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## *Farm and Ranch Biosecurity: Is Texas Prepared?*

Following the September 11 terrorist attacks on the World Trade Center and the Pentagon, the U.S. Department of Agriculture (USDA) and Gov. Rick Perry put Texas on high alert for bioterrorism. Most people associate bioterrorism with poisoning food or water supplies or sending anthrax through the mail. However, an outbreak of a deadly viral infection among livestock also would be devastating. As a result, state agencies have turned their attention to the risk of “agroterrorist” attacks on the nation’s farms and ranches.

Texas, home to the nation’s largest livestock industry, stands to lose the most from such a scenario. While anthrax has received the bulk of media attention, livestock owners have dealt with that disease for more than a century. Foot-and-mouth disease (FMD) poses a far more serious threat, as it is highly contagious and spreads easily. The Texas Animal Health Commission (TAHC) predicts that if FMD were to infect a livestock market in Texas — whether accidentally or as a result of a deliberate plot — it could spread to a million cows in 17 states and Canada and Mexico within days.

In recent weeks, state health officials have moved to shore up plans for responding to a biological attack against Texas citizens. (See House Research Organization *Interim News* No. 77-2, November 16, 2001.)

But is Texas prepared for an outbreak of a foreign animal disease, and how would the state respond?

*State agencies have turned their attention to the risk of “agroterrorist” attacks on farms and ranches, which could hurt Texas more than any other state.*

Extensive planning for a foreign animal disease emergency has been going on for more than a year, involving several dozen state and federal agencies. TAHC, USDA, and the governments of Canada and Mexico have simulated an outbreak of FMD for purposes of emergency planning. Because some biological agents can

infect both animals and humans, animal health and public health agencies would have to coordinate the response.

Meeting in Austin on November 14, animal health commissioners heard recommendations of a report by the Texas Engineering Extension Service that evaluated Texas' ability to deal with an animal disease outbreak. While the state's overall model for an emergency response is sound, the report said, some fine-tuning is needed. TAHC will convene five working groups to develop policy recommendations for a more effective emergency response, some of which the 78th Legislature may consider.

## Livestock at risk

Many factors expose Texas livestock, poultry, or wildlife to the risk of infection by contagious diseases, whether in the course of normal agricultural operations, by accident, or because of bioterrorist action. It is important to distinguish between native animal diseases, such as brucellosis and bovine tuberculosis (TB), and foreign animal diseases — those that either have been eradicated, such as FMD, or that never have occurred on U.S. soil, such as “mad cow” disease.

With increasing consolidation in the farm and ranch industry, large numbers of animals are kept in close quarters, creating a situation in which animal diseases can spread more quickly. In 1999, no feedlot in Texas had a capacity of fewer than 1,000 head, and more than 5.5 million head of cattle were marketed through feedlots that can hold 16,000 or more. Increased density makes it more likely that one infected animal could expose thousands of others, especially with a pathogen that can become airborne, such as FMD.

One of the riskiest locations for large-scale contamination of animals is the local livestock auction. TAHC warns owners of auction and sale barns to prevent direct contact between people and animals where possible, because U.S. animals move very quickly from farm to farm and state to state through livestock auctions. An outbreak in a single sale barn could expose animals on multiple farms in multiple states within days.

Tracing the origins of a widespread outbreak would be slow work for epidemiologists. In 2000, 2.7 million head of cattle were shipped into Texas, and 1.3 million cattle and calves were shipped from Texas to other states.

Because some animal diseases take days or weeks to incubate and livestock are highly mobile, tracing the source of an infection before infected livestock were commingled with healthy animals at cattle auctions or in interstate shipping would be a paramount concern.

Increasing global travel of humans and livestock also has increased the risk of animal disease outbreaks. Each year, more than 142 million passengers fly into and out of U.S. international airports, and 2.5 million foreign animals enter the nation. Free trade agreements with Mexico and Canada have aggravated these risks. Another risk involves U.S. troops in military action overseas. Foreign animal disease bacteria can “hitch a ride” home in a soldier's gear, shoes, or body.

While Texas has eradicated many animal diseases, Mexico has not done so. Up to one million cattle are imported from Mexico into Texas each year, creating a significant biosecurity risk. Every herd of Texas beef cattle infected with bovine TB in the past 20 years has been in contact with Mexican cattle. Furthermore, the endemic problem of fever tick infestation in Mexican cattle has created the need for a permanent quarantine zone and a “border patrol” of USDA officials, who require inspection and dipping of any cattle entering the United States from Mexico. All domestic cattle within the quarantine zone must be treated before moving outside the zone. The TAHC was established in 1893 to battle fever ticks, which were making Texas cattle unmarketable in other states.

Traffic of migrant workers also could reintroduce diseases in Texas. Along the Texas-Mexico border, often as many as 50 percent of the workers in Texas slaughterhouses cross the border each day. While many biosecurity measures are in place, such as requiring workers to wear clean clothing, a recent inspection at a border facility found that migrant workers' lunchboxes were not inspected for meat products that could harbor foreign animal disease organisms.

Lunchboxes also are an issue at facilities in the Texas Panhandle, where many employees are of Korean descent. Because of an FMD outbreak in Korea, livestock exports to the United States have been banned. However, port-of-entry security measures are not foolproof, and people still could smuggle meat products into the country and carry them in lunchboxes, with the potential for infecting Texas livestock.

## Summary of Major Animal Diseases

Disease	Zoonotic?*	Mode of transmission	Major symptoms	Animal vaccine?	Exists in United States?
Anthrax	Yes	Animals get it by eating grass containing spore-forming bacteria; humans, by handling diseased animals	Staggering, trembling, convulsions, bleeding from body openings, followed by sudden death	Yes	Endemic worldwide, sporadic in Texas since cattle drives
Bovine spongiform encephalopathy ("mad cow" disease)	Rarely, a related disease occurs in humans who eat tainted meat	Consumption of contaminated meat-and-bone meal	Degeneration of central nervous system; causes nervousness, aggression, abnormal posture, lack of coordination, difficulty rising	No vaccine, no treatment	No
Brucellosis (undulant fever)	Yes	Humans get it by eating or drinking unpasteurized contaminated dairy products or handling animals that are shedding bacteria	Flu-like illness or infection of central nervous system or heart lining; causes abortion or birth of weak calves	Yes	Yes
Chronic wasting disease	Unknown	"Mad cow"-like disease affecting American elk, mule deer, and white-and blacktail deer	Progressive, fatal disease; chronic weight loss, lowered head, listlessness, repetitive walking in set patterns	No vaccine, no treatment	Yes
Foot-and-mouth disease	No, but humans can carry it in their nasal passages or on clothing and transmit it to animals	Highly infectious viral disease may be spread by direct contact with exposed animals, contact with contaminated objects, or through the air; infected animals must be destroyed	Fever, blister-like lesions, severe slobbering, rapid weight loss, reduced milk yield, lameness; incubates in only 1 to 5 days	Yes, prevents clinical symptoms but not infection; protects within 7-8 days, but each of seven types and 60 subtypes requires separate vaccine	Not since 1929, but present in about 40 other countries
Bovine tuberculosis	TB affects all warm-blooded animals	Inhalation of airborne germs, ingestion of contaminated raw milk are most common	Chronic disease with few visible symptoms except respiratory distress; lesions seen at slaughter	No	Yes, in Texas and Michigan
West Nile virus	Yes	Bird-borne illness transmitted to humans, horses, and other animals by mosquitos	In humans, similar to St. Louis encephalitis and dengue fever; in horses, central nervous system disorder	Yes, for horses only	Yes, in 15 states, including Louisiana and Arkansas

\* A zoonotic animal disease can be transmitted to humans as well as to other animals.

Sources: Texas Animal Health Commission, U.S. Department of Agriculture, U.S. Centers for Disease Control and Prevention.

Finally, agricultural operations can be attractive to terrorists because they are “soft targets” with generally low levels of security. More biological agents are lethal and highly contagious to animals than to humans. Animal disease agents are relatively easy to acquire and produce; some are environmentally resilient and can survive for long periods in organic matter. Someone who wished to infect a herd of cattle with an animal disease agent would incur a low risk of personal infection.

USDA is concerned about isolated but increasing incidents of terrorism aimed at environmental and genetic research labs. Most damage so far has come from domestic groups such as the Animal Liberation Front or groups opposed to the use of genetically modified organisms in agriculture. In April 2001, a spokesperson for People for the Ethical Treatment of Animals said she hoped that an FMD epidemic would hit the United States. She stated that this would “bring economic harm only to those who profit from giving people heart attacks and giving animals a concentration camp-like existence.”

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*The economic impact of a statewide outbreak of foot-and-mouth disease could total in the billions of dollars, according to TAHC estimates.*

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northwest region of the state. Most growth in large commercial feedlots and beef-slaughtering plants has occurred in the Panhandle-Plains area, which accounts for about four-fifths of the cattle fed in Texas.

Economic effects of a widespread animal disease outbreak could include higher food prices, decreased demand for beef as consumer fears grew, international export embargoes, and billions of dollars in lost revenues.

As part of a recent disaster-simulation exercise in Edinburg, TAHC estimated that an animal disease outbreak in Hidalgo County alone could cost federal, state, and local government entities more than \$37 million, not counting revenue lost because of state and federal quarantines that would restrict the movement of livestock products for months or years. Indemnity payments to producers for livestock destroyed to prevent the spread of disease would total about \$21 million. To put such a loss in context, Hidalgo County has only about 81,000 head of cattle, compared to about 705,000 head in Deaf Smith County in the Panhandle. TAHC estimates that the economic impact of a statewide outbreak of FMD could total \$4 billion to \$5 billion.

## Economic stakes

According to USDA and the Texas Agricultural Statistics Service, cash receipts for all agricultural commodities in Texas totaled \$13.1 billion in 1999. Livestock and livestock products accounted for about 65 percent, or \$8.5 billion. In turn, meat animals account for about three-quarters of all cash receipts from marketing of livestock and its products. Texas leads all other states in the number of farms and ranches, amount of farm and ranch land, and production of cattle, goats, sheep, lambs, and related commodities.

Raising beef cattle is Texas’ largest agricultural operation. Texas has 15 percent of all cattle in the United States and supplies 30 percent of all beef consumed in the nation. As of January 1, 2001, Texas contained 13.7 million head of cattle, valued at \$8.4 billion.

Texas counties that depend heavily on farming would be most vulnerable to economic disruption due to an animal disease outbreak. The Comptroller’s Office has identified 65 such counties, including 48 in the

Livestock are not the only animals vulnerable to foreign animal diseases. Wildlife such as deer, antelope, and feral hogs also are at risk. An outbreak of FMD could result in an immediate cancellation of all hunting seasons by the Texas Parks and Wildlife Department.

Since 1996, bovine spongiform encephalopathy (“mad cow” disease) and FMD have devastated the European livestock industry, resulting in the slaughter of almost 4 million head of cattle. The outbreaks also have cost England’s tourism industry nearly \$4.8 billion, according to government estimates. Tourism in some areas of the English countryside fell by two-thirds as thousands of animals were slaughtered by the roadsides. Hotels, pubs, restaurants, markets, and antique stores close to burial and incineration sites were hit especially hard. Other businesses such as haulers, meat packers, processors, and saddle and leather industries also suffered financial losses. Zoos and wildlife parks remain closed. Engineering firms, contractors, and utility companies have been denied access to quarantined areas, making new construction impossible.

## Animal disease outbreaks in Texas

Neither FMD nor mad cow disease is a problem for American livestock at present. In contrast, anthrax has existed in Texas since the Old West cattle drives. The spore-forming anthrax bacterium can lie dormant in soil and grass for years until environmental conditions revive it. Anthrax most commonly occurs in the hot, dry summer months after a wet, cool spring, when livestock graze close to the ground and inhale the activated spores. Humans can contract anthrax through an exposed cut on the skin when handling diseased or dying animals.

Between June and September 2001, Texas experienced the worst outbreak of anthrax in two decades, affecting Bandera, Edwards, Kinney, Real, Uvalde, and Val Verde counties. Since 1973, anthrax has been confirmed in 43 Texas counties. TAHC regulations require landowners and owners of animals that have died from anthrax to ensure that the carcasses are burned.

Brucellosis and bovine TB also have lingered in Texas. In the early 1950s, Texas had at least 20,000 herds infected with brucellosis, a bacterial disease that causes cows to abort, deliver weak calves, or produce less milk. In the 12 months ending January 31, 2001, Texas was the only state that identified any newly infected herds — six cattle herds and four swine herds. To be declared brucellosis-free, a state must be certified clean for 12 months. While no new cases have been reported recently, Texas is still on a countdown to “free” status. The countdown begins when the last herd is released from quarantine.

Eighty years ago, bovine TB affected nearly 5 percent of the nation’s herds; today, the disease persists only in Texas and Michigan. Keeping a TB-free designation is particularly important because it allows ranchers to move cattle across state lines without having them tested. In the past 12 years, TB has been a recurrent problem in parts of El Paso and Hudspeth counties known as the “El Paso milkshed.” The disease appears to have spread northward from Juarez, Mexico, infecting nine dairies that contain more than 22,000 cattle.

In November 2000, USDA’s Animal and Plant Health Inspection Service - Veterinary Services

(APHIS-VS) granted Texas “split-state” status and recognized a movement restriction zone (MRZ) in the El Paso milkshed. Cattle, bison, and goats in the two affected counties west of Interstate 10 now are subject to federal identification and testing regulations before they can be moved, while livestock in Texas’ other 252 counties may be moved without restrictions. USDA officials negotiated the terms of a depopulation agreement that gave dairy farmers 18 months to liquidate their herds in exchange for \$2,000 per cow. In turn, the Texas Department of Health will grant no new dairy permits in the MRZ.

The U.S. agriculture secretary declared an emergency and authorized the transfer of \$44 million from APHIS-VS to finance the buyout. Ranchers who raise beef cattle in the area say that the MRZ unfairly penalizes them because the TB outbreak occurred only among dairy cattle and that the federal buyout also should cover their costs.

Although the El Paso herds have been released from the quarantine, the confirmed finding of a “significant rate of TB infection” in a herd near Schulenberg in south central Texas and one positive test for TB at a San Angelo slaughter plant raise new concerns. To keep its TB-free status, Texas must report no more than one infected domestic herd in 48 months. If the cases in Schulenberg and San Angelo are traced back to domestic rather than imported cattle, Texas will lose its TB-free status, which would take three to five years to regain, depending on whether herd owners choose to depopulate.

Over the past decade, a chronic wasting disease similar to mad cow disease has threatened elk and deer herds in the Rocky Mountains. In late September 2001, a federal emergency was declared. About 1,300 elk on Colorado farms will be slaughtered to try to prevent the spread of the disease. Elk from infected herds recently were traced to Texas, Utah, Idaho, Nebraska, and Pennsylvania. Health officials worry that infected elk could spread the disease to other animals or even pass it to humans. USDA has begun a new program to reimburse elk farmers up to \$3,000 for each slaughtered animal.

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*Keeping a TB-free designation is important because it allows ranchers to move their cattle across state lines without having them tested.*

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## What About Crop Safety?

The nation's food supply seems an obvious delivery system for a bioterrorist attack, but is an attack on agricultural crops a credible threat? Dr. Larry Madden, a plant pathologist at Ohio State University, says that while agriculture is susceptible to disease outbreaks resulting from bioterrorism, this would be relatively hard to accomplish, at least in the near future. Because plant diseases spread slowly and depend greatly on weather, anticrop weapons are a lower-level threat than a fast-spreading foreign animal disease such as foot-and-mouth.

However, the widespread use of commercial hybrids has limited the genetic diversity of U.S. crops, making them more vulnerable to killer pathogens such as fungi and bacteria. Irradiating food can eliminate pathogens, but not chemical toxins. If a toxin were introduced to the food supply, detection and elimination would be the only option. Several potential pathways to infection exist.

1. A naturally occurring or genetically engineered pest or disease such as wheat rust could be released into fields by a cropduster airplane or by other means.
2. A small number of infected plants could be imported from overseas and planted on or near a large commercial growing operation. Many generations of infection might occur before anyone noticed that the plant had been hybridized into the gene pool.
3. Because seed testing is not universal and an increasing portion of the seed used in U.S. agriculture is produced overseas, a genetically modified pathogen could be introduced through imported seed stock. A pathogen could be bioengineered to harm crops, or it could contain toxins that would harm humans. For example, according to Dr. John Mullet, director of the Institute of Plant Genomics and Biotechnology at Texas A&M University, Russian scientists have been working to bioengineer a pathogen called rice blast, which could devastate the staple food for half of the world's population. The United States stockpiled the same pathogen between 1951 and 1969.

The most damaging attack on crops could come from a widespread application of agrichemicals, such

as the U.S. military's use of herbicides like Agent Orange in Indochina. Deployment of biological agents from a cropduster is theoretically possible; however, many biological agents are liquid-soluble and cannot live in extreme temperatures or conditions, making them unlikely agents for delivery by this method. According to Dr. Madden, genetic engineering for this purpose is still in the laboratory stage. Bioengineered organisms can survive in a lab or a greenhouse, but not under normal field conditions.

Contaminating crops with the ultimate goal of harming humans would be a challenge, as most crops are processed in a way that would minimize or destroy toxicity before the crops reached consumers. At least one precedent exists, however, for widespread contamination of the food production chain. That occurred with StarLink, a genetically engineered corn approved by the U.S. Environmental Protection Agency for animal feed or industrial use. Even though less than 1 percent of the 10.4 billion bushels of U.S. corn crop were planted with StarLink in 2000, it found its way into more than 300 brands of food products, prompting a massive recall from grocery shelves and restaurants. StarLink seed traveled on the wind as far as South America, and contaminated American food products were shipped to Japan before being recalled.

Since September 11, Texas Agriculture Commissioner Susan Combs has issued a series of letters to farmers and ranchers, pesticide dealers and applicators, aerial applicators, and grain warehouse operators reminding them to review and tighten their security. Should an agricultural emergency arise, the State Emergency Management Council, of which the Texas Department of Agriculture (TDA) is a member, would lead the emergency response effort. Also, TDA is forming a Texas Border Food Security Coalition of more than 50 producer groups and associations to examine additional measures needed to maintain the safety of the Texas food supply.

The U.S. Food and Drug Administration has issued an antiterrorism security plan for food producers, advising them to evaluate risks, determine critical control points, develop preventative measures, and monitor access by employees and visitors.

Texas animal health commissioners voted unanimously on November 14 to quarantine all Colorado elk, mule deer, and white- and blacktail deer to prevent these animals from entering the state. Although TAHC may quarantine exotic cervids such as elk, once an indigenous cervid such as a whitetail deer crosses the border into Texas, it falls under the regulatory authority of the Texas Parks and Wildlife Department.

## Biosecurity legislation

**Federal.** H.R. 3338 by Rep. Jerry Lewis (R-Cal.), the 2002 appropriations bill for the U.S. Department of Defense, contains \$45.2 million for USDA as part of a \$20 billion package of emergency funding for biosecurity. The bill passed the House on November 28 and has gone to the Senate. Projects focus on increased security for USDA facilities, a new facility in Iowa for biohazard research and storage, improved identification of and response to bioterrorist attacks, training in response to food-supply threats, and data collection. In October, U.S. Secretary of Agriculture Ann Veneman announced the distribution of nearly \$2 million in grants to 32 states (including \$50,000 to TAHC) to bolster emergency systems for animal disease prevention, preparedness, response, and recovery.

S. 700 by Sen. Ben Nighthorse Campbell (R-Colo.), the Animal Disease Risk Assessment, Prevention, and Control Act of 2001, created an interagency task force overseen by the agriculture secretary to prevent foreign animal diseases. Introduced in April 2001, the bill, now P.L. 107-9, passed both houses of Congress in less than two months. Among other provisions, the law requires the agriculture secretary to report to Congress on potential risks to public and animal health, security options, effectiveness of current prevention efforts, and plans to compensate farmers for animals infected with mad cow disease or FMD.

Several other bills introduced in Congress in recent months contain biosecurity initiatives.

- S. 1563 by Sen. Kay Bailey Hutchison (R-Tex.) would authorize appropriations and direct the agriculture secretary to: (1) expand research programs to protect the domestic food supply; (2) establish a consortium of higher education institutions and federal agencies to develop long-term biosecurity programs; (3) award grants for bioterrorism

protective measures; and (4) expand the capacities of APHIS and the Food Safety Inspection Service.

- H.R. 2795 by Rep. Saxby Chambliss (R-Ga.) would give the Federal Bureau of Investigation new tools to pursue criminal conspiracies involving terrorism against animal and plants. It also would establish a national clearinghouse to maintain data on such incidents and a program to provide threat and risk assessment for research centers.
- S. 1546 by Sen. Pat Roberts (R-Kan.) would provide about \$1.1 billion for biosecurity and counterterrorism initiatives relating to agriculture and livestock. Most of the money would go to support existing research and laboratory facilities.
- Several omnibus farm bills contain agroterrorism provisions or authorize appropriations for biosecurity planning and response: H.R. 2646 by Rep. Larry Combest (R-Tex.), S. 1571 by Sen. Richard Lugar (R-Ind.), and S. 1628 by Sen. Tom Harkin (D-Iowa).

**Texas.** State law gives TAHC authority to prevent, control, and/or eliminate animal diseases. Agriculture Code, chapters 161 through 168 authorize the control of animal diseases in general and provide specific guidelines for tuberculosis, brucellosis, scabies, swine and fowl diseases, and tick eradication.

The last time state lawmakers dealt with a serious animal health emergency was in the first called special session of 1983, when the 68th Legislature enacted HB 1 by Gibson to update guidelines for brucellosis control. HB 1 gave TAHC more power to restrict intrastate movement of cattle and to supervise the testing and vaccination of livestock. The law also added three public members to the commission.

In 1999, the 76th Legislature enacted HB 1244 by Crownover, authorizing TAHC to adopt memoranda of understanding with other states to control foreign animal disease outbreaks and to adopt rules for:

- ordering the slaughter of livestock and compensating the owners;
- requiring people who transport or dispose of inedible animal parts to be certified by the commission; and
- governing veterinarians' duty to report positive diagnoses of foreign animal diseases for the purposes of livestock slaughter.

Earlier this year, the 77th Legislature enacted HB 3673 by Swinford, et al., creating a criminal penalty for feeding “restricted garbage” to swine. Restricted garbage is refuse that includes animal waste or animal material byproducts. Most FMD outbreaks around the world have been linked to feeding meat scraps to swine. A Texas Department of Criminal Justice facility still may feed such garbage to swine if the garbage is treated properly in accordance with federal rules.

“Unrestricted garbage” includes non-animal refuse, vegetable waste, and refuse from handling, preparing, cooking, or consuming food that contains only vegetable matter. A person may feed unrestricted garbage to swine only if the person first registers and secures a permit from TAHC. If necessary, the commission or executive director may prohibit the feeding of all garbage, restricted or not, to swine in all or part of the state.

HB 2091 by Miller, enacted in 2001, brings Texas law into line with USDA regulations by reflecting the new “split-state” status in regard to bovine TB. The act is intended to facilitate livestock trade by allowing cattle from TB-free zones and counties of Texas to be moved to other states without TB tests, while the movement of cattle in areas still affected by TB remains restricted. In support of the USDA buyout agreement with El Paso milkshed dairies, HB 2463 by Glaze prohibits the Texas Department of Health from issuing new dairy permits in areas infected with or at high risk for bovine TB.

HB 1686 by Kolkhorst, also enacted in 2001, requires veterinarians to report specific diseases among domestic and exotic livestock and fowls to TAHC within 24 hours of diagnosis.

In its budget request for fiscal 2002-03, TAHC requested funding authority for one full-time employee to serve as an emergency management coordinator for animal health. The position, budgeted at \$54,000 per year, would have been financed solely with federal funds. However, state budget writers denied permission to add this position. Since then, TAHC has left three field positions vacant to pay for the emergency management position with state funds.

## Federal and state response plans

The federal government has proposed a national emergency response plan to coordinate the response to an outbreak of a highly contagious animal disease such as FMD. APHIS-VS would lead the effort to detect, control, and eradicate such a disease.

If an animal were diagnosed with FMD, the state veterinarian and the lead federal veterinarian in the area would be notified. The state would place a quarantine on the farm and would control movement in the surrounding area. Local agricultural and emergency officials would be notified, and all contacts to the farm would be traced. Once a positive case was confirmed, decisions would be made in regard to broadening

quarantines, stopping the movement of animals within the state, slaughtering herds, and determining whether wild animals could be a risk factor. The state veterinarian would ask the governor to declare an emergency; impose quarantine and movement restrictions; supervise the slaughter, disposal, cleaning, and disinfection of the infected herd; and determine whether a declaration of emergency by the U.S. agriculture secretary or the president was necessary.

If an “extraordinary emergency” such as a nationwide outbreak of FMD occurred, the agriculture secretary could seize, quarantine, and dispose of livestock infected with or exposed to the disease. A proposed federal indemnity compensation plan would pay producers fair market value for animals that had to be destroyed. Technically, payment would be shared equally by state and federal governments, but if a state could not pay its share, the federal government would pay the bulk of the expense. Producers who violated legal sanctions against moving or handling infected animals would receive no payment.

Texas is one of the few states that pays indemnity in such events, as authorized by Agriculture Code, sec. 161.058. In the event of a brucellosis outbreak, for example, TAHC would pay a producer \$100 per head for up to 100 head of cattle, and the federal government would pay the balance. Five years ago, the state indemnity fund paid out about \$200,000 to livestock producers; last year, payments fell to about \$30,000 because of an

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*The last time Texas lawmakers dealt with a serious animal health emergency was in 1983, during a brucellosis outbreak.*

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overall decrease in TB and brucellosis infection rates. No specific line-item funds are appropriated for this function. Rather, indemnity funds are capitalized with general revenue through Strategy A.1.1 (Field Operations) of the TAHC budget. If the commission makes indemnity payments from available funds, it must reduce other portions of its field operations budget.

**Texas response.** If Texas experienced a foreign animal disease outbreak, the response by federal, state, and local officials would be coordinated at three levels. First responders on the scene would be TAHC’s Texas Emergency Response Team (TERT), which has been planning for such an outbreak since 1998. TERT comprises TAHC veterinarians and epidemiologists and APHIS-VS personnel.

The State Emergency Management Council would oversee central operations from the Office of Emergency Management, also known as “the bunker” below the Department of Public Safety (DPS) in Austin. The Texas Disaster Act of 1975 (Government Code, ch. 418, et seq.) authorizes the council to develop response plans for a variety of public emergencies, including hurricanes, floods, and other natural disasters. The council also is charged with managing Texas’ response to any terrorist activity in the state. In March 2001, Gov. Perry, by executive order, added TAHC as an official member of the council, which is headed and staffed by DPS and comprises representatives from 31 other state agencies, boards, commissions, and organized volunteer groups.

The council would establish a standard incident command model for an emergency response, such as that for a flood or hurricane, but would modify the structure to include industry stakeholders ranging from commodity groups like the Texas and Southwestern Cattle Raisers Association to retailers like McDonald’s. As needed, governors of affected border states and countries also would be involved, especially if a statewide quarantine were imposed.

Major objectives of an emergency response to a foreign animal disease outbreak would be to (1) gain and maintain control of the incident; (2) assess indemnity coverage at the time of large-scale animal slaughtering and to review funding sources from federal and state

governments and the private sector; and (3) streamline decision-making with regard to slaughtering and disposal methods, control of human and animal movement, cleansing and disinfecting, public information, and rules and enforcement.

During April and May 2001, a foreign animal disease (FAD) working group, chaired by the TAHC executive director, and a core working committee jointly developed the state’s FAD response plan. In June, the State Emergency Management Council approved the FAD plan as part of the official State Emergency Management Plan.

A complex organizational chart assigns powers among various agencies by teams and units. For example, quarantine rules would be handled by a legal unit comprising USDA, DPS, the Texas Department of Agriculture (TDA), the Office of the Attorney General (OAG), and the Texas Parks and Wildlife Department. The community impact unit, comprising TDA, DPS, OAG, and the Texas Department of Mental Health and Mental Retardation, would consider the human impact of an animal depopulation, coordinate crisis counseling for producers, marketers, and consumers, and provide crime victim compensation and assistance.

The FAD response plan outlines each agency’s specific responsibilities. For example, the Adjutant General’s Department would provide manpower and equipment to build pens to isolate potentially affected

livestock and wildlife. The secretary of state would contact Mexican state governors and work with the U.S. State Department as appropriate. DPS would provide law enforcement support for road closures, traffic control, isolation facilities, and decontamination and animal depopulation activities. The

Texas Department of Transportation would provide earthmoving equipment for digging small pits and burying a limited number of carcasses and would provide decontamination and spraying equipment. The Texas Racing Commission would provide trained veterinarians, and the Texas Department of Health would provide disease lab support, among other functions.

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*If a foreign animal disease broke out in Texas, the TAHC’s Texas Emergency Response Team would be the first responders on the scene.*

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**Preparedness recommendations.** In June 2001, TAHC, APHIS-VS, and nearly two dozen other state, federal, and private entities conducted an exercise to test Texas' ability to deal with an outbreak of a FAD in multiple counties. Participants represented veterinary services, emergency management, law enforcement, fire services, hazardous materials, public health, public works, transportation, environmental and wildlife services, and the National Guard.

An October 2001 report by the Texas Engineering Extension Service assessed the state's emergency preparedness for a foreign animal disease outbreak on the basis of the simulation exercise. The report's recommendations include:

- improve the flow and quality of information to livestock owners, the public, the incident commander, and agency staff and field personnel participating in the response;
- enhance the authority of the state veterinarian with a review of current controlling legal authorities to aid streamlined decision-making;
- involve county and city representatives more closely in logistical support, especially to develop working relationships in advance of a crisis and to improve access to current maps of property lines and property ownership information;
- improve tracking systems (such as geographical information systems) to enhance disease surveillance;
- improve systems for tracking aggregate costs for the purposes of indemnity and compensation planning; and
- explore sharing and using other state resources more efficiently, such as equipment and manpower at state correctional facilities.

## Legislative issues

During the interim, Speaker Pete Laney has charged the House Agriculture and Livestock Committee with "review[ing] government regulations and business practices to determine whether legislation is needed to protect life and property and to detect, interdict, and respond to acts of terrorism." The following issues may be of interest to lawmakers in the interim and during the 2003 legislative session.

**Quarantine powers.** Animal health commissioners have the authority to quarantine certain species of animals from entering the state, as in the case of Colorado elk and deer at risk of harboring chronic wasting disease. They also may quarantine the premises of Texas farms or ranches where animal diseases have been confirmed, as in the case of the West Texas dairies where bovine

TB was found, and they may impose movement restriction zones (MRZs). An MRZ requires rigorous testing of animals before they can be moved into or out of the zone, whereas a quarantine may restrict animal movement through an area under any circumstances.

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*Lawmakers may consider issues related to quarantine powers, compensation for producers, border biosecurity, and resources for surveillance.*

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Emergency planners say the sections of the Agriculture Code that grant commissioners quarantine powers were written for slow-moving diseases such as TB and are not adequate for fast-moving foreign animal diseases. If FMD broke out, for example, animal health officials would like to be able to stop all intra- and interstate livestock movement until all potentially exposed animals passed the incubation period without infection. Currently, Agriculture Code, sec. 161.061(b) restricts the commissioners' quarantine powers to "a county, district, pasture, lot, ranch, farm, field, range, thoroughfare, building, stable, or stockyard pen." To streamline decision-making in a crisis, emergency planners advocate authorizing the TAHC executive director, as directed by the commissioners, to restrict livestock movement statewide.

**Indemnity and compensation.** Compensation in the event of a FAD outbreak is both a state and a national issue. Even under extraordinary conditions, it can take a week or more for the U.S. agriculture secretary to declare an emergency and many months for USDA to sort out a compensation package for producers who are asked to slaughter their herds. For example, when dairy cattle in the El Paso milkshed were diagnosed with TB, it took USDA six months to approve buyout funding for Texas dairy producers. In the case of a fast-moving disease like FMD, six months would be too long to wait.

USDA shortly will issue for public comment a proposed rule on compensation and indemnity. Of greatest concern to producers and state budget writers are the proposed amount of compensation per animal and the funding source. Federal officials often set a maximum

amount of compensation per animal that falls short of fair market value. Since private insurers do not cover emergencies like a foreign animal disease outbreak, if the federal cap is too low to meet producers' needs, producers will expect the state to pick up the difference.

Also of interest to budget writers is whether an animal health emergency that resulted from an act of terrorism would be eligible for federal disaster funds outside of the normal USDA channels — for example, through the Federal Emergency Management Agency. One limitation of USDA indemnity funding is that it is specific to certain species and certain diseases. If a fast-spreading poultry disease such as avian influenza were to break out, no specific rules exist in the USDA indemnity plan to compensate poultry producers, nor would USDA compensate producers of other nonsusceptible livestock affected by a quarantine or an MRZ because of a poultry disease outbreak.

State law allows TAHC to pay an indemnity to the owner of infected or exposed livestock if it considers compensation necessary to eradicate the disease and to dispose of livestock. In the past, commissioners have found that their authority to require slaughter and disposal of infected animals depends on their ability to compensate producers for their losses. State officials are concerned that, should a livestock emergency occur before the federal rulemaking process is complete, it could precipitate events that the state budget might not be able to address. Emergency planners say they need authority to tap into state emergency funds to provide interim compensation to producers in such an event.

**Biosecurity on the border.** Biosecurity issues at the Texas-Mexico border are causing growing uneasiness among cattle industry stakeholders. Despite USDA's efforts to employ permanent fever-tick inspectors along the border, many other serious livestock diseases can hitch a ride into Texas with unsuspecting migrant workers or travelers or on other animals. Another concern is that a terrorist carrying biological agents could cross the border easily, either by car or on foot.

Animal health officials point to the border as a key security point where Texas could focus resources for maximum effect. These resources could come in the form of enhanced international relationships through existing channels or through increased appropriation for policing, tracking, and inspecting border crossings of both animals and humans.

**Surveillance and tracking.** While the border could be an entry point for a disease organism, vigilant surveillance in livestock markets and in fields is as important as border biosecurity. An effective response depends on being able to conduct effective surveillance and tracking of an emerging disease.

Two areas of concern in this regard are adequate epidemiological support and geographic information systems (GIS) computer capability. A basic knowledge of epidemiological factors is considered critical for designing a successful emergency disease management program. GIS capability gives emergency management officials the most concise form of up-to-date information on where a disease originated, where it has spread, and where it may be headed next.

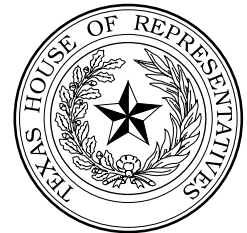
Epidemiological risk analysis involves assessing, managing, and communicating about risks. Currently, TAHC has only three animal health epidemiologists to deal with all animal diseases and to provide support for a foreign animal disease outbreak in addition to their full-time jobs.

Although TAHC has several global positioning devices, their usefulness is limited without the capability to map and manage the collected data into a GIS computer program. Emergency planners recommend standardizing state GIS software for key members of the emergency management team and making it compatible with state and federal systems. They say the ability to disseminate accurate information rapidly to other government entities, to stakeholders, and to the public is crucial in responding to a fast-spreading disease, especially one that involves multiple quarantine zones that cross county lines.

— by Dana Jepson

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