



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Food Safety Issues for Meat/Poultry Products and International Trade

Kenneth H. Mathews, Jr., kmathews@ers.usda.gov, (202) 694-5183

Jason Bernstein (FAS)

Jean C. Buzby, jbzby@ers.usda.gov, (202) 694-5370

Issues in Diet, Safety, and Health / Agriculture Information Bulletin Number 789-4

February 2004

Issue: Over the past decade, several high-profile food safety issues have been linked to meat and poultry products (e.g., mad cow disease and *Salmonella*). Some countries have voiced concerns over the use of antibiotics in animal production, partly due to limited scientific understanding about the human health implications. How have food safety hazards affected international trade and how are public and private sectors responding to minimize or prevent adverse impacts from these hazards?

Background: Three case studies demonstrate food safety and trade issues for meat and poultry.

The first case study concerns Bovine Spongiform Encephalopathy (BSE) or “mad-cow disease,” which became a human health issue in 1996 when the United Kingdom announced a connection between BSE and a variant of Creutzfeldt-Jakob disease (vCJD) in humans. BSE is a major food safety concern and a major animal health issue affecting beef production, consumption, and trade for several reasons: (1) the uncertainty of exactly how the disease is transferred to humans or how to prevent it; (2) the uncertainty of the total number of BSE and vCJD cases, partly due to the long incubation periods in both cattle and humans; (3) the inability to destroy the “prion,” the agent believed to cause BSE and vCJD; (4) the lack of a cure for BSE and vCJD; and (5) the limited (post-mortem) ability to confirm the disease.

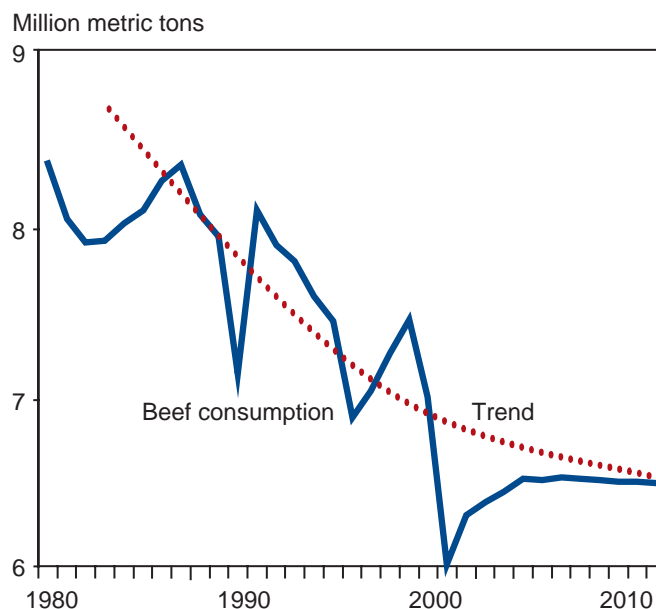
The second case study, chosen to represent trade impacts of microbial food safety risks, focuses on *Salmonella* and some countries’ zero or near-zero tolerance for it in poultry.

The third case study focuses on the relationship between drug-resistant, foodborne pathogens; livestock drug use; and the implications for international trade. Links between animal and human health are complex, and not always complementary. For example, the use of antimicrobial drugs for livestock may protect animal health by reducing pathogens,

but may erode the effectiveness of some antibiotics for human use. However, these tradeoffs are uncertain, as is the extent to which livestock drug use is responsible for human foodborne illnesses due to resistant bacteria.

Findings: Live cattle and beef exports from the United Kingdom were decimated by three BSE crises (1988, 1996, and 2000), and have not recovered. European Union (EU) exports of these products have been far less affected to date. Immediately after each of the three BSE crises, EU domestic consumption of beef declined abruptly. While EU domestic consumption of beef has returned to its long-term (downward) trend, prices have not recovered, suggesting some shift in demand.

EU domestic beef consumption during the three BSE crises (1988, 1996, and 2000) and projections through 2011



Source: USDA Production, Supply, and Distribution database, 1980-2001; baseline projections, 2002-2011.

BSE has prompted many countries, including the U.S., to impose additional safeguards, like import restrictions and other measures to prevent the introduction of the disease. In response to BSE, beef and cattle markets have changed, for example, to boneless cuts, or restricted the use of selected products (e.g., brains, eyes, intestines). BSE has also affected cosmetic, feed, medical, pharmaceutical, and other sectors because bovine byproducts and rendered products are used as intermediate inputs into so many products. Consequently, trade restrictions have affected many sectors.

The *Salmonella* case study found that many countries impose different standards and regulations to handle the risks of pathogen contamination from processing and other stages of production. This diversity illustrates that each World Trade Organization member has the right to determine its own level of sanitary and phytosanitary protection. In particular, countries' trade restrictions for *Salmonella* in poultry vary by type (specific products or processing), extent (inspections of slaughter facilities, production practices), and duration. This variance makes compliance challenging for exporters.

The technical ability to monitor and detect *Salmonella* and other pathogens is increasing, as has the imposition of zero or near-zero tolerance standards for *Salmonella* by some countries. Zero risk may not be feasible from either a policy or producer standpoint, and may preclude all poultry imports. Some scientists believe that *Salmonella* is ubiquitous in the environment and, with increased

advances in medicine and increased precision of diagnostic tools, the cost to achieve further risk reductions increases as the risk level approaches zero. Also at issue is the occasional inconsistency between a country's standards for domestic and imported poultry.

Some countries have accumulated evidence linking livestock drug use and human antibiotic effectiveness in treating foodborne illness (e.g., *Salmonella*). These countries have enacted or proposed regulations to prohibit the low-level (subtherapeutic) use of certain antimicrobial drugs as growth promotants in livestock production. In the United States, several bills have been introduced to prohibit antibiotics from at least some uses in animal agriculture.

Information sources:

For full text, see Mathews, K., J. Bernstein, and J. Buzby. "International Trade of Meat/Poultry Products and Food Safety Issues," chapter 4 in *International Trade and Food Safety: Economic Theory and Case Studies*. J. Buzby (ed.). USDA, Econ. Res. Serv., AER-828, Nov. 2003. www.ers.usda.gov/publications/aer828/

Orden, D., T. Josling, and D. Roberts. "Product Differentiation, Sanitary Barriers, and Arbitrage in World Poultry Markets," *Global Food Trade and Consumer Demand for Quality*, Krissos et al. (eds.), Kluwer Academic/Plenum Publishers, New York, 2002, pp. 147-164.

Note: The full report (Mathews et al.) on which this fact sheet was based was published in November 2003, and does not reflect the confirmation of BSE in a cow in Washington State in December 2003.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.