

Calculated Risk

by Norman Martin

The deadly Sept. 11 attacks still invoke images of a city in chaos, but experts say the terrorism risk is real for American farms and ranches, too. State and federal officials realize that an agroterrorism attack could devastate New Mexicans' faith in the food supply.



On guard: New Mexico is taking the fight against terrorism to the state's ranches and farms, says Jeff Witte, agriculture biosecurity director for the New Mexico Department of Agriculture.

A sweeping effort to protect agriculture is under way, including an early warning system for livestock known as the Rapid Syndrome

Validation Project. These security programs show that few parts of the agricultural community are unaffected by the global war on terrorism.

"The threat is real," says Jeff Witte, agriculture biosecurity director at the New Mexico Department of Agriculture. "While we have one of the safest food supplies in the world, there are points of entry that we must protect."

Agroterrorism is broadly defined as an intentional attack on agriculture with biological agents. That agent could be a disease or contaminant introduced by terrorists. The agent might also be a plant or animal that can infect other plants or livestock. It could be as simple as someone coming to a pen and introducing a disease into an animal.

However, humans would not be a likely target in this scenario. Agents that cause diseases that can spread from animal to human are not likely methods of agroterrorism, says Bob Larson, a veterinary beef production specialist at the University of Missouri-Columbia. Anthrax and brucellosis are rare, and samples are hard to come by.

Instead, Larson says the most

likely goal of an agroterrorist attack would be to introduce an animal- or crop-specific disease, with the goal of inflicting economic and psychological harm. An attack that would wipe out crops or livestock could be devastating economically, disrupting the industry in a number of ways.

On the front line

Just how big is the risk for agriculture in the Land of Enchantment? A multiagency task force did a comprehensive assessment in 2003 and ranked agriculture in the top five or six most vulnerable sectors among potential terrorism risks in each New Mexico county. New Mexico's frontline defenders against these biological threats to the food chain include county agricultural agents, state Department of Agriculture staff and livestock inspectors.

"Extension agents, crop and livestock experts, and veterinarians would likely be the first ones to recognize that an incident has occurred, and they'd probably be the first ones on the scene," says Billy Dictson, biosecurity director for NMSU's College of Agriculture and Home Economics.

During the past few years, train-



Top security: If producers can quickly detect when a crop or animal is infected, the chances of containing the spread and limiting the damage increase, says Billy Dictson, biosecurity director for NMSU's College of Agriculture and Home Economics. Awareness among ranchers and farmers is a vital element of prevention against agroterrorism.

ing for agricultural professionals has ramped up significantly, focusing on crop and animal biosecurity, including high-risk plant and animal diseases and insect pests, he says.

In January, NMSU's Cooperative Extension Service conducted a Foodgard training program for 160 New Mexico food processors on how to prevent terrorism or sabotage. "This is the ounce of prevention," says David Iglesias, U.S. Attorney for New Mexico. "There is no current threat to this sector, but the Justice Department still treats any possible act of terrorism as the number one priority." The Internet training was offered at 31 county Extension offices statewide.

"New Mexico is at the forefront of outreach biosecurity training," Dictson says. "Now, we need to put more focus on training people in private industry about potential biosecurity issues. At the same time we have to be careful about supplying useful information to would-be terrorists."

Participants have learned how to secure and handle plant samples,

how to submit samples and how to access the National Plant Detection Network. They have been taught how to organize rapid response teams and avoid spreading diseases to other farms. For livestock specialists, the focus has been on detecting and diagnosing foreign animal diseases and how to report, respond and contain potential outbreaks.

Risk management

One of the largest biosecurity issues facing New Mexico and the border states is foot-and-mouth disease. Foot-and-mouth is deadly for livestock, but it is not a direct threat to human health. The highly contagious viral disease affects cloven-hoofed animals like cattle, sheep and pigs. Symptoms are sores, blisters and fever.

"It can spread rapidly once it occurs," Dictson says. "The potential economic damage is absolutely enormous."

The United States has not had an outbreak of foot-and-mouth disease since 1929. The disease remained

widespread throughout Central and South America until it was brought under control in the 1980s and 1990s. It re-emerged in the southern countries of South America in 2000 and 2001, but the number of cases has declined recently.

In New Mexico, the focus is on training cattle producers and dairy operators to be more vigilant, Dictson says. "We don't have the money or time to protect against everything, but we can raise the awareness of potential problems," he says. "In addition, we are developing new protocols aimed at finding these diseases along the border."

James Butler, a deputy undersecretary with the U.S. Department of Agriculture, says that other steps are needed to control foot-and-mouth:

- Better tests to determine if an animal has been infected.
- Incident command systems for faster responses.
- And, creation of an international task force to guide countries on how to eliminate the disease.

Another disease concern for New Mexico is bovine spongiform encephalopathy (BSE), also known as mad cow disease. People who eat products containing the BSE protein—specifically from the brain and spinal cord—can contract variant Creutzfeldt-Jakob disease, a rare but fatal disease.

While there's minimal risk of mad-cow tainted components ending up in New Mexico, Dictson and other officials want to strengthen safety measures to reduce the chance of mad cow-tainted economic aftershocks.

There has been only one case of BSE in the United States. A sick Holstein was discovered on a farm in Mabton, Wash., in December 2003. More than 50 countries cut off imports of U.S. beef, and 700 cattle in Washington state, Oregon and Idaho were killed as a precaution. The U.S. Department of Agriculture gave the beef industry another jolt last fall when it announced another

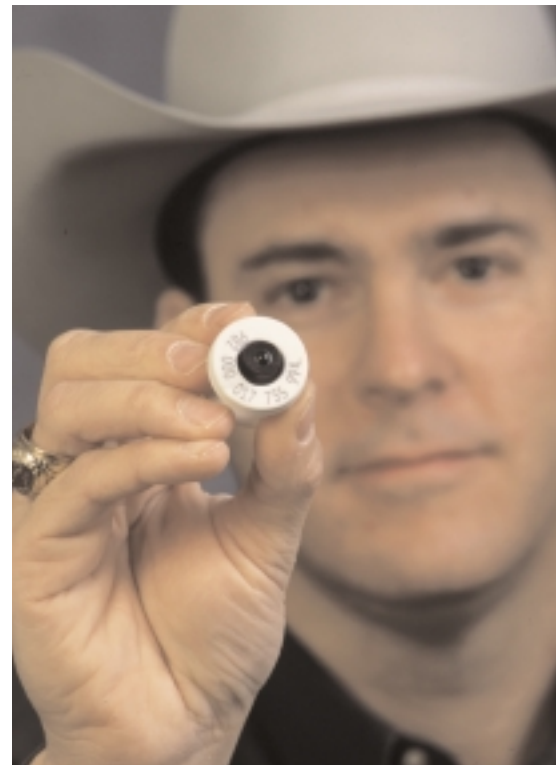
cow tested positive on initial screening tests for BSE. While additional tests showed it was a false positive, that case points out the vulnerability to the disease.

Let's See Some ID

The American cattle industry responded to BSE with traceback guidelines to improve animal disease surveillance and monitoring.

"Whether a producer has one cow or thousands, each has a responsibility in national animal identification," says Gary Wilson, co-chairman of the U.S. Animal Identification Plan Cattle Working Group (USAIP). "Every operation, no matter what the size, has cattle with the potential to shut down markets."

The USAIP's goal is to trace foreign animal disease to the source within 48 hours, he says. The plan has been developed over two years with input from more than 100 industry professionals from 70 associations and organizations.



Tag, you're it: Clay Mathis, a livestock specialist with NMSU's Cooperative Extension Service, holds a new cattle ear tag for radio frequency identification.

On the Right Track

An NMSU agricultural economist is urging state and federal officials to put improved tracking of live cattle imported to the United States from Mexico on their priority list.

"We found that if the United States actually needed this cattle tracking information, we'd be in a seriously poor situation," says NMSU's Rhonda Skaggs. "Today, Mexico has a better system than we do."

Her study, based on a two-year examination of live cattle imports through the international port of entry between Santa Teresa and San Jerónimo, was among the first to look at live cattle movements in the region.

While it's increasingly critical to be able to know exactly where an individual animal has been and where it is now, NMSU researchers found that in general there's little actual tracking of live cattle, whether those cattle are coming into the United States from Mexico or Canada.

This situation should improve significantly in the coming years as the national animal identification, known as the U.S. Animal Identification Plan, ramps up, Skaggs says. "We've certainly seen more interest on the part of governments worldwide in being able to track live cattle movements," she says.

The system combines individual animal identification numbers and premise numbers, to record where the animal moves throughout its life, says Clay Mathis, an Extension livestock specialist.

Last August, the state received a \$1.2 million grant from the U.S. Department of Agriculture for electronic livestock tracking in New Mexico, Arizona, Colorado, the Navajo Nation and the Hopi Tribe, and the Mexican states of Chihuahua and Sonora. The Tri-National Health and Identification Consortium will allow the New Mexico Livestock Board to register and track livestock in the state using radio frequency tags attached to an animal's ear. "The bottom line is to minimize the transmission of any type of foreign animal disease," says Daniel Manzanares, executive director of the board.



KEITH WELLER, USDA-ARS

A bird in hand

A damaging economic strike to agriculture can come from rather unexpected sources. Just two years ago, a threat from chickens led to a quarantine of three New Mexico counties.

At the time, state and federal agriculture officials were relieved that New Mexico eventually sidestepped the lethal avian virus called exotic Newcastle disease. While the disease poses little threat to humans or the food supply, it typically causes severe illness and death in commercial poultry and gamecock flocks.

The disease, which popped up in southern California the previous fall, had been found in parts of Nevada, Arizona and Texas, says Steve England, state veterinarian for New Mexico. The government was eventually forced to destroy more than 3.5 million birds just in California, including about 140,000 pet birds.

A case in a backyard chicken flock in El Paso, Texas, prompted officials to impose a bird quarantine in two Texas counties and in New Mexico's Doña Ana, Luna and Otero counties.

Quick action to wipe out the disease prevented an economic disaster here, but in other states, Newcastle disease moved from backyard flocks to more than 20 commercial poultry operations.



SCOTT BAUER, USDA-ARS

Find and seek: Several New Mexico veterinarians are participating in a new early warning system known as the Rapid Syndrome Validation Project. The Internet-based project is used for rapid detection and reporting of infectious disease outbreaks in cattle.

Rapid Response

A new early warning system, called the Rapid Syndrome Validation Project-Animals (RSVP-A), is also being proposed for New Mexico. Developed by Kansas State University and Sandia National Laboratories, the system is an Internet-based method for rapid detection and reporting of infectious disease outbreaks in cattle. The online database would help scientists and agencies monitor a county where clusters of animals are showing similar but unusual symptoms.

NMSU officials want to expand the existing RSVP-A program to New Mexico for on-the-ground testing. The initial phase began in January with 10 veterinarians from across the state. The program could become a broad surveillance system if the state's dairies, large animal veterinarians and cattle producers join the effort.

Participating veterinarians carry cell phones or personal digital assistants with RSVP-A software. (PDAs are not being used in the New Mexico trial phase.) When they see suspicious symptoms, they log into the RSVP-A system on the device. They submit baseline information such as location, gender, number of animals involved, syndrome classification and disease patterns. A central server, linked to the Kansas State Veterinary Diagnostic Laboratory, stores the data. The project, modeled after Sandia's RSVP-H software for humans, is funded by the U.S. Department of Agriculture.

The need to be able to quickly recognize disease symptoms—whether introduced naturally, accidentally or by humans intent on havoc—has never been more important, says Brad De Groot, project leader and Kansas State University research veterinarian. **R**