that they maintain the flow of trade while ensuring the protection of resident and member populations. While NAFTA's leaders are to be commended for revisiting the issue of avian influenza periodically, it may now be appropriate to recognize that past initiatives have been eloquently outlined, but ineffectively executed. More than words are needed. Regulatory action on the part of NAFTA is required.

To fully understand why prevention and management of the avian influenza virus are so important to NAFTA countries, and to implement effective change, we must first explore the economic, social, and policy decisions that have contributed to the current environment.

This paper begins with a brief background into avian influenza, particularly, what it is and how it is spread. It also describes the interrelation between the poultry and egg markets of Canada, Mexico, and the United States, and the importance of these members' industries to the global food-product market.

1. Tratado de Libre Comercio de América del Norte (TLCAN), Sistema De Información Sobre Comercio Exterior, http://www.sice.oas.org/trade/nafta_s/indice1.asp (last visited Aug. 19, 2016) (The Tratado de Libre Comercio de América del Norte (TLCAN) is also known as the North American Free Trade Agreement (NAFTA)).

Part I, "NAFTA's Uneasy Relationship with Poultry and Eggs," looks at the existing regulatory framework. It then posits that what is perceived, from the outside, to be a coordinated trilateral approach may in fact be a fragmented structure that slows outbreak response and may even worsen the existing problems of frequency, severity, and delay. It will then relate this fragmentation to the current state of NAFTA members' poultry and egg industries, by reviewing NAFTA's inadequate responses thus far and exploring the reasons why NAFTA has been ill-equipped to respond effectively to this issue.

Next, Part II, "Implications for Trade, if Changes are not Made" will challenge the assumption that avian influenza is primarily a discrete, agricultural supply-side concern. To the contrary, avian influenza eradication is of considerable macroeconomic importance to NAFTA members, and to trading partners worldwide. Members' domestic and foreign sales of poultry meat, a product which is increasingly recognized as an affordable and accessible source of protein, affect foreign suppliers and consumers as well.

Finally, in Part III, "NAFTA's Opportunity to Influence the Trajectory," this paper nominates a suitable role for NAFTA as it relates to avian influenza, and it attempts to identify ways in which NAFTA may act to minimize this very real biological threat. This paper calls for a timely response to the current challenge of avian influenza; with an additional layer of international regulation looming in the form of the 2016 Trans-Pacific Partnership, the time is now for NAFTA members to act clearly and decisively against avian influenza outbreaks.

## BACKGROUND

### *Avian Influenza, Defined*

Avian influenza, also known as AI or bird flu, is a communicable disease that resides primarily in waterfowl but can be transmitted through the air, respiratory secretions, or feces.[2] Avian influenza is a member of genera *Influenzavirus A*, which, unlike its *Influenzavirus B* and *C* counterparts, affects and is transmissible between human and non-human organisms.[3] Avian influenza is diverse in its makeup as well as its behavior – the two primary proteins hemagglutinin (H) and neuraminidase (N), which comprise influenza, have

2. SEC. & PROSPERITY P'SHIP OF N. AM., NORTH AMERICAN PLAN FOR AVIAN & PANDEMIC INFLUENZA 13 (2007), http://2001-2009.state.gov/documents/organization/91311.pdf [hereinafter PLAN FOR AVIAN INFLUENZA].

3. Teddy John Wohlbold & Florian Krammer, *In the Shadow of Hemagglutinin: A Growing Interest in Influenza Viral Neuraminidase and Its Role as a Vaccine Antigen*, 6 VIRUSES 2465, 2466 (2014), http://www.mdpi.com/1999-4915/6/6/2465/htm.

respectively eighteen and eleven different chromosomal characteristics, or alleles.[4] Together, these proteins may form at least 198 discrete influenza genotypes, allowing for RNA mutation.[5] In most iterations these genotypes are not easily transmissible and may pose very little human or animal risk. Low-risk genotypes are often referred to as "low-pathogenicity" avian influenza (LPAI), as they cause few signs of infection and are usually non-fatal.[6] Conversely, highly-pathogenic avian influenza (HPAI) strains – carried by waterfowl which migrate over thousands of miles in a matter of weeks, traversing continents[7] - may swiftly threaten the very stability of animal and human populations within a geographical area or across borders.

*How Avian Influenza is Spread*

Avian influenza is principally spread via the migratory patterns of aquatic wild birds, or waterfowl – the organisms most likely to carry the hemagglutinin-neuraminidase virus.[8] These birds are known to carry the virus for at least fourteen months without displaying signs of infection.[9] Dr. Kenneth Angel, a veterinary expert with the United States Department of Agriculture (USDA), explains, "waterfowl like geese and ducks don't necessarily get sick and can carry the virus for longer periods of time and from place to place as they migrate . . . ."[10] As these birds fly south from Canada or north from Mexico, they release droppings that land in or near open-air bird farms.[11] Some of these migratory birds may touch ground, mingling with commercial poultry flocks and transmitting the virus through direct contact.[12] Direct contact is also the means by which humans contract avian

4. CHRISTOPHER J. PARADISE & A. MALCOLM CAMPBELL, VARIATION AND POPULATION GENETICS (Monument Press 2016).

5. *Id.*

6. USDA, USDA AVIAN INFLUENZA FACT SHEET 2 (2015), http://www.usda.gov/documents/usda-avian-influenza-factsheet.pdf.

7. Michael D. Samuel et al., *The Dynamics of Avian Influenza in Western Arctic Snow Geese: Implications for Annual and Migratory Infection Patterns*, 25 ECOLOGICAL APPLICATIONS 1851, 1851 (2015).

8. *See* Andrea Morgan, *Avian Influenza: An Agricultural Perspective*, 194 J. INFECTIOUS DISEASES S139, S139 (2006), http://jid.oxfordjournals.org/content/194/Supplement_2/S139.full.

9. Samuel et al., *supra* note 7.

10. Sanderson Farms, *Deadly Bird Flu Flying South for Winter*, PR NEWSWIRE (Oct. 21, 2015, 10:00 AM), http://www.prnewswire.com/news-releases/deadly-bird-flu-flying-south-for-winter-300163826.html.

11. *Id.*

12. *See Big Farms Make Big Flu: Dispatches on Infectious Disease, Agribusiness, and the Nature of Science*, MONTHLY REVIEW, http://monthlyreview.org/product/big_farms_make_big_flu/ (stating "hundreds of thousands

influenza; poultry cullers (those workers who physically separate marketable from non-marketable birds) are especially vulnerable to avian influenza transmission.[13]

Another primary means of transmission may directly be related to bird-human contact: Industry practice. Several of the avian influenza outbreaks that occurred from 2005-2016 were eventually traced to lax adherence or non-adherence to industry best practices and state regulations. For example, virus analysis confirmed that avian influenza strain H5N2, in the United States during 2015, was inadvertently carried from farm to farm by humans and vehicles.[14] Unlike the migratory spread of avian influenza, which can vary based upon temperature or wind patterns, human movement is ostensibly more predictable – it would seem an easier task to limit or prevent human-to-human transmission of avian influenza. Biosecurity regulations, which implement sanitary best practices in the agricultural poultry and egg industries, appear to be the first line of defense in preventing the spread of avian influenza. And, avian influenza prevention is vital if NAFTA member countries' poultry and egg industries are to continue to enjoy dominance in the global market.

### *Economic Background*

Agribusiness, which includes the production of livestock, poultry, and eggs, "covers the supply of agricultural inputs, the production and transformation of agricultural products and their distribution to final consumers."[15] Within NAFTA's three member countries – Canada, Mexico, and the United States – the poultry-and-egg sector of agribusiness is significant, and significantly intertwined: Mexico is, per capita, the world's greatest consumer of eggs,[16] and until recently,[17]

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of hybrid poultry - each animal genetically identical to the next - packed together in megabarns, grown out in a matter of months . . . . Less well known are the deadly pathogens mutating in, and emerging out of, these specialized agro-environments.").

13. *Outbreaks of Avian Influenza in North America*, CTR. FOR DISEASE CONTROL & PREVENTION, http://www.cdc.gov/flu/avianflu/outbreaks.htm (Apr. 11, 2016) [hereinafter *Outbreaks in North America*].

14. Maryn McKenna, *Bird Flu Cost the US $3.3 Billion and Worse Could Be Coming*, NAT'L GEOGRAPHIC: PHENOMENA (July 15, 2015), http://phenomena.nationalgeographic.com/2015/07/15/bird-flu-2/.

15. Rural Infrastructure & Agro-Indus. Div., *Agribusiness Development,* FOOD & AGRIC. ORG. UNITED NATIONS, http://www.fao.org/ag/ags/agribusiness-development/en/ (last visited Aug. 19, 2016).

16. Terry Evans, *Global Poultry Trend 2013: Mexico Still No. 1 in Egg Consumption in the Americas*, THE POULTRY SITE (Feb. 26, 2014), http://www.thepoultrysite.com/articles/3076/global-poultry-trends-2013-mexico-still-no-1-in-egg-consumption-in-the-americas/.

17. GABRIEL HERNÁNDEZ & ALICIA HERNÁNDEZ, USDA FOREIGN AGRIC. SERV., MEXICO COPING WITH AI; BROILER MEAT AND TABLE EGGS SECTORS ON TRACK TO FULL RECOVERY,

the fifth-largest egg producer.[18] Canada sends 86 percent of its chicks and poults (i.e., baby turkeys), and 39 percent of its 28 million hatching eggs, by value, to the United States.[19] And, according to the United States Department of Agriculture (USDA) Foreign Agricultural Service, "approximately 98 percent of Mexico's chicken and turkey imports originate from the United States . . . ."[20] The latter number is unsurprising; despite continuing import restrictions on its products, the United States currently enjoys a 25 percent share of the global broiler (chicken) export market.[21]

## PART I: NAFTA'S UNEASY RELATIONSHIP WITH POULTRY AND EGGS

*The poultry and egg industries across Canada, Mexico, and the United States, while economically interrelated, are less structurally integrated than other industries under NAFTA. This lack of integration may be traced to the fragmented nature of agribusiness' incorporation into NAFTA. And, while lack of integration bodes poorly for production efficiencies and economies of scale, this paper posits that the lack of integration and subsequent fragmentation in poultry and egg regulation has also created the deeper problem of inadequate response to the avian influenza pandemic.*

### *Structural Fragmentation: NAFTA's Bilateral Structure*

NAFTA's inability to craft and implement an adequate response to the avian influenza problem may stem from the structure of NAFTA itself. It is important to note that, unlike more recent multinational pacts, NAFTA is not a trilateral agreement but a set of three bilateral agreements – United States-Canada, Canada-

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TURKEY MANAGING TO KEEP PACE 2 (2015), http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Poultry%20and%20Products%20Annual_Mexico%20City_Mexico_9-3-2015.pdf (reporting that the 2012-2013 avian influenza outbreaks in Mexico had the effect of closing several foreign markets. The effect of outbreaks upon trade will be discussed in Part II of this paper.).

18. *See Mexico is World's Seventh Largest Producer of Annual Protein*, WATTAGNET.COM (Jan. 7, 2015) http://www.wattagnet.com/articles/20649-mexico-is-world-s-seventh-largest-producer-of-animal-protein (stating that in 2013, Mexico produced 2,516,094 metric tons of eggs).

19. *Canada's Poultry and Egg Industry Profile*, AGRIC. & AGRI-FOOD CAN. (May 24, 2013), http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/poultry-and-eggs/poultry-and-egg-market-information/industry-profile/?id=1384971854389.

20. HERNÁNDEZ & HERNÁNDEZ, *supra* note 17, at 7.

21. *See generally* FOREIGN AGRIC. SERV., USDA, LIVESTOCK AND POULTRY: WORLD MARKETS AND TRADE (2016), http://apps.fas.usda.gov/psdonline/circulars/livestock_poultry.pdf.

Mexico, and Mexico-United States.[22] At the time of negotiation, this unique bilateral structure was justified, as the Canada-United States Free Trade Agreement (CUSTA) had been signed in 1989, just three years prior to NAFTA's ratification in 1992;[23] signatories agreed to incorporate the prior agreement into NAFTA.[24]

While the bilateral structure allowed Canada and the United States to retain the bulk of previously-negotiated tariff schedules and agricultural concessions, it also caused a delay in the integration of agricultural trade into NAFTA,[25] a delay which had the effect of keeping the agricultural sector from enjoying many of the benefits of cross-border integration and collaboration. Further effect upon agriculture came in 1995, from a new tariff structure imposed by the Uruguay Round Agreement on Agriculture.[26] Bilateralism often fosters protectionism, and NAFTA members did not behave differently in this respect: One major barrier of chicken trade between the United States and Mexico was not dropped until 2003, through a separate bilateral agreement, and even then a quota was placed upon product entry into Mexico.[27] Remaining agricultural barriers under NAFTA were not removed until January 2008.[28] As recently as 2011, the United States and Mexico were involved in a dispute concerning importation of chicken thighs into Mexico.[29] Where a NAFTA member has lifted trade tariffs from a fellow member – as Mexico did in December 2015, regarding United States shipments of fresh, refrigerated, and frozen chicken parts into Mexico[30] – such changes have been

22. STEVEN ZAHNISER ET AL., USDA, WRS-15-01, NAFTA AT 20: NORTH AMERICA'S FREE-TRADE AREA AND ITS IMPACT ON AGRICULTURE 2 (2015), http://www.ers.usda.gov/media/1764579/wrs-15-01.pdf.

23. *Id.* at 1.

24. C. Parr Rosson et al., *The North American Free Trade Agreement and U.S. Agriculture*, SOUTHERN AGRIC. WORLD ECON., http://www.ces.ncsu.edu/depts/agecon/trade/nine.html (last visited Aug. 19, 2016).

25. STEVEN ZAHNISER & ZACHARY CRAGO, USDA, WRS-09-03, NAFTA AT 15: BUILDING ON FREE TRADE 8 (2009), http://www.ers.usda.gov/media/160163/wrs0903.pdf.

26. *Id.* at 4.

27. PROYECTO EVALUACIÓN ALIANZA PARA EL CAMPO 2006, SECRETARÍA DE AGRICULTURA, GANADERÍA, DESARROLLO RURAL, PESCA, Y ALIMENTACIÓN ("SAGARPA"), CONTEXTO INTERNACIONAL PARA EL SECTOR AGROALIMENTARIO MEXICANO 24 (2007), http://www.sagarpa.gob.mx/programas2/evaluacionesExternas/Lists/Otros%20Estudios/Attachments/24/contexto_internacional.pdf; *see also* ZAHNISER & CRAGO, *supra* note 25, at 20.

28. SAGARPA, *supra* note 27, at 24.

29. ZAHNISER ET AL., *supra* note 22, at 3.

30. Diario Oficial de la Federación, Secretaria de Gobernación de México. "ACUERDO que modifica al diverso por el que se da a conocer el cupo para importar, con el arancel-cupo establecido, carne de pollo." December 22, 2015, http://dof.gob.mx/nota_detalle.php?codigo=5420996&fecha=22/12/2015.

spurred more by immediate financial needs (e.g., lower retail prices and higher food supply levels for its citizens) rather than long-term trade goals.

Generally, NAFTA's unique bilateral structure, as it relates to agriculture, has created uneven levels of protectionism and market access within the NAFTA member countries. A bilateral structure births bilateral policy approaches and resolutions – which may be inefficient, or at times, may be at cross-purposes with one another – instead of trilateral, unified approaches which may be more appropriate and effective.

NAFTA has implemented some trilateral approaches, for example, the Sanitary and Phytosanitary Measures Committee's establishment of a Technical Working Group for Meat, Poultry, and Egg Inspection;[31] these efforts, however, have focused more upon dispute resolution than cooperation.[32] Other tripartite agreements have focused upon differentiating the treatment that each member will receive for certain agricultural goods: Neither Canada nor the US may subsidize direct poultry exports to each other, for example. However, NAFTA does allow both countries to subsidize products exported to Mexico, to counter the low cost of goods imported into Mexico by non-NAFTA members.[33] The result is a historical record that is light on true multilateral cooperation, where the poultry and egg industries are concerned.

*Low Market Integration as One Effect of Bilateralism and Fragmentation*

NAFTA members' presence in the global poultry and egg market has multiplied exponentially since NAFTA's ratification in 1992. It should be mentioned, again, that cross-border trade, within NAFTA member countries, has also increased exponentially since NAFTA's inception. When poultry and egg trade, however, is compared to other areas of intra-NAFTA agricultural trade, such as high cross-border collaboration in the manufacture of processed foodstuffs and value-added products,[34] it is clear that market integration of the poultry and egg

31. Terry Norman, Trade Policy Consultant, Sanitary and Phytosanitary Measures in NAFTA 4 (June 29, 2005), http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=608006.

32. KARL MEILKE, RAPID, AN APPRAISAL OF THE SPS PROVISIONS OF THE NORTH AMERICAN FREE TRADE AGREEMENT 34 (2001), http://pdf.usaid.gov/pdf_docs/Pnact593.pdf (noting that, as of 2001, only two objectives had been identified by this Technical Working Group: To exchange information on proposed changes, and exchange information on import re-inspection procedures.).

33. FOREIGN AGRIC. SERV., USDA, FACT SHEET: NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA) 3 (2008), http://www.fas.usda.gov/sites/development/files/nafta1.14.2008_0.pdf.

34. U.S. CHAMBER OF COMMERCE, NAFTA TRIUMPHANT: ASSESSING TWO DECADES OF GAINS IN TRADE, GROWTH, AND JOBS 11 (2015),

industries has been, and remains, quite low.[35] Price is one traditional measure of level of market integration; as such, poultry prices should show some measure of correlation across the three NAFTA markets, where price movement is concerned. A quick check of chicken leg quarter prices, as of March 2016, shows a national US price of $1.509 per pound.[36] A study which, after adjusting for cost-of-living differences and other variables, would calculate the level of poultry/egg market integration within NAFTA countries based upon price factors, could prove useful to this discourse.

### *Geographic Fragmentation, in the form of Regionalism, Hampers Collaborative Efforts*

Regionalism, loosely defined as the practice of quarantining certain areas of a country, and maintaining open trade in other areas of that country,[37] likely preserved NAFTA members' trading opportunities regarding the poultry and egg industries, in the face of recurring avian influenza outbreaks. One major drawback of the regionalism approach, however, is its compartmentalization: While its regions enjoy disease-free status, the country is still not recognized as disease-free; this lack of designation appears to have a hugely negative impact upon global trade. Furthermore, when avian influenza outbreaks arise within a country, unaffected regions are not automatically granted the "disease-free" designation but must go through inspections, which may take weeks or months. Finally, the designation of discrete regions as disease-free, while their countries are not, may not always conform with the World Trade Organization's Sanitary and

https://www.uschamber.com/sites/default/files/documents/files/nafta_triumphant_updated_2015.pdf.

35. ZAHNISER & CRAGO, *supra* note 25, at 9.

36. *Average Retail Food and Energy Prices, U.S. and Midwest Region*, BUREAU OF LAB. STATS.: MID-ATLANTIC INFO. OFF., http://www.bls.gov/regions/mid-atlantic/data/AverageRetailFoodAndEnergyPrices_USandMidwest_Table.htm (last visited Aug. 19, 2016).

37. Steven Zahniser & Adriana Herrera Moreno, *North American Agricultural Trade Policy: Are Super-Regionalism and Deeper Regional Integration the "Next Big Thing" After NAFTA?*, 15 ESTEY CTR. J. INT'L L. & TRADE POL'Y 199, 201 (2014).

Phytosanitary Measures' "equivalence" rule.[38,39]

*NAFTA's Deference to Autonomy as a Cause of Regulatory Fragmentation*

Beyond policy fragmentation and the low level of integration experienced in the poultry and egg industries under NAFTA, NAFTA's deference to autonomy, exemplified in its adherence to the cooperation principle of "least restrictive/as necessary," has directly contributed to its inaction regarding avian influenza. Drafters of both the 2007 and 2012 iterations of the North American Plan for Animal & Pandemic Influenza state, "[t]he imposition and removal of veterinary or public health measures on the movement of people, animals and goods, under our national laws and international obligations, will not be more restrictive or maintained for a longer period than necessary to achieve the veterinary or public health objective, so as to avoid unnecessary interference with the movement of people and goods within North America."[40]

NAFTA, thus hesitates to introduce or enforce rules that may act as "trade irritants," as actions that irritate or disrupt trade may be characterized as unnecessary.[41] What may be more irritating, however, is the regulatory fragmentation inherent in the current framework. Besides local agencies, state boards of health, and national agencies such as the United States' Centers for Disease Control and Prevention/US Department of Agriculture/US Food and Drug Administration, Canada's Public Health Agency of Canada/Canadian Food Inspection Agency, and Mexico's Secretaría de Salud/Secretaría de Economía, both government and industry must respond to international bodies such as the World Health Organization (WHO) and the World Health Assembly (WHA), the World Organization for Animal Health (FKA the Office International de

38. MICHAEL B.G. FROMAN, OFFICE OF THE U.S. TRADE REPRESENTATIVE, 2014 REPORT ON SANITARY AND PHYTOSANITARY MEASURES 35 (2014), https://ustr.gov/sites/default/files/FINAL-2014-SPS-Report-Compiled.pdf (offering an example of national equivalence in import standards as it operates, under NAFTA and other multilateral agreements by stating, "[w]hile Chile has expressed an interest in working with the United States to resolve this issue [rejection of salmonid egg imports from the United States] through continuing review of U.S. and state surveillance programs, it has also recommended that the states of Washington and Maine apply for equivalence determinations. However, such determinations would be time consuming and appear to be unwarranted given that Chile has yet to identify a specific health concern relevant to U.S. products.").

39. *The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement): Article 4*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm (last visited August 19, 2016).

40. PLAN FOR AVIAN INFLUENZA, *supra* note 2, at 2.

41. *See* Carlo Dade, *New U.S. Trade Irritant Looms for Saskatchewan*, REGINA LEADER-POST (Dec. 26, 2015, 6:30 AM), http://leaderpost.com/opinion/columnists/new-u-s-trade-irritant-looms-for-saskatchewan.

Epizooties, and continuing formal use of the acronym OIE), the World Trade Organization (WTO), the United Nations (UN), or the Food and Agriculture Organization (FAO). The simple act of licensing, a duty reserved to states and provinces under traditional police powers, is at times complicated: Note that, twenty years on from NAFTA enactment, despite relatively high trade barriers in the sector, a number of poultry and egg producers are no longer citizens of solely one state or country. They may have expanded operations and offices to two or three member nations; they are "borderless."[42]

Even when avian influenza is not part of the discourse, transnational regulatory adherence has shown itself to be cumbersome and unwieldy. Consider the recent experience of Mexican suppliers wishing to provide eggs to the US market:

> [USDA's Foreign Agricultural Services] post continues working to explain to Mexican officials the differences in regulatory authority and the certification ability of U.S. government agencies with oversight for eggs, egg food products, and processed eggs. Hatching eggs are under the authority of the Animal and Plant Health Inspection Service (APHIS), processed egg products like egg whites, yolks, and albumin are under the authority of the Food Safety and Inspection Service (FSIS), table eggs are under the authority of the Agricultural Marketing Service (AMS), and egg food products like hard boiled eggs or frozen egg omelets are under the authority of the U.S. Food and Drug Administration, but certified for Mexico by AMS. More recently, food preparations (including egg or egg products) were added to the list of products that are overseen either by FSIS or AMS.[43]

The net effect of so much oversight is that there is relatively little actual oversight. This apparent confusion leads to lax practices, late reporting, and delayed remediation of avian influenza events.

*Consequences of Such Fragmentation, Manifested in the Response to Outbreaks*

In the fragmented regulatory environment that characterized agriculture during the first decade of NAFTA, all NAFTA members suffered from avian influenza. Central Mexico suffered eighteen outbreaks of the H5N2 virus, from 1993-1995.[44] Canada and the United States were plagued by several unrelated

42. SEC. & PROSPERITY P'SHIP OF N. AM., NORTH AMERICAN PLAN FOR ANIMAL & PANDEMIC INFLUENZA 49 (2012), http://www.phe.gov/Preparedness/international/Documents/napapi.pdf [hereinafter PLAN FOR ANIMAL INFLUENZA].

43. HERNÁNDEZ & HERNÁNDEZ, *supra* note 17, at 16.

44. Maricarmen Garcia et al., *Heterogeneity in the Haemagglutinin Gene and Emergence*

incidences of human-contracted avian influenza, from 2002-2004.[45]

In 2005, two significant avian influenza outbreaks – one in Mexico and one in Abbotsford, British Columbia[46] – prompted the depopulation, or slaughter, of more than 17 million chickens. These and similar events worldwide prompted the World Organization for Animal Health, or OIE, to mandate that countries report to it all confirmed cases of low-pathogenic avian influenza subtype H5 and H7.[47] The USDA Animal and Plant Health Inspection Service (APHIS) responded with stepped-up efforts to provide information, monitoring, and testing to poultry farms within the United States.[48]

NAFTA also responded, through the then-extant Security and Prosperity Partnership of North America (Partnership). In 2007, the Partnership issued the first North American Plan for Avian & Pandemic Influenza (NAPAPI).[49] In it, the Partnership acknowledged that the recurrence of avian influenza posed a grave threat to animal as well as human populations, and it outlined steps that could be taken to minimize the severity of avian influenza and to prevent its transmission to humans,[50] including a trilateral approach: "trilateral emergency coordination and communication; joint exercises and training; response to outbreaks in animals; surveillance among animals and in humans; laboratory practices; research; personnel exchange; screening for air, sea and land travel; and maintaining continuity for critical infrastructure and key services."[51] The NAPAPI called for a body, the North American Coordinating Body for Avian and Pandemic Influenza (Body), to lead and to administer the details of the Plan;[52] following a period of

*of the Highly Pathogenic Phenotype Among Recent H5N2 Avian Influenza Viruses from Mexico*, 77 J. GEN. VIROLOGY 1493, 1493 (1996).

45. *Outbreaks in North America*, *supra* note 13.

46. Dennis A. Senne, *Avian Influenza in North and South America, 2002-2005*, 51 AVIAN DISEASES 167, 168 (2007), http://naldc.nal.usda.gov/download/10453/PDF.

47. Press Release, USDA, Avian Influenza: Low Pathogenic H5N1 vs. Highly Pathogenic H5N1 (July 23, 2007), http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2006/08/0296.xml.

48. Press Release, USDA, USDA Efforts and Response to Avian Influenza in the United States (Oct. 26, 2005), http://www.usda.gov/wps/portal/usda/usdamediafb?contentid=2005/10/0459.xml&printable=true&contentidonly=true.

49. *See generally Plan for Avian Influenza*, *supra* note 2.

50. *Id.* at 13-17.

51. U.S. DEP'T OF STATE, COMBATTING AVIAN FLU IN NORTH AMERICA: THE NORTH AMERICAN PLAN FOR AVIAN AND PANDEMIC INFLUENZA 1 (2007), http://2001-2009.state.gov/documents/organization/91387.pdf.

52. Donald H. Avery, *The North American Plan for Avian and Pandemic Influenza: A Case Study of Regional Health Security in the 21st Century*, GLOBAL HEALTH GOVERNANCE,

extensive trilateral drafting and review, the Body presented a detailed anti-avian influenza plan in April 2008.[53] The following year, the World Health Organization also issued a global action plan, "Pandemic Influenza Preparedness and Response: A WHO Guidance Document."[54]

During the next influenza outbreak, the swine flu epidemic that occurred in Mexico in 2009, the Body's plan was hailed as a helpful tool in battling the communicable disease: US and Canadian efforts to support Mexico's upgrade of laboratory and software technology, and cooperation between Mexico's Secretariat of Health, Canada's National Microbiology Laboratory, and the US Centers for Disease Control and Prevention, enabled scientists to identify the virus and relay that information to the WHO as quickly as possible.[55] It must be noted, however, that 159 individuals in Mexico,[56] and up to 284,000 individuals worldwide,[57] died as a result of this outbreak, which was not reported until weeks[58] after the initial swine flu had reassorted itself with avian and human influenza viruses[59] and spread to more than thirty-five countries before it was finally subdued.

In 2012, President Barack Obama, President Felipe Calderon, and Prime

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Spring 2010, at 4.

53. *Id*. at 10.

54. WORLD HEALTH ORG. [WHO], *NAPAPI: North American Countries Join Forces to Prepare for Pandemics* (Apr. 2, 2012), http://www.who.int/influenza_vaccines_plan/news/napapi_2_april_2012/en/.

55. Avery, *supra* note 52, at 18.

56. *World Battles Swine Flu as Death Toll Rises*, CNN: VITAL SIGNS (Apr. 28, 2009, 12:19 AM), http://www.cnn.com/2009/HEALTH/04/28/swine.flu.international/.

57. Fatimah S. Dawood et al., *Estimated Global Mortality Associated with the First 12 Months of 2009 Pandemic Influenza A H1N1 Virus Circulation: A Modelling Study*, 12 THE LANCET 687 (2012).

58. David Brown, *System Set Up After SARS Epidemic was Slow to Alert Global Authorities*, WASH. POST (Apr. 30, 2009), http://www.washingtonpost.com/wp-dyn/content/article/2009/04/29/AR2009042904911_pf.html; *see also* Tim Lynch & Paul M. Cox, *The 2009 H1N1 Outbreak: A Chaotic North American Trigger with Evolving Global Consequences*, *in* THE IMPACT OF NAFTA ON NORTH AMERICA: CHALLENGES OUTSIDE THE BOX 237-51, (Imtiaz Hussain ed., 2010), http://www.infolynk.ca/health_care/CH12-A-Chaotic-North-American-Trigger-with-Evolving-Global-Consequences.pdf.

59. *Reassortment*, WIKIPEDIA, https://en.wikipedia.org/wiki/Reassortment (last visited Aug. 19, 2016) (Reassortment involves more than one strain of the influenza virus. Wikipedia explains: "If a single host (a human, a chicken, or other animal) is infected by two different strains of the influenza virus, then it is possible that new assembled viral particles will be created from segments whose origin is mixed, some coming from one strain and some coming from another. The new reassortment strain will share properties of both of its parental lineages. Reassortment is responsible for some of the major genetic shifts in the history of the influenza virus.").

Minister Stephen Harper issued an updated NAPAPI, at the North American Leaders Summit.[60] The 2012 NAPAPI reiterated the goals of the 2007 NAPAPI and this time specified the need to "improve coordination of preparedness and response. . . [and] [e]xplore the need for mutual assistance protocols . . . ."[61] The 2012 NAPAPI also established the North American Senior Coordinating Body and its subordinate Health Security Working Group, to develop "comprehensive, coordinated, and evidence-based implementation actions" guided by NAPAPI principles.[62]

Two years later, to reinforce the three countries' commitment to battling avian influenza, the three respective Ministers of Health – Minister Rona Ambrose of the Public Health Agency of Canada, Kathleen Sebelius of the United States Department of Health and Human Services, and Martha Juan Lopez, Mexico's Secretariat of Health – each signed in triplicate a "Declaration of Intent to Coordinate Health Emergency Public Communications."[63] This joint Declaration, which was not signed into law, announced that all three NAFTA members would work to develop swift, effective, and coordinated responses to avian influenza outbreaks.[64]

Nevertheless, between 2012 and 2015, NAFTA members experienced the most devastating outbreaks, in terms of financial losses, animal health, and the risk to human populations, since NAFTA's inception:

- From June to August, 2012, producers in Los Altos de Jalisco, Mexico slaughtered a total of 22.3 million chickens – half of which were slaughtered before the Mexican government was even notified that an outbreak had occurred.[65] Financial cost of the Los Altos outbreak was estimated to be between $350-504 million;[66]

60. PLAN FOR ANIMAL INFLUENZA, *supra* note 42, at 3.

61. *Id.* at 8.

62. *Id.* at 4-5.

63. *See* WORLD HEALTH ORG. [WHO], *Declaration of Intent to Coordinate Health Emergency Public Communications Between the Department of Health and Human Services of the United States of America, the Public Health Agency of Canada, and the Secretariat of Health of the United Mexican States* (May 20, 2014), http://www.hhs.gov/sites/default/files/wha-declaration-us-canada-mexico-en.pdf.

64. *Id.*

65. *Mexico Slaughters 22.3M Birds to Prevent Spread of Flu*, FOX NEWS LATINO (Sept. 12, 2012), http://latino.foxnews.com/latino/health/2012/09/12/mexico-slaughters-223-mn-birds-to-prevent-spread-flu/.

66. *Id.*; *see also* Benjamin Ruiz, *How H7N3 Avian Influenza Spread in Mexico*, WATTAGNET.COM (May 8, 2015), http://www.wattagnet.com/articles/22514-how-h7n3-avian-influenza-spread-in-mexico.

- In February 2013, authorities in the central Mexican state of Guanajuato mandated the slaughter of 1.2 million birds, across 18 farms, infected with the H7N3 strain of avian influenza;[67]

- At least nine farms in British Columbia, Canada, experienced a H3N2 viral outbreak during December 2014;[68]

- Between December 2014 and October 2015, over 233,000 American poultry farms suffered the effects of avian influenza. Over 49 million chickens and turkeys were euthanized, costing lost revenue of $390 million in just the first quarter of 2015,[69] and a total industry cost of $3.3 billion and US government cost of $690 million in recovery payments to farmers;[70] and

- Iowa, the United States' top egg-producing state,[71] reported in August 2015 that avian influenza cost it US$427 million in value-added income, and 8,500 egg-dependent jobs.[72]

In spite of efforts to address avian influenza on the multinational NAFTA level, NAFTA members continue to experience the cycle of outbreaks followed by import restrictions both inside and outside of the NAFTA region. Avian influenza is harmful to NAFTA members as exporters to the region and the world, and it continues to have a global negative impact in 2016. Moreover, the sheer scale of such outbreaks increases the likelihood that a human will make physical contact with these bird-borne strains, and that the ensuing genetic mutation will spark a human pandemic. Finally, these losses impact another component of public health: food insecurity. The loss of these protein sources harms human and animal populations who rely upon them for nutrition, especially as many multinational regions continue to experience economic stagnation.[73]

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67. Rafael Romo & Catherine E. Shoichet, *Mexico Slaughters 1.2 Million Chickens Infected with Bird Flu*, CNN (Feb. 28, 2013, 11:55 AM), http://www.cnn.com/2013/02/27/health/mexico-bird-flu/.

68. *British Columbia Influenza Surveillance Bulletin: December 14 to 27, 2014*, BC CTR. FOR DISEASE CONTROL 1 (Jan. 2, 2015), http://www.bccdc.ca/health-professionals/data-reports/influenza-surveillance-reports.

69. Farms, *supra* note 10.

70. McKenna, *supra* note 14.

71. *About the U.S. Egg Industry*, AM. EGG BD., http://www.aeb.org/farmers-and-marketers/industry-overview (June 2, 2016).

72. Laurie Johns, *Iowa Farm Bureau Study Shows Bird Flu Outbreak is Costing Iowa Nearly 8,500 Jobs and Nearly $427 Million in Lost Income and Taxes*, IOWA FARM BUREAU (Aug.17, 2012), https://www.iowafarmbureau.com/Article/Iowa-Farm-Bureau-study-shows-bird-flu-outbreak-is-costing-Iowa-nearly-8500-jobs-and-425-million-in-lost-income.

73. Aleksandra Sagan, *Food Insecurity Concerns Grow in Canada as Prices Rise*,

In 2016, NAFTA leaders again responded. On January 19, 2016, representatives from all three governments, accompanied by industry leaders, signed a "Letter of Understanding" in Los Cabos, Mexico.[74] Just four days earlier, on January 15, 2016, ten farms in Dubois County, Indiana, confirmed an H7N8 avian flu outbreak which claimed over 400,000 commercial birds, including 155,000 facially uninfected chickens.[75]

## PART II: IMPLICATIONS FOR TRADE, IF CHANGES ARE NOT MADE

Economic implications for trade, if avian influenza is not effectively managed, have already been realized to a certain extent. "Disease pressure" has already impacted spending at the consumer level, as reduced supply leads to higher prices that can exceed a consumer's spending preference or ability.[76] Specifically, disease pressure occurred in the American consumer market in November 2015,[77] following the Summer 2015, avian influenza outbreak that eliminated 5 percent of the turkey population.[78] Turkey consumers in the United States were forced to pay up to one-third more in retail pricing for larger-sized turkeys, as a result of the low stock of larger-sized birds. That such a significant price effect was felt several months after the supply-side event occurred is typical for the poultry industry – generally, even after an avian influenza outbreak has been contained, the delay in

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HUFFINGTON POST: BUSINESS CAN. (Feb. 19, 2016, 8:59 AM), http://www.huffingtonpost.ca/2016/02/19/low-income-families-struggle-to-feed-their-kids-healthy-foods-as-prices-rise_n_9271244.html.

74. *See* Press Release, USA Poultry & Egg Export Council, U.S., Mexico, Canada Sign Letter of Understanding on AI (Jan. 19, 2016), http://www.usapeec.org/p_documents/press_506518616.pdf; *see also WattAgNet: Avian Flu Arrangement Signed by US, Mexico, Canada*, ANEVEI (Jan. 20, 2016), http://www.anevei.nl/action/news/item/3343/wattagnet:-avian-flu-arrangement-signed-by-us,-mexico,-canada.html?themeid=23&pageid.

75. Animal & Plant Health Inspection Serv., *USDA Confirms Highly Pathogenic H7N8 Avian Influenza in a Commercial Turkey Flock in Dubois County, Indiana*, USDA (Jan. 15, 2016, 11:05 AM), http://content.govdelivery.com/accounts/USDAAPHIS/bulletins/1306954; *Indiana Bird Flu Response Covers Huge Area*, THE POULTRY SITE (Jan. 21, 2016), http://www.thepoultrysite.com/poultrynews/36465/indiana-bird-flu-response-covers-huge-area/.

76. ROBERT H. BEACH ET AL., USDA, THE EFFECTS OF AVIAN INFLUENZA NEWS ON CONSUMER PURCHASING BEHAVIOR: A CASE STUDY OF ITALIAN CONSUMERS' RETAIL PURCHASES 1 (2008), http://www.ers.usda.gov/media/205406/err65_1_.pdf.

77. Lydia Mulvany et al., *Thanksgiving Turkeys Cost More Than Ever After Bird Flu Wipeou*t, BLOOMBERG (Nov. 12, 2015, 12:21 PM), http://www.bloomberg.com/news/articles/2015-11-12/thanksgiving-turkeys-cost-more-than-ever-after-bird-flu-wipeout.

78. *Avian Influenza*, MINN. TURKEY GROWERS ASS'N, http://minnesotaturkey.com/farmers/hot-topics/avian-influenza/ (last visited Aug. 19, 2016).

repopulation means that a lag will be created between the containment of the outbreak and getting new products to market for consumers to purchase.[79] In this instance disease pressure particularly affected the United States, as America is the world's largest producer, exporter, and consumer of turkeys.[80]

A second economic implication exists, if NAFTA member countries do not make consistent headway in the fight against avian influenza: Their barriers to global entry markets will remain high, even after the scientific justification for barriers has ended. One writer reports: "Mexico's poultry exports suffered a dramatic 30% reduction last year in comparison with the year before, which had already felt the effects of avian influenza, to stand at 11,649 tons, with a value of US$26.8 million."[81]

Third, one should take note of the social implications of avian influenza outbreaks, namely the division of labor, by which some workers are placed in contact with flocks more frequently than their colleagues. These workers, such as the aforementioned "cullers," are more susceptible to avian influenza contraction and human-to-human transmission than others. With the elevated risk inherent in these job duties, only the economically disadvantaged will agree to take on those tasks which also threaten human health.

Fourth, if NAFTA fails to act, its member countries will continue to act on a unilateral – or bilateral – basis. These uncoordinated actions could lead to unintended societal and health consequences that weaken our citizens instead of protecting them. Earlier in 2016, reporters discovered that Iowa and other states had unilaterally extended the FDA moratorium on chicken farm inspections, following the devastating avian influenza outbreak of 2015.[82] The failure to inspect for avian influenza led directly to the proliferation of other infectious diseases, such as salmonella; eighty restaurant customers in Dayton, Ohio, contracted salmonella as a result of one missed poultry inspection.

Finally, NAFTA's failure to respond has implications for animal welfare. Avian influenza – inasmuch as it triggers the mass killing of facially and

79. Chris Fleisher, *Bird Flu Contained, but Egg Prices Continue to Run Wild*, TRIB LIVE (Aug. 14, 2015, 12:01 AM), http://triblive.com/business/headlines/8897643-74/eggs-egg-prices.

80. Marsha Laux, *Turkey Profile*, AGRIC. MKTG. RES. CTR. (Nov. 2013), http://www.agmrc.org/commodities-products/livestock/poultry/turkey-profile/.

81. Humberto Arenas Reyes, *How has the Mexican Poultry Sector Fared Under NAFTA?*, WATTAGNET.COM (July 24, 2014), http://www.wattagnet.com/articles/19592-how-has-the-mexican-poultry-sector-fared-under-nafta.

82. Linda Larsen, *Iowa Suspended Egg Facility Inspections After Bird Flu Outbreak*, FOOD POISONING BULLETIN (Mar. 21, 2016), https://foodpoisoningbulletin.com/2016/iowa-suspended-egg-facility-inspections-after-bird-flu-outbreak/.

biologically uninfected, i.e., healthy, poultry, without the concomitant nutritional benefit to human or animal consumers – is as much an animal rights issue as it is a trade, economic, labor, or hunger issue. The practice of culling, as a means of preventing the spread of an outbreak, exacerbates this effect. Hundreds of millions of healthy birds are culled, or exterminated, along with their infected counterparts, even though they display no signs of illness at the moment that an outbreak is confirmed.[83]

## PART III: NAFTA'S OPPORTUNITY TO INFLUENCE THE TRAJECTORY

A brief review of the avian influenza outbreak pattern within NAFTA countries suggests that the outbreaks are growing in frequency and severity, even as NAFTA dedicates more study and analysis to the issue. Avian influenza requires a regulatory approach that, while not burdensome or punitive in nature, is direct and clear.

### *Recent Policy Changes Designed to Encourage Member Coordination*

In recent years, NAFTA has heralded a shift from coordination to "regulatory cooperation."[84] For example, NAFTA has proposed to simplify its poultry export regulations.[85] If such simplification can eventually be realized in the area of export regulations, then NAFTA should have similar success when approaching the idea of simplified regulatory investigation and reporting. Any effort that NAFTA will make to decrease the incidences of avian influenza, however, will be held up to "trade impact assessment" scrutiny. And, all regulatory efforts should mirror the objective laid out in the USDA: To generally "embrace domestic support policies that have minimal trade or production distorting effects."[86] The suggestions included below endeavor to keep trade irritants to a minimum, if they are to exist at all.

It may not be feasible for producers to expect negligible impact upon trade, where regulations are concerned. The current state, however, which does allow lax adherence to existing regulations or gaps in existing regulations or standards, has also created a global environment where producers are prohibited access to

83. *See generally* Angela J. Geiman, "*It's the Right Thing to Do:" Why the Animal Agriculture Industry Should Not Oppose Science-Based Regulations Protecting the Welfare of Animals Raised for Food*, 106 Mich. L. Rev. First Impressions 128, 129 (2008) (discussing the higher standards required for all live-stock production and meatpacking industries).

84. ZAHNISER & CRAGO, *supra* note 25.

85. *Id.*

86. John Wainio, *Agreement on Agriculture and Beyond*, USDA (June 4, 2012), http://www.ers.usda.gov/topics/international-markets-trade/trade-policy/world-trade-organization-(wto)/agreement-on-agriculture-and-beyond/domestic-support-and-policies.aspx.

markets worldwide. A return to sound, coordinated regulatory practices may well mean a return to greater profitability.

*Reporting & "Notifiable Avian Influenza"*

The first effort that NAFTA should make is in the area of reporting avian influenza outbreaks. Currently, the World Organization for Animal Health (OIE) sets the guidelines for what constitutes "notifiable avian influenza."[87] Since 2006, the OIE has required all identified H5 and H7 strains of avian influenza to be reported.[88]

The existing challenge, however, is that producers must identify the viral agent prior to reporting the outbreak. Laboratories may not return test results for a matter of days or weeks, due to the need to test for 198 (or more than 198, if the virus reassorts itself into a highly pathogenic novel strain)[89] viral strains. During this waiting period for test results, avian influenza may sweep through one commercial flock, before continuing its march toward other flocks. On January 11, 2016, the Animal Plant and Health Inspection Service of the USDA released a white paper espousing diagnostic laboratory readiness throughout the United States.[90] Testing is valuable for mapping, and for monitoring the spread of disease retrospectively. Due to the vulnerability, however, of commercial flocks, a proactive preliminary "presumptive positive"[91] report, from the producers to NAFTA, would greatly add value. More importantly, it would shorten the timeline between awareness and action, and would alert regulatory overseers to the need for targeted support.

A rapid diagnostic test, in fact, was developed by the United States' Agricultural Resource Service in 2002. The ARS reported that it "now diagnoses avian influenza within three hours, compared with up to two weeks required for previous tests."[92] This type of test should be made via NAFTA, to member

87. OIE TERRESTRIAL MANUAL, AVIAN INFLUENZA (2015), http://www.oie.int/fileadmin/Home/fr/Health_standards/tahm/2.03.04_AI.pdf.

88. SHERRILYN WAINWRIGHT ET AL., EMPRESS WATCH, HIGHLY PATHOGENIC AVIAN INFLUENZA IN MEXICO (H7N3) 2 (2012), http://www.fao.org/3/a-an395e.pdf.

89. *How the Flu Virus Changes*, FLU.GOV, http://www.flu.gov/about_the_flu/virus_changes/ (last visited Aug. 19, 2016).

90. ANIMAL & PLANT HEALTH INSPECTION SER., USDA, 2016 HPAI PREPAREDNESS AND RESPONSE PLAN 11 (2016), https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/hpai-preparedness-and-response-plan-2015.pdf.

91. In general terms, a presumptive positive test proves that some type of strain of the virus likely resides in the system of the tested organism. A confirmatory test, in contrast, would identify the specific virus.

92. Agric. Research Serv., *Avian Influenza*, USDA (Sept. 6, 2013),

countries, so that the time gap between the first observation and the diagnostic determination is as short as possible – preferably hours, not days.

The OIE noted that on April 19, 2016, an outbreak of H7N3 Highly Pathogenic Avian Influenza was observed in the Tepanco de López locality of Puebla, Mexico, and reported two days later. A total of five birds were tested.[93] Reporting should occur at least this quickly, in order for avian influenza to be arrested. Additionally, non-commercial entities, particularly those who collaborate in the areas of infectious disease education and public health, such as the US-Mexico Border Health Commission,[94] will also benefit from more rapid, accurate reporting.

NAFTA should also encourage reporting of all strains of avian influenza. Currently, the WHO mandates reporting only of the H5N1 strain.[95] Regulatory burden here is not anticipated; already there is evidence within NAFTA members that producers voluntarily report non-notifiable avian influenza outbreaks, like the Tepanco de López H7N3 outbreak discussed above, to the OIE.[96]

Rather than improving reporting, some advocates espouse vaccination as a cure – innovative research is being conducted, at this moment, to identify bird phenotypes which will carry natural resistance to the avian influenza virus.[97] Presently, however, that research has yet to be concluded, and administered vaccines continue to be a source of contention between exporters and importers of poultry products.[98]

*Inspections: Incentivizing Adherence to Safety Standards*

The livestock, poultry, and egg industries within the NAFTA region have

http://www.ars.usda.gov/News/docs.htm?docid=11244.

93. *Disease Events*, FOOD & AGRIC. ORG. UNITED NATIONS, http://empres-i.fao.org/eipws3g/ (last visited Aug. 19, 2016).

94. *See About Us*, U.S.-MEXICO BORDER HEALTH COMMISSION, http://www.borderhealth.org/about_us.php (last visited Aug. 19, 2016).

95. World Health Org. [WHO], *Cumulative Number of Confirmed Human Cases of Avian Influenza A(H5N1) Reported to WHO*, http://www.who.int/influenza/human_animal_interface/H5N1_cumulative_table_archives/en/# (June 13, 2016).

96. *See generally* HERNANDEZ & HERNANDEZ, *supra* note 17 (showing reporting habits of several NAFTA participants).

97. DARRELL KAPCZYNSKI ET AL., USDA, CHARACTERIZATION OF PROTECTIVE HOST RESPONSES TO AVIAN INFLUENZA VIRUS INFECTIONS IN AVIAN SPECIES (2016), http://www.ars.usda.gov/research/projects/projects.htm?accn_no=422157.

98. *See IPPE: Vaccines and the Fight Against Avian Flu*, THE POULTRY SITE (Feb. 22, 2016), http://www.thepoultrysite.com/poultrynews/36605/ippe-vaccines-and-the-fight-against-avian-flu/.

matured to the point where best practices are recognizable and should be shared throughout the region. Recently, Mexico has been making a concerted governmental effort to diversify production geographically, to minimize the risk of spread by lowering flock concentration, and siting farms at greater distances from one another.[99] Other best practices that are smaller in scale, but as effective, include the installation of "disinfecting troughs and tire sprayers at every farm entrance and assigning workers to monitor the gates so that every vehicle goes through disinfection." These proposed changes do not come without upfront costs, but producers' voluntary adherence may lower the likelihood that any of the several federal or international agencies which have oversight will introduce more regulation.

NAFTA members – or, specifically, the United States' Office of Management and Budget, Canada's Treasury Board Secretariat, and Mexican Secretariat of Finance and Public Credit ("Secretaría de Hacienda y Crédito Público") – might also consider the use of direct subsidies. Subsidies which are directed at occupational health improvements may help producers to stave off avian influenza outbreaks, thus eliminating the likelihood of unpredictable and potentially catastrophic costs from forced flock depopulation. Such biosecurity subsidies would be broadly applied, as avian influenza affects farms regardless of scale, and often without regard for geography.

It is hoped that the capital infusion will enable farmers to implement best practices. For example, the Minnesota Turkey Growers of America organization has adopted the "Danish Entry Biosecurity System"[100] as a means of preventing the spread of the avian influenza virus from farm to farm.[101]

It is also worth recalling the interdependent nature of the poultry-and-egg industry within NAFTA and the economic burden[102] of avian influenza upon each society and duly applying a cost-benefit analysis when considering subsidy costs: Unsanitary conditions increase the risk of outbreak, and avian influenza outbreak

99. HERNÁNDEZ & HERNÁNDEZ, *supra* note 17, at 12.

100. THE CTR. FOR FOOD SEC. & PUB. HEALTH, IOWA STATE UNIV., BIOSECURE ENTRY PROCEDURE (2015); http://poultrybiosecurity.org/files/HPAI-Biosecurity-Biosecure-Entry-Procedure.pdf; *see also* Oshab, DANISH ENTRY – THE HOG BARN'S PHYSICAL LINE OF DEFENSE, http://www.uspoultry.org/animal_husbandry/files/Danish%20Entry%20Principle.pdf (stating the Danish Entry Biosecurity System has the added bonus of being a relatively low-cost anti-pathogen measure).

101. *Avian Influenza*, *supra* note 78.

102. SANDRA HOFFMAN ET AL., USDA, ECONOMIC BURDEN OF MAJOR FOODBORNE ILLNESSES ACQUIRED IN THE UNITED STATES (2015), http://www.ers.usda.gov/media/1837791/eib140.pdf.

harms not just the consumer, but the buyer and seller of those goods. The appearance of highly pathogenic avian influenza strain H5N2 in US commercial turkey farms in early 2015 continues to harm Mexican turkey producers, who are currently prohibited from sourcing live birds from the States.[103]

Adherence to existing safety standards or the proactive adoption of best practices, will assist NAFTA-member producers in another critical way: preserving access to global markets in light of Sanitary and Phytosanitary Measures which restrict the flow of trade.[104] It is well-known that facially neutral regulation can be used to discriminate in favor of domestic producers or suppliers.[105] In the wake of so many avian influenza outbreaks, Canada, Mexico, and the United States have all suffered rejection of their poultry and egg commodities in the world market, well after most of their farms have recovered, and producers exporting from the United States must also undergo the Certification of Exports process conducted by the Food Safety and Inspection Service.[106] United States poultry products only recently regained entry into the Indian market, a market of potentially 1.6 billon consumers, following a unilateral ban imposed by India following the 2007 US avian influenza outbreak,[107] and also only recently regained entry into the South African market, after fifteen years of negotiation.[108] NAFTA can better protect the regional and global interests of its producers, if its producers first invest in safety.

*Regulatory Challenges Facing NAFTA's Attempt to Fight Avian Influenza*

The regulatory measures proposed above are primarily intended to conform to the original purpose of NAFTA, which is to lower trade barriers between NAFTA's three members. By increasing safety and ensuring that effective reporting leads to swift action, NAFTA maintains open markets and lowers

103. HERNÁNDEZ & HERNÁNDEZ, *supra* note 17, at 7.

104. FROMAN, *supra* note 38, at 1.

105. Maury E. Bredahl & Erin Holleran, *Technical Regulations and Food Safety in NAFTA* 71-85 (Farm Found.: Agric. & Food Policy Sys. Info. Workshop, Working Paper No. 16906, 1997), http://www.farmfoundation.us/news/articlefiles/859-bredahl.pdf (expounding upon the US Food and Drug Administration and US Department of Agriculture's use of the Sanitary and Phytosanitary Measures to protect US products).

106. Cheryl Hall, *Impact of Avian Influenza on U.S. Poultry Trade Relations – 2002*: *H5 or H7 Low Pathogenic Avian Influenza*, 1026 ANNALS N.Y. ACAD. SCIENCES 47, 51 (2004), http://www.birdflubook.org/resources/0hall47.pdf.

107. Rajesh Roy, *Cheap U.S. Chicken Leaves Indian Poultry Farmers in a Flap*, WALL ST. J. (July 13, 2015, 11:48 AM), http://blogs.wsj.com/indiarealtime/2015/07/13/cheap-u-s-chicken-scares-indian-poultry-breeders/.

108. *South Africa and US Agree to Build Trade Ties*, SOUTHAFRICA.INFO (April 21, 2015), http://www.southafrica.info/business/trade/relations/tifa-210415.htm#.VycpBfkrLIV.

regulatory, arbitrary, and non-scientific barriers to trade.

In terms of scope, this proposed regulatory authority is narrow; it does not reach beyond avian influenza to touch other aspects of NAFTA trade. It may generate best practices for future multilateral or international agreements, but it is meant to be discretely applied. In conformance with the NAPAPI Principles of Cooperation, all other local, state, national, and international regulations remain intact.

In fact, NAFTA's regulatory authority with regards to avian influenza would optimally be characterized as a regulatory floor, not a ceiling.

*The Trans-Pacific Partnership*

To this point, it has been presumed that NAFTA has authority to act in the area of avian influenza, an authority created in statute but bolstered by the practical knowledge that the avian influenza issue starts with the cultivation and movement of birds for the purpose of trade, and that therefore, avian influenza is undisputedly a trade issue. If that premise is accepted, then NAFTA should take steps to assert its authority and clarify its responsibility, prior to the enactment of the Trans-Pacific Partnership (TPP, or the Partnership). Some parties within NAFTA are already looking to the Partnership to replace the less successful aspects of NAFTA. The United States Trade Representative offers, "[TPP] . . . improves substantially on NAFTA's shortcomings."[109]

The additional layer of international agreement that the TPP will introduce, between twelve countries, not three, may well raise questions of regulatory coherence. Existing NAFTA guidelines and requirements will be scrutinized from the perspective of TPP and may be subject to negotiation or rejection.

Regulatory coherence, however, should never supplant public health and safety in importance. Where there is a choice to be made, food safety for the public good, must trump trade. As the discussion above regarding best practices makes clear, however, public health and corporate profitability are not mutually exclusive. The opposite may in fact be true, as avian influenza outbreaks harm trade, and a disease-free, high-quality supply-chain boosts trade.

It is also likely that the type of regulatory curtailment seen in international treaty judgments on national or state pronouncements (and decried by activists as counterproductive to public health)[110] will not be applicable in this instance: Food

109. U.S. TRADE REP., THE TRANS-PACIFIC PARTNERSHIP UPGRADING THE NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA), https://ustr.gov/sites/default/files/TPP-Upgrading-the-North-American-Free-Trade-Agreement-NAFTA-Fact-Sheet.pdf.

110. Sharon Anglin Treat, *States' Leadership on Healthy Food and Farming at Risk under*

safety for the prevention of public transmission or illness can be distinguished from regulatory attempts to affect individuals' health choices, such as nutritional label warnings on processed foods. In the case of labeling, harms are individualized; potential population harm is generally realized long after the individual has chosen to consume that single snack. For example, obesity is harmful to the individual, but population costs of an individual's obese status may not be felt for years or decades after the onset of the individual's obesity. Outbreaks, on the other hand, are immediate, costly, and potentially catastrophic. The timeline is vastly different, and the threat of immediate harm, especially from pandemic influenza, requires different oversight and a much swifter response.

## CONCLUSION

The threat of avian influenza is considerable and all the more so when it is allowed to mutate and transfer from host to host. The risk to societal well-being and to the economic fabric of NAFTA member countries cannot be overstated – the consequences are global in magnitude. It is imperative, then, that NAFTA not only realize the threat but take steps to eliminate it. In spite of its historically fragmented regulatory relationship with the poultry and egg industries, NAFTA now has the opportunity to exert its authority in a way that is swift and effective, yet narrow in scope and free from arbitrary, unnecessary, or burdensome regulations. Once NAFTA rises to the challenge of controlling avian influenza, NAFTA members will more fully enjoy the benefits of a healthy supply-chain, healthy profits, and healthy and confident societies.

*Proposed Trade Deals*, INST. AGRIC. & TRADE POL'Y (Nov. 20, 2015), http://www.iatp.org/documents/states%E2%80%99-leadership-on-healthy-food-and-farming-at-risk-under-proposed-trade-deals.