

NATIONAL SECURITY AND BIOTERRORISM:
A U.S. PERSPECTIVE

by
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National Security and Bioterrorism:
A U.S. Perspective

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Introduction

My purpose is to consider how the events of September 11, 2001 have changed how we think about the world food system and the possibilities for agro-bioterrorism. My answers are somewhat preliminary and conjectural. I will divide them into three categories: direct threats to the world food system from agro-bioterrorism; market and development assistance disruptions arising from terrorist and anti-terrorist activity; and broader and longer term shifts in the political economy of international agriculture due to the emergence of a recognized global terrorist threat.

Direct Threats of Agro-bioterrorism

Despite its new-sounding name, agro-bioterrorism is an ancient tradition, and has included salting enemies' fields, burning crops, killing livestock or flooding irrigation systems. During most of pre-modern history, the balance between production and population was precarious enough to make these methods highly effective.

In the modern period, anti-animal and anti-plant biological warfare has been an important part of many war planning exercises.¹ During World War II, Nazi Germany undertook extensive work on the use of foot-and-mouth disease as an offensive weapon, testing open-air exposures on cattle and reindeer in Northwest Russia. The Nazi regime also experimented with dropping potato beetles from planes in October 1943, as well as the use of turnip weevils, antler moths, potato stalk rot, potato tuber decay and various weeds.² The French too had anti-crop and anti-animal programs, focused on potato beetles and rinderpest virus in cattle directed at Germany. The Japanese were perhaps most involved in development of sophisticated techniques to deliver

¹ Jonathan Ban. "Agricultural Biological Warfare: An Overview." Chemical and Biological Arms Control Institute. *The Arena* 9 (June 2000).

² See Erhard Geissler and J.E. Moon. *Biological Warfare from the Middle Ages to 1945*. New York: Oxford University Press. 1999.

and spread fungi, bacteria, and nematodes on grains and vegetables especially in Manchuria and Siberia, with air drops during 1940 and 1941 of infected grains of wheat millet and cotton as well as anthrax and glanders.

Both the U.S. and Britain had programs during World War II. The U.S. seriously considered a biological attack on the Japanese rice crop in 1944 and 1945. Britain stockpiled 5 million anthrax-laced cattle cakes to be dropped from aircraft, and had similar work underway for the use of foot-and-mouth disease and plague. After World War II, the U.S. Army carried out at least 31 tests and stored rice and wheat blast fungus at Fort Detrick, Maryland and at the Rocky Mountain arsenal in Denver, Colorado. By 1955, the Army Chemical Corps first standardized wheat stem rust; by the 1960s, 5000 kilograms of various anti-plant disease agents had been stockpiled in the U.S.³ The U.S. Air Force produced other agents at Pine Bluff, Arkansas in the 1960s, and the Army continued testing wheat stem rust in North Dakota (1960) and Florida (1968), and anti-animal pathogens at stockyards in Texas, Missouri, Minnesota, Iowa and Nebraska in 1964 and 1965. By the mid-1970s, the CIA indicated that it had developed the capacity for covert attacks leading to major crop damage, despite President Nixon's 1969 statements renouncing U.S. use of offensive biological warfare.

Since the 1970s, the most wide-ranging efforts to develop such a capability have occurred in the former Soviet Union, followed by Iraq. The Soviets used ticks successfully to transmit foot-and-mouth disease, and experimented with rinderpest, African swine fever, bovine pleuropneumonia, mutant forms of avian flu, and ecthyma in sheep. For plants, they developed insect-delivering methods for various pathogens, as well as conducting work on wheat, barley and tobacco mosaic streak viruses, wheat funguses and brown leaf rust, among other diseases.

³ See B. J. Bernstein. "The Birth of the U.S. Biological Warfare Program." *Scientific American* 256 (1987): 116-121.

According to the U.S. Defense Intelligence Agency, the Soviet Union had developed insect-rearing facilities to produce millions of parasitic insects per day, and could follow and influence their release and migration patterns using radar and insect attractants.⁴ Iraq, meanwhile, worked before the Persian Gulf War on wheat stem rust and especially on camel pox, possibly as a surrogate for smallpox.

The significance of this brief historical account is that the capability for state-based agrobioterrorism is well established. One result has been the creation of multilateral groups to restrict access to these methods and their “weaponization,” such as the Australia Group and the Biological and Toxin Weapons Convention. However, as Ban (2000, p. 3) concludes in a recent overview:

The potential for former weapons scientists to sell their expertise to states or non-state actors certainly exists, especially in the former Soviet Union (FSU) where former weapons scientists are often unemployed or underpaid. Most importantly, a quick glance at the history of state anti-animal and anti-plant (biological warfare) programs reveals which agents are the most promising and demonstrates the feasibility of these agents as weapons.

Thus far, the focus has been on the use of anti-animal or anti-plant methods as tools of state warfare. But the threat of agrobioterrorism arises largely from individuals and groups acting outside of states. While states such as Taliban Afghanistan or Iraq may aid and abet such groups, they do not always control them, making them difficult to monitor and detect. In addition, the food system has many points of vulnerability, from the farm to the processor to the retail level. While an attack at any level might not have devastating human consequences in terms of morbidity and mortality, it could easily shake consumer confidence, with severe market repercussions.

⁴ Defense Intelligence Agency. *Chemical and Biological Warfare Capabilities-USSR*. DST-1600S-034-74-SUPI, March 1977 (Unclassified). Cited in Ban, 2000.

Such terrorist attacks have occurred in the past. In 1978, a Palestinian group used mercury to contaminate Israeli citrus exports to Europe. In 1985, a letter to the U.S. embassy in Sri Lanka claimed that tea exports to the U.S. had been contaminated with cyanide. Similar threats were made in relation to Chilean grapes. All of these episodes led to temporary suspension of trade in the affected products. In 1989, a group called the Breeders claimed to have released Mediterranean fruit flies in California to protest pesticide use, and odd infestation patterns followed.⁵

Knowledgeable observers conclude that the U.S. (and European) food systems continue to be vulnerable to such attacks. Specific concerns raised include foot-and-mouth disease, which could be fairly easily introduced in feedlots to create a situation like that in Britain in 2000, decimating the beef and dairy industries. A second concern, related to processing, is the potential contamination of a widely used ingredient such as soybean or corn oil, which would then threaten and disrupt all downstream users and manufacturers of processed foods. Third, direct introduction of pathogens, such as anthrax, on fruits or vegetables could create consumer panic.⁶ Frank Busta, a food microbiologist at the University of Minnesota, called the supermarket “an open target.”⁷

These potential threats to the U.S. food system have led the U.S. Department of Agriculture and Congress to take a number of actions, the efficacy of which remain in doubt. Senator Pat Roberts, Republican of Kansas, has introduced legislation aimed at responding to threats from foot-and-mouth disease, avian flu, and wheat diseases such as Karnal bunt fungus. USDA has suggested that the main impacts of attacks would be on consumer confidence, leading

⁵ R. S. Root. “Infectious Terrorism.” *Atlantic Monthly* (May 1991): 44-50. Cited in Ban, 2000.

⁶ John Schnittker. Personal Correspondence. November 26, 2001.

⁷ David Barboza and J.E. Barnes. “Farmers and Processors Act to Close Holes in Security.” *New York Times* October 28, 2001.

to market disruptions, rather than mass casualties. Three areas of particular vulnerability cited were fresh cut produce, open bin produce, and a low-level danger to processed foods.⁸ The American Bakers' Association and Grocery Manufacturers Association have also been working closely with Congress and USDA to help develop contingency plans.⁹

While these threats are real, it is important to remember that the U.S. food system, like that of most countries, is highly diffuse in both space and time. Agriculture by its nature requires a great deal of space. Processing and storing and shipping food requires additional space, and must proceed over fairly extended time intervals. As a result, while agriculture is an "open" target, it is not, in the language of aerial bombardment, a particularly "rich" target. Seriously damaging the system is therefore more difficult than it might appear.

In general, I conclude that a growing awareness of agro-bioterrorism is likely to reinforce actions and trends already underway, and that despite the threats, a renewed emphasis in four areas will actually help improve the safety of the food system. First, agro-bioterrorism will reinforce Hazard Analysis and Critical Control Point (HACCP) methods used to oversee food processing and handling. HACCP will become even more widespread in response to the perceived risks and potential threats to the food supply. Second, it will reinforce the current trend toward identity preservation (IP) in the grain trade. To date, IP has been driven largely by specific consumer demands for specialized products. Identity preservation has also been given emphasis by concerns over genetically modified (GM) products, but reflects a broader trend toward oversight and monitoring of food from farm to market. A study released on November 30, 2001 from USDA conducted by Harvard University argues that although the U.S. is unlikely

⁸ Mark McMinimy. "Agro-terrorism: What is the Nature of the Threat?" Schwab Capital Markets. Washington Research Group. *Agribusiness Bulletin*. November 16, 2001.

⁹ "Terror Specter Triggers Food Security Mobilization." *Milling and Baking News*. November 6, 2001.

to face an outbreak of Mad Cow Disease comparable to Britain, there are still major gaps in oversight and inspection of imports and domestic uses of feed ingredients that could spread the disease. This report is likely to spur further attention to such oversight.¹⁰

Third, public agencies and authorities will therefore step up efforts at food safety, inspection, and regulation. The Bush administration has proposed an additional \$61 million in 2002 to add food inspectors, and USDA has been coordinating its own efforts with the National Security Council, the CIA and other federal agencies. Fourth, at the international level, the threat of agro-bioterrorism is likely to give greater salience to the Sanitary and Phytosanitary Standards resulting from the Uruguay Round of multilateral trade negotiations, and the oversight role of the Codex Alimentarius, both from the point of view of harmonized approaches to food safety, and the potential use of safety issues as non-tariff barriers to imports. Together, these four moves will reinforce current trends toward more oversight and monitoring of the food system in general. Barring a devastating attack on the food system, these will actually improve food safety.

Market and Development Assistance Disruption

If a significant agro-bioterrorist event occurred in a major market, its most significant impacts would be likely to be on commodity prices. This impact would be obvious, for example, if foot-and-mouth disease were introduced in the U.S. cattle market, affecting the prices of and incomes received for fed cattle and dairy cows over a period of months and probably years. Similar effects would be felt in grain and oilseed markets if, for example, Karnal bunt fungus widely affected the U.S. wheat crop, or if the flow of soybean or corn oil were contaminated.

¹⁰ Steve Stecklow. "Porous Borders: Despite Assurances, U.S. Could be at Risk for Mad-Cow Disease." *The Wall Street Journal* November 28, 2001. p. A-1.

At an international level, the threat of agro-bioterrorism poses additional challenges to the world trading system. Not only has it the capacity to disrupt trade flows (similar to but probably greater than the disruptions caused by curtailed Starlink[®] corn shipments in 2000 to Japan and South Korea); it also creates new excuses to impose barriers to foreign imports of food.

A third issue concerns the impacts of the aftermath of September 11 on development aid and assistance. On the one hand, it is possible that a new isolation and xenophobia will take hold in donor countries in the OECD, further limiting what are already declining levels of aid to the poorest nations. But it is also possible (and I hope more likely) that it will usher in a greater awareness of global poverty and hunger. These conditions do not explain or excuse terrorism, but it is arguable that if even a fraction of the resources that will be devoted to the military defeat of terrorist groups could also be given to build the economies of poor nations, it would limit criticisms of the military effort and reduce the appeal of terrorist's anti-OECD rhetoric.

Longer Term Shifts in the Political Economy of International Agriculture

The last issue—concerning the importance of dealing with the challenges of global poverty—may be the single most important by-product of recent events. The successful conclusion in November of global trade talks in Doha, Qatar challenges the U.S. and other OECD nations to drop the false pretense that they favor greater agricultural trade liberalization, while continuing to deny market access to poor developing countries. If the new trade round is to succeed, the U.S. and other OECD countries will need meaningfully to engage the developing countries in a process that will expand their economies and make them stakeholders in a system

of more liberal trade rules. In addition to agriculture, greater market access will be demanded in textiles, steel and semi-conductors.

Meeting in the shadow of the events of September 11, the Qatar negotiations were explicitly seen as part of a fabric of multilateral cooperation to combat terror.¹¹ Fortunately, there is some evidence that the Bush administration now understands the significant role of multilateral cooperation. As Joseph Kahn of the *New York Times* noted of the trade talks: “The apparent flexibility of the Bush administrations position contrasted with the firm stances it took on global warming, germ warfare and other agreements, suggesting that President Bush’s international focus since the September 11 attacks has affected the administration’s approach to economic matters as well.”¹² However, the decisions on steel tariffs and the horrendous 2002 Farm Bill are not at all encouraging.

In the final analysis, the events of September 11 strengthened the political center in most OECD countries. The outstanding question is whether this will translate into a centrist proclivity for more open trade coupled with poverty reduction in developing countries. At least in the U.S., protectionist forces, drawing their main strength from the far left and far right, have yet to be discredited. Even so, the left has been hurt by its ideological affinity to forces sympathetic to terrorist groups, the right by bizarre announcements in the immediate aftermath of the attack that it was God’s revenge on New York for its sinful ways. As these political extremes seek political cover, the way is opened for more centrist voices to advance a pro-trade and pro-poor agenda in tandem with an aggressive fight to end terrorism. Whether such a path will be pursued by Bush seems increasingly less likely, opening the way for centrist Democrats in 2004.

¹¹ Richard W. Stenenson. “Measuring Success: At Least the Talks Didn’t Collapse.” *New York Times* November 15, 2001. p. A-12.

¹² Joseph Kahn. “Nations Back Freer Trade, Hoping to Aid Global Growth.” *New York Times*. November 15, 2001, p. A-12.

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