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Avian Influenza: Trade Issues

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Introduction

Media coverage has focused on the highly pathogenic H5N1 strain of avian influenza and its potential human health consequences.

In 2003, an outbreak of a highly pathogenic H5N1 strain of avian influenza (AI) in Southeast Asia, notably in Vietnam but also in Thailand, focused extensive local and international media coverage on the disease and its potential human health consequences. The media coverage has followed subsequent AI outbreaks in the People's Republic of China, the Republic of Korea, and Japan, and westward through Russia into Eastern Europe and the Middle East. Health officials remain on alert because the virus has crossed the species barrier, causing more than 100 human deaths over the last 2 years. Other deaths, most recently in Turkey and the Middle East, have been linked to AI. A recent CAST commentary, *Avian Influenza: Human Pandemic Concerns,* addresses the human health issues (CAST 2006).

Implications for the international poultry trade are not as widely reported.

Not as widely reported are the implications for international poultry trade. While industry profitability, employment, household livelihoods, and, potentially, food security are being adversely affected by AI outbreaks in many countries around the globe, the market impact in 2006 is broadening to include the major poultry-trading countries. Impacts include poultry-meat-supply buildups, poultry consumption declines, potentially sharp drops in global poultry trade, and declining international poultry prices and industry profitability, as well as disruptions in normal trade flows. Extending beyond the poultry sector, the market impact has implications for feed and other input industries. The objective of this Commentary is to bring the international poultry trade implications of recent AI outbreaks into sharper focus.

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International Trade: The Poultry Context

International poultry trade is dominated by broiler (chicken) products.

International poultry trade is dominated by broiler (chicken) products. In 2004, world broiler import volume reported by the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service was 12 times greater than turkey import volume, and broiler export volume was 11 times larger than that of turkey. A review of major poultry-meat-market players can provide a valuable context for assessing the impact of changing consumption patterns and disease-related import bans on poultry industries in major exporting countries. Table 1 shows the top five broiler importing and exporting countries or regions for 2004, along with imports and exports as shares of production.

More poultry is consumed in the United States, per capita, than other meats.

The U.S. poultry-meat industry is characterized by geographic concentration of production (mostly in the south and east), large-scale confinement operations, and vertical integration. Poultry meat production in 2004 was just over 40 billion pounds: 85% from broilers, 14% from turkeys, and 1% from other chicken. Cash receipts from poultry meat were approximately $24.1 billion the same year. More poultry is consumed in the United States, per capita, than other meats—just over 116 pounds in 2004. In addition to supplying the strong domestic market, U.S. poultry meat processors supply significant amounts of products to international markets.

The United States is a net supplier (exporter) of poultry meat, accounting for more than one-third of global trade. In 2004, total poultry meat exports were approximately 5.4 billion pounds, or almost 14% of total production, with a value of $2.2 billion. The United States is currently the second largest poultry-meat exporter in the world. Brazil, which exports a greater percentage of its production (nearly 30%) than the United States does, became the world's leading poultry exporter in 2004.

Localized responses to AI and other avian diseases in poultry-trading nations are of considerable concern to the U.S.

Over the past decade, the U.S. share of international poultry exports has slipped as Brazil and several Asian countries, notably Thailand and the People's Republic of China, have emerged as active international poultry-trading countries. However, the continued role of the United States as a major poultry-meat supplier in the international marketplace and the importance of international trade to the domestic economy implies that localized responses to AI and other avian diseases in poultry-trading nations are of considerable concern to the U.S. poultry industry.

Avian Influenza: The Background

Strains of AI viruses are classified by the combination of two proteins on the surface of the virus particle.

Many types of birds, including chickens, turkeys, pheasants, quail, ducks, and migratory wildfowl, can be infected by AI viruses; thus, the nickname "bird flu." There may be a seasonal influence on the incidence of flu in the different species of birds, and some forms of the "bird flu" are worse than others.

Strains of AI viruses are classified by the combination of two proteins on the surface of the virus particle: the hemagglutinins (H1 through H16) and the neuraminidases (N1 through N9). Pathogenicity is determined

Table 1 – Broiler imports and exports, top five countries or regions in 2004 Source: Foreign Agricultural Service, Production, Supply & Distribution. Online USDA database, <http://www.fas.usda.gov/psd>

Country/region	Imports	Exports	Production	Share of production
	In 1,000 metric tons			Percentage
Russian Federation	960		650	147.7
Japan	582		1,124	51.8
European Union-25	441		7,656	5.8
Saudi Arabia	429		470	91.3
Mexico	326		2,389	13.6
Brazil		2,416	8,408	28.7
United States		2,170	15,286	14.2
European Union-25		789	7,656	10.3
China		241	9,998	2.4
Thailand		200	900	22.2

by the ability of an AI strain to produce illness in birds and by the molecular structure of the hemagglutinin. Most AI strains are low pathogenic (LPAI) and cause few clinical signs in infected birds. In contrast, high-pathogenic AI (HPAI) is usually highly lethal in infected birds. The low-pathogenic strains cannot be ignored, however, because some of them (the H5 and H7 subtypes) are capable of mutating into high-pathogenic forms, especially when allowed to circulate in poultry.

The first line of defense against AI outbreaks is vigilance by poultry producers and processors.

Detection. The first line of defense against AI outbreaks is vigilance by poultry producers and processors. Participating in bird-testing and flock-monitoring programs is a way to maintain healthy birds. The USDA's Animal and Plant Health Inspection Service (APHIS), in cooperation with state agriculture departments and industry groups, monitors for AI in live-bird marketing systems (which serve mainly ethnic clientele, mostly in urban areas), commercial flocks, and backyard flocks, and assists in surveillance of wild migratory birds. Although LPAI outbreaks have occurred with some regularity in U.S. poultry flocks, HPAI events have been rare, occurring in 1924, 1983, and, most recently, 2004. The 2004 outbreak was related to a live poultry market supplier flock and exhibited the HPAI molecular characteristic but was not lethal for poultry, bringing the sole use of the molecular criterion into question.

Responses by agricultural and animal health officials depend to a great extent on AI pathogenicity.

Domestic Response. Responses by agricultural and animal health officials depend to a great extent on AI pathogenicity. Cooperation among the USDA, the states where outbreaks occur, and the poultry industry itself is the watchword. In the instance of H5/H7 LPAI, the state takes the lead in implementing measures at affected premises to contain and eliminate the infection as promptly as possible. These activities may include immediate depopulation, controlled depopulation over time, or strict biosecurity with vaccination, depending on the type of flocks affected and the unique circumstances of the outbreak. Close attention is paid to H5 and H7 LPAI strains because of their potential to mutate into HPAI strains. If a low-pathogenic virus mutates to a high-pathogenic virus, or if the outbreak is

determined to be high pathogenic from the start, the USDA (through APHIS) becomes the lead agency. It then works with the affected state departments of agriculture and affected premises to quarantine and immediately depopulate, clean, and disinfect the infected and exposed premises to contain and eradicate the disease quickly. The HPAI outbreak response also includes notifying the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention and developing compensation plans for owners of exposed birds in the disease's eradication zone. The HPAI outbreaks clearly necessitate an immediate response, but recent changes by the World Organization for Animal Health (formerly named the Office International des Epizooties, or OIE) have led the USDA to respond more quickly to LPAI outbreaks, if the isolates are of the H5 or H7 subtypes.

The United States is a member of international organizations that provide assistance to countries for AI disease prevention, management, and eradication.

Trade Responses to Avian Influenza Outbreaks

The United States is a member of international organizations, such as the OIE, the United Nations Food and Agriculture Organization (FAO), and the World Health Organization (WHO), that provide assistance to countries for AI disease prevention, management, and eradication. Countries around the world are at various stages of developing infrastructure and regulations to respond to animal disease outbreaks of all kinds. Poultry product import bans have followed almost immediately after any announcement of AI outbreaks, whether low- or high-pathogenic outbreaks.

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Both international and individual country agencies have supported and adopted the position that trade bans should be based on science and established rules. In May 2005, the OIE adopted a new chapter on AI that was ratified by its members. (Although the OIE holds no real enforcement authority, all major poultry-producing nations are OIE members. By virtue of membership, these countries are signatory to an agreement to abide by OIE protocols on trade restrictions based on animal diseases, unless additional restrictive measures can be justified by risk assessment.) The new OIE AI chapter states, in simple terms, that only H5 and H7 subtypes of AI are "notifiable," meaning that countries in which outbreaks of these types occur are obliged to notify the OIE of such outbreaks. (Only these two subtypes have the capability to mutate into highly pathogenic forms of the virus.) Furthermore, the chapter contains language that allows trade to occur from certain zones (geographical areas) or from "compartments" (a group of farms, an enterprise, or another managed unit) within a country even though AI may be present in a completely separate zone or compartment in that country. Exporting countries are hopeful that the new OIE chapter on AI will eliminate the "nuisance" bans that many countries have imposed on poultry imports because of small, localized outbreaks of mild forms of the virus in exporting countries; such bans have occurred often during the last 2 years.

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Timely dissemination of all relevant information about AI outbreaks, interactions among animal health authorities, and rapid containment and eradication of AI where it has appeared supports regional bans and their duration.

To that end, the "regionalization" of bans is promoted. Whereas general or pre-emptive import bans are contrary to the spirit of OIE and FAO recommendations made to the World Trade Organization (WTO), regionalized bans recognize that an outbreak of AI might be highly localized and its spread to other premises is highly unlikely. Timely dissemination of all relevant information about AI outbreaks, interactions among animal health authorities, and rapid containment and eradication of AI where it has appeared supports regional bans and their duration. APHIS has regulations in place in Title 9 of the Code of Federal Regulations, Part 92.2, that address the concept of regionalization.

Observed International Market Responses

Over a 5-year period, global meat markets have been subjected increasingly to considerable instability as animal health crises have prompted governments to adopt policies to protect their livestock sectors.

Over a 5-year period, global meat markets have been subjected increasingly to considerable instability as animal health crises have prompted governments to adopt policies to protect their livestock sectors. These interventions include import bans, tighter sanitary border control measures, and stronger domestic regulations. Animal disease outbreaks that have had global market impacts include the foot-and-mouth disease (FMD) outbreaks in Europe and South America (2001–2002) and reports of bovine spongiform encephalopathy in North America (2003–2004), a region that supplies nearly one-quarter of global meat exports. These outbreaks combined with the AI outbreaks in Asia, which characterized 2004 and parts of 2005, decreased global meat exportable supplies and supported prices. As outbreaks of AI are reported in Europe, the Middle East, and Africa in early 2006, price developments indicate a very different market environment. Consumption shocks are progressively lowering global import demand for broiler parts, which holds implications for demand for other protein sources as well as input industries.

World poultry trade has been affected materially by AI outbreaks in several major poultry-meat-supplying countries since late 2003.

World poultry trade has been affected materially by AI outbreaks in several major poultry-meat-supplying countries since late 2003. The high-pathogenic H5N1 outbreak that occurred first in Southeast Asia in late 2003 and in the People's Republic of China in 2004 significantly altered the poultry imports of Japan and South Korea, because both countries banned all fresh/frozen imports from major Asian suppliers. Thailand and Vietnam continued to experience HPAI outbreaks throughout 2004.

Outbreaks of LPAI in the United States early in 2004 initially caused countrywide bans on all poultry meat by a number of important U.S. export markets including the People's Republic of China, Hong Kong, Japan, South Korea, Cuba, and Mexico. Complete bans by the People's Republic of China, Hong Kong, and South Korea remained in effect for most of 2004 and resulted in a 3% decrease in total U.S. poultry export volume for the year and an overall and unprecedented 8% drop in global trade as reported by the FAO. These three countries, plus Japan, accounted for 22% of U.S. broiler exports in the period from 2001 to 2003. Some of the other countries that initially imposed complete bans—most importantly Mexico—later restricted the bans to imports from only selected U.S. states or counties; Canada imposed no ban at all. In 2005, because of an HPAI outbreak (the "molecular" nonlethal HPAI) on a single farm in the summer

of 2004, more than 50 countries implemented complete or partial bans on U.S. poultry. Although most bans were rescinded, a few remain. Most notable is Mexico, which still maintains a ban on poultry from 11 counties in Texas.

Growing competition in international markets has led to a decline in the U.S. market share, which has slid from nearly 50% in the mid-1990s to 35% in 2005.

Growing competition in international markets has led to a decline in the U.S. market share, which has slid from nearly 50% in the mid-1990s to 35% in 2005. Thailand and the People's Republic of China were two key competitors until their AI problems in 2003 and 2004. Brazil became the world's largest exporter of poultry meat in 2004, the result of a competitively positioned poultry sector combined with growing domestic and increased export opportunities. For example, Brazil accounted for 7% of Russian poultry imports in 2001; that number increased to 21% in 2002, when U.S. poultry meat had been banned on the Russian market. Brazil's exports of fresh/chilled and frozen poultry meat to Japan increased 65% in 2004, replacing supplies from Thailand and the People's Republic of China where AI outbreaks continued to affect export opportunities. Brazil's poultry meat exports are diversified, and its continued ability to supply markets with competitively priced poultry meat puts Brazil in direct competition with the United States across many markets.

Conclusion

The short-term costs to economies are considerable, and even short-term market impacts have long-term implications.

It is clear that although short-term benefits for selected markets may result from animal disease outbreaks—whether from cases of AI or from FMD outbreaks in South America—the overall impact hurts all livestock sectors by increasing price volatility and generating uncertainty in markets. Certainly, trade disruptions resulting from import bans reinforce market segmentation, resulting in diverging meat prices within and between countries and among products. The short-term costs to economies are considerable, and even short-term market impacts have long-term implications for trading patterns, policy formulation, longer-term investment in the sector, and overall industry and sector development.

Poultry industries worldwide recognize the gravity of the situation and have agreed to work together on a concerted campaign to help producers prevent or control AI.

It is too soon to assess the full impact of AI on U.S. poultry exports, but it is evident that intensive media coverage and assessments of the potential for a world pandemic by public institutions are having an effect, at least in the short term. Trade reports from various markets around the world indicate that increasing awareness about AI is contributing to poultry consumption declines not only in the major poultry markets but also in many developing countries, irrespective of whether AI has infected their local commercial flocks. Consumption declines have been cited as ranging from 20% to as high as 70%. Decreased consumption has led to a backlog of local stocks in many markets that has created a ripple effect throughout the supply chain, leading to erosion of market prices. Decreased consumption also has affected demand for sectoral inputs, in particular, feed supplies. Poultry industries worldwide recognize the gravity of the situation and have agreed to work together on a concerted campaign to help producers prevent or control AI and to assure consumers that poultry meat is safe to eat when properly handled and cooked.

National commodity strategies addressing animal disease issues need to be reinforced by international policies and guidelines that facilitate livestock trade while providing guidance on animal disease prevention and control.

Until recently, animal diseases have been relatively localized in terms of their cost and impact on international livestock markets. Increasingly, as livestock production and trade have grown and markets have become more integrated, it is clear that national commodity strategies addressing animal disease issues need to be reinforced by international policies and guidelines that facilitate livestock trade while providing guidance on animal disease prevention and control. In particular, and in the context of the recent spread of AI, it is important that countries move to recognize the regionalization concept recently endorsed by the OIE. This is a science-based approach to protect markets from animal-based health risks while minimizing global market disruptions.

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