

Bioterrorism – the high economic costs of an attack

Since September 11 of last year, it is common to see front page stories about terrorism in our daily newspapers. In most cases, the terrorism being discussed is a bombing or the potential attack on a U.S. facility or installation somewhere in the world.

When it comes to bioterrorism, the deliberate use of biologic agents to frighten and attack large populations, most of the focus has been on diseases like anthrax and small pox that affect human beings. Stories about bio-weapons that are primarily directed toward animals and plants are off the radar screens of most media outlets.

In preparation for a conference at North Dakota State University on “Bioterrorism and Food Security,” I have been looking at the potential impact of an attack on a portion of the U.S. food system. I began by briefly reviewing the devastating livestock diseases that have plagued England recently, such as Mad Cow Disease (Bovine Spongiform Encephalopathy or BSE), and Foot and Mouth Disease (FMD)

BSE was identified in England in 1986. For the next ten years, BSE had little impact on the beef market and beef exports as experts reassured the public that BSE was not a threat to human health. Then in March of 1996 British authorities revealed a potential connection between BSE and a newly identified variant of Creutzfeldt-Jakob Disease (vCJD). Closely following that announcement the European Union announced what was effectively a ban on the export of beef and veal and their products from the United Kingdom.

Such a ban has a far-reaching effect on agriculture and agribusiness; just the dollar value of the export ban is a real attention getter (figure 1). The value of bovine meat exports dropped from \$856 million in 1995 to \$32 million in 1997. In the decade prior to the export ban exports accounted for nearly 20 percent of beef production in the United Kingdom. The ban remained in place for three and one half years.

What if a bioterrorist engineered an outbreak of such a disease in the U.S.? BSE may not be bioterrorists’ disease of choice since some

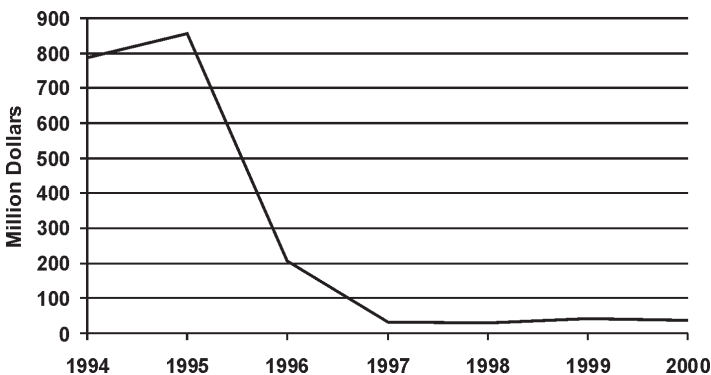


Figure 1. Value of exports of bovine meat from the United Kingdom, 1994-2000. Source: FAO

would argue that BSE is not a very effective bio-weapon because it is spread by contaminated feed and has a fairly long incubation period. Foot and Mouth Disease (FMD) might be a more likely bioterrorism agent. It is relatively easy to obtain, does not infect humans, and once in the animal population spreads easily.

Suppose an outbreak of FMD turns up among a significant portion of the cattle in Kansas, Oklahoma and Texas, the heart of U.S. beef production. These three states account for a quarter of all beef production in the United States. Here again, following England’s lead, which had a natural outbreak of FMD in 2001, we assume that officials choose to use animal slaughter rather than vaccine as a means of controlling the disease. It is not out of the realm of possibility that one quarter of all cattle in the three state area would have to be destroyed.

With 25.4 million head of cattle in the three state area, that would mean the slaughter of 6.35 million head. If producers were to be reimbursed by the federal government with an average payment of \$600, the cost would be \$3.8 billion.

In addition, the slaughter of 6.35 million head would result in about a 250 million bushel reduction in corn demand. In addition to the loss of these feed sales the resulting increase in carryover stocks would reduce the season average price of corn by 7 cents or nearly \$670 million.

If red meat exports were to be shut off because of the foot and mouth disease, another \$5 billion dollars could be added to the cost of a bioterrorism attack. Together these three direct costs would add up to a loss to the economy of nearly 9.5 billion. Indirect costs, such as personnel and equipment for the slaughter and disposal and loss of employment in processing plants and feed lots, are not included in this total.

We also have not tried to estimate the costs associated with a reduction in demand for beef because of people’s fear of the disease nor the subsequent income loss to cattlemen and feedlot operators during additional time their facilities are quarantined nor a host of other subsequent and less direct draw-downs on economic activity.

The total economic cost could be in the tens of billions of dollars. But even the conservative estimate of \$9.5 billion dollars in direct losses, which is equivalent in size to one-fifth total net farm income, illustrates the huge economic consequences of an attack on a single portion of our food supply chain. Let’s hope and pray that no such event occurs.

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