

Training to respond

A unique annual training program in Arizona can help veterinarians become prepared for a livestock emergency.

By Geni Wren

The black U.S. Border Patrol helicopter swoops over a large group of people milling around a southern Arizona ranch. The ranch, nestled against the rugged Patagonia Mountains and bordering Mexico, is an unwilling gateway for illegal aliens and drug runners to enter into Arizona. Far below the helicopter, where the people are gathered, are a couple of lifeless steers, opened up from a necropsy and attracting flies — and surrounded by veterinarians, livestock officers and law enforcement.

A potential foreign animal disease (FAD) situation? A livestock kill by illegal aliens or someone else? A bio-terrorism threat? No, but if it had been, these people would have been ready for it.

What took place on that border ranch near Nogales, Ariz., owned by third-generation rancher Bob Heilig, was part of the second annual National Livestock Emergency Response Conference hands-on training module administered by the Arizona Livestock Incidence Response Team (ALIRT) (see *Bovine Veterinarian*, October 2007). Over 130 participants from Arizona, more than 10 other states and Mexico were on hand, representing veterinarians, livestock officers, ranchers, academia, wildlife services, state departments of agriculture, the FBI, the Hopi and Navajo nations and more.



Veterinarians participating in livestock emergency training and investigation are also taught the principles of evidence collection and packaging.

ALIRT is the result of several different groups working together to find a solution to several problems, explains Peder Cuneo, DVM, MS, Extension veterinarian at the University of Arizona. "ALIRT would not work without the cooperation and interaction of producers, our Department of Agriculture and the University of Arizona. The goal of ALIRT and this training is to get fully trained and equipped first responders on-site as quickly as possible and to get an accurate diagnosis of the livestock health problem, and develop an effective response."

Cuneo is responsible for putting together the field kits, developing the training program and writing the field manual for the ALIRT program. "When we have a response, I get on-site as soon as possible and act as a coordinator between the diagnostic lab, the ALIRT committee and our ALIRT first responders."

Hands-on training

The three-day training course in early December started with talks on livestock emergencies, the impact of livestock emergencies on Mexican producers, foreign animal disease/agroterrorism response, crisis communication, international and tribal response to emergencies, public health implications, integrating law enforcement and more.

Participants were also taken to the University of Arizona's animal science pavilion where euthanized steers were used for a necropsy demonstration by diagnostician Robert Glock, DVM, PhD, Arizona Diagnostic Lab, and practitioner Jim Lytle, DVM, Wickenburg, Ariz. The veterinarians demonstrated sample-collection techniques using the supplies found in the ALIRT kit — a large duffel bag containing all the supplies needed for an investigation.

Elisabeth Lawaczeck, DVM, state public health veterinarian, Arizona Department of Health Services, demonstrated personal protective gear for different types of investigations.

Doused in ketchup to simulate blood, she showed another critical maneuver — removing a protective suit without touching the "blood" or contaminating her clothing or the ground with it.

"The only way our responders can become effective is to try out the equipment and the process and make sure they work," Cuneo says about the demonstrations.

"Where the necropsies were demonstrated and the medical facts discussed in great detail, it was not a 'class' to teach others how to do something and diagnose the problem, but an educational demonstration so that persons from other fields can better understand what we are faced with and the things we do to end up with a diagnosis," Lytle explains. "Education is the key to everyone being able to work together and solve a problem."

Ranch exercises

Buses then took participants over 80 miles south toward Nogales, then another 40 miles to Heilig's Double Bar R Ranch in the rugged border lands. Cuneo transported the demonstration steers as well.

Participants were divided into groups and rotated through three different scenarios on the ranch from a potential FMD case, toxic plant/chemical poisoning and mysterious deaths. Noted plant toxicologist Tony Knight, BVSc, MS, Colorado State University, led one of the scenarios involving a potential plant or chemical toxicity.

Participants were given limited information and asked questions to help solve the cases. Later, a spokesperson from each group explained what his/her group decided had happened and how they arrived at that conclusion; then participants were told what the "actual" cause of death was.

Tom Hairgrove, DVM, Haskell, Texas, has attended some table-top emergency exercises in Texas, but really liked the Arizona training expe-

Mexico partners with U.S.

Foreign animal disease (FAD) crossing the Mexico-United States border is not just a concern for the United States — Mexico is equally concerned about FAD. Jorge F. Cañez de la Fuente, DVM, of the Mexico-USA Commission for the Prevention of FMD and Other Exotic Diseases of Animals (CPA) also participated in the National Livestock Emergency Conference, put on by the Arizona Livestock Incident Response Team with some of his Mexican colleagues.

The CPA belongs to SAGARPA, Mexico's Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, and its eight regional coordinators are responsible for surveillance and eradication of exotic, emergent and re-emergent diseases or plagues of animals. Cañez is the coordinator of Region I, the six states of Baja California, Baja California Sur, Chihuahua, Nayarit, Sinaloa and Sonora.

"The way we work with the U.S. is through sharing information about the diseases detected, the operatives performed and their outcomes," Cañez explains. "We also implement international simulations of an outbreak, in order to test our own response systems and procedures. There is no doubt that more intimate coordination and communication is needed, and that is one of the major results of this visit to the recent ALIRT meeting."

Both countries need to work more closely, especially in suspicious cases of exotic and emerging diseases. "Only through the constant exchange of information, the sharing of good and bad experiences, training programs in conjunction with both parties and even Canada, and the expertise of the people involved, can a comprehensive protection system be implemented," Cañez says.

Cañez likes that the ALIRT system is implemented in such a way as to get to the final diagnosis. Because it is run by the state of Arizona, the University of Arizona and producer organizations, it has available money and resources for diagnostics. The Mexican program, however, is federalized and, in the cases where the problem is not a FAD, but a miscellaneous or endemic condition, the extra work done by private veterinarians and labs causes a delay in treatment/response and increases the cost to producers.

Three barriers

Cañez de la Fuente says there are three barriers to emerging and foreign animal diseases in Mexico — prevention, early detection and control and eradication or emergency response.

1. Veterinarians at entry points to the country are the first barrier, providing this phase of prevention in this continuous surveillance.
2. The second barrier, early detection, is based on the veterinarians and other people in agriculture such as farmers, ranchers, slaughterhouse works and others.
3. The third barrier, the control and eradication phase or emergency response, is formed by the GEESAs (State Groups for the Emergency in Animal Health), and other stakeholders (government, producers, army, police, etc.) who, under the Coordination of CPA, implement the DINESA (National Dispositive for Emergencies in Animal Health) operative to control and eradicate the problem.



Elisabeth Lawaczeck, DVM, demonstrated personal protective equipment using fake blood.

rience. "I left earlier training in Texas knowing that neither my producers or I were even remotely prepared for a real event. The Arizona model is so neat because it helps address domestic diseases as well as toxic plants, chemicals, etc.," he says. "I enjoyed the exercise at the ranch because it made it more realistic."

Hairgrove notes that Texas has a disaster program through the Texas Veterinary Medical Association, but says it's not to the magnitude of Arizona's program. "We need more exercises across state lines because pathogens do not know or care about boundaries," he says.

Cynthia Faux, DVM, PhD, is the Reserve Veterinary Corps Coordinator for the Washington State Department of Agriculture, Olympia, Wash., and coordinates the state's Reserve Veterinary Corps to assist the state in response to an animal health emergency. "Although we are faced with similar issues in the State of Washington, our program is organized quite

differently from the Arizona template, reflecting the unique needs of both states," Faux explains. "This kind of training gives practitioners an opportunity to hear about a variety of facets of a response to an animal health emergency, such as a law enforcement or wildlife issues perspective. At the same time, practitioners have an opportunity to offer valuable feedback to officials."

Max Irsik, DVM, Extension veterinarian at the University of Florida, was also on-hand for the training. "I have an appreciation for the coordination and logistics associated with investigating a foreign animal disease or assisting with emergency response associated with a natural disaster, and the importance of the various groups being able to work together at the onset of an event, not two weeks or months after the event occurred," Irsik says. "Preparation and appropriate training prior to an emergency event is critically important."

Heather Case, DVM, MPH, is the coordinator of emergency preparedness and response for the American Veterinary Medical Association (AVMA) and assists in coordinating information and people in order to advance all-species/all-hazards animal emergency preparedness and response, and attended the training on behalf of the AVMA. "The AVMA is very interested in learning about the many different animal emergency preparedness programs," Case says. "The National Livestock Emergency Response Conference offered a unique gathering of U.S., Mexico and tribal representatives working toward a common goal of understanding the integrated picture of preparedness for livestock emergencies."

Aside from organizations working together, there's a personal aspect to the training with others. "This conference was good in for education, and also for networking contacts that one was able to pick up," says Arizona practitioner Lytle. "A person can nev-

er have too many contacts. One day they may become valuable when you have a problem. At that point in time it is nice to already know the voice at the end of the line."

Joining forces

One of the unique aspects of the emergency training, as well as the ALIRT program, is that it involves producers, veterinarians, and industry, academia, regulatory and law enforcement entities. "That is one of the main points of the ALIRT program," Cuneo explains. "Now everyone on your list knows who to call and how to get help. A very important part of the ALIRT program is to keep everybody that needs to know what is going on fully informed as to the progress of an investigation and response."

Lytle, who has been personally involved with the ALIRT program as a food animal veterinarian, says one of its important parts is to encourage and support the interdisciplinary response that will be required when an FAD or act of bioterrorism occurs. As veterinarians, we are used to handling things all the way through and when one of these events happens we are going to be overwhelmed and will need all the support agencies as the consequences will be far beyond the

The U.S. Border Patrol is a constant presence around border ranches.



Tom Hairgrove, DVM, says good biosecurity and management for common diseases also apply to foreign animal disease.



Max Irsik, DVM, says states such as Florida also are at risk from illegal aliens and numerous ports of entry.

Border ranching is a challenge

The challenges of ranching on the border are many. Southern Arizona rancher Bob Heilig, Double Bar R Ranch, says some challenges are typical — providing water sources up into rugged mountain pastures, potential toxic



Arizona rancher Bob Heilig says cut fences and broken water pipes are a consequence of illegal aliens traveling through his land.

plant problems (in his case, pigweed which is high in nitrates) and covering a lot of ground (13,000 acres) on horseback.

Other challenges, however, are not so typical. Illegal aliens and drug runners constantly move through his land, leaving behind cut fences and destroyed water pipes in their quest for water. Installing gates doesn't help, as illegals fear sensors that will alert Border Patrol, so they cut fences instead. Heilig routinely carries 25-30 feet of smooth wire on his horse to repair fences. "It's impossible to ride all of those fences," Heilig says, "and it takes twice as long to check cows."

Heilig, who lost 50,000 gallons of water out of storage tanks to busted water lines or valves left open, is installing drinking fountains with spring-loaded handles and signs so people can get a much-needed drink but not destroy his pipe.

Though the Patagonia Mountains are home to jaguars, mountain lions and black bears, it's the human element that presents the most danger. Heilig, who spent years in the Secret Service and U.S. intelligence before retiring to the ranch, says several cartels control the flow drugs and human smuggling across the border. He's had an AK 47 pointed at him and comes across stashed dope on a regular basis. On those occasions, he contacts the U.S. Border Patrol.

Sometimes his cattle even get in on the action and are used to camouflage drug runners on horseback. Border Patrol helicopters just see a group of cattle moving and from a great distance can't distinguish the interlopers from the cows.

Stray Mexican cattle often find their way onto his ranch. Heilig's hired hand is from a ranch in Mexico and is familiar with nearby Mexican ranches and their brands and tags. "My cowboy wonders why we don't have premises ID in this country," Heilig notes. "Mexican cattle have ear tags with brands on them and premises ID. We know where they belong."

Usually, Heilig and the Mexican ranchers call each other when they locate strays and meet at the border to exchange them. "I can take people to places on the border where there is no fence," Heilig says. "Cattle roam freely and so do people. It's complicated."

Because of the animal movement, Heilig keeps his bulls in an interior pasture so stray Mexican cows, often infected with trichomoniasis, can't get to them. "Anyone could move sick animals across the border," he says.

individual veterinarian's ability to handle them."

The livestock industry is very broad, complex and widespread with many stakeholders in multiple geographical locations. "Coordinated efforts are the key to successful response," says Case, of the AVMA.

Kevin "Zeke" Austin is a special investigator for the Arizona Department of Agriculture in Phoenix and is responsible for the investigation of complex livestock crimes which may include theft, fraud, forgery, Universal Commercial Code violations, death of livestock and felony cruelty. Austin's unique capabilities lend a rare expertise for investigating livestock cases.

Austin spent six years as a slaughterhouse and meat processing inspector which gave him a great deal of training in livestock anatomy, especially postmortem inspection of meat animals, and crime-scene metal detection (for finding metallic objects which may have been used to kill livestock, such as bullets, arrows or darts). "I was able to see many diseased and sick livestock in my six-year career," Austin says.

Austin believes integrating law enforcement into the program makes the ALIRT team more complete. "There are responders who are experts in identifying a problem and now they have contacts with the authority to control a scene." He notes, however, that he would have liked to have seen participation by U.S. Border Patrol agents in the training. "I have worked with many Border Patrol agents and with the proper training they could be very advantageous to the ALIRT program," Austin says. "The open border area is very high-risk and the U.S. Border Patrol should be integrated into the program."

Lytle agrees and says, "The more eyes and ears that we have, the better. With the ALIRT program and its inclusion of county agents, livestock officers and others, it is good because each one of the group has had a basic educational background into the pro-

gram and knows how to get in touch with others in the chain. They may also be the first to see a problem and with a basic education about FADs may get the ball rolling to an earlier diagnosis."

Irsik says it's vital for the veterinary profession, private practitioners, industry, government and academics to be able to participate and interact with other agencies or groups within the industry in an effective and efficient manner if a foreign animal disease would be introduced into the country. "All areas of expertise would be needed in an emergency response, and in order for a response to be efficient and timely the various groups will have to work together," Irsik says. "Having them all together in a training program greatly facilitates their ability and understanding of the processes needed to respond and protect the livestock economy of the United States." Irsik notes that this is also important if a natural disaster affects livestock production, such as hurricanes or tornadoes in Florida, a fire in California or a blizzard in the Midwest.

Veterinarian's role

Food animal veterinarians are on the "front line" when it comes to early recognition of a foreign animal disease, and their input and participation in trainings such as this is critical, says Washington State's Faux. "I expect most food animal practitioners recognize the value of such training, but they may be unaware how important their perspective and input is in planning for an animal health emergency response."

Veterinarians have extensive training in pathology, clinical examination and understanding of what is "normal" for their producers and livestock, Cuneo says, and are a natural fit for investigating livestock events.

Irsik agrees and says veterinarians receive extensive training in disease processes, and understand modes of transmission, vectors and biosecurity.

"Veterinarians need to know the livestock officers, law enforcement agencies and personnel prior to an animal health or disaster incident in order to save time and help to mobilize the necessary resources as needed in a timely and efficient manner," he says. "The local veterinarian will probably be the first person on the ground in many situations and will be the person making initial contact with appropriate agencies and/or people, indicating that an animal health event needs to be evaluated and a response is indicated."



Livestock officer Zeke Austin believes integrating law enforcement makes the ALIRT team more complete.

Jim Lytle, DVM, demonstrated a necropsy and sample-taking techniques.



Training opportunities and resources

Below are listed a few resources for livestock emergency training and education:

- 2008 National Livestock Emergency Response Conference in December. Check the ALIRT Web site for more information as it becomes available at <http://ag.arizona.edu/ans/alirt/>.
- Foreign Animal Disease Training Course offered by Colorado State University, July 2008. For a description of the course, visit www.cvms.colostate.edu/aphi/web07/Outreach/training.html.
- University of Wisconsin-Madison School of Veterinary Medicine foreign animal disease training, August 3–8, Madison, Wis. www.vet.med.wisc.edu/pbs/courses/FAD2008
- The Center for Food Security and Public Health, Iowa State University, has available a wealth of resources on foreign animal diseases, zoonotic diseases, web-courses, biological risk management training, textbooks and bio/agroterrorism CDs. Visit the website at www.cfsph.iastate.edu.
- The American Veterinary Medical Association has available training materials for emergency and disaster preparedness. Visit the AVMA at www.avma.org.
- Contact your state veterinarian or Extension office to find out about emergency programs in your state.

Arizona livestock officer Austin says the veterinarian is the key to identifying if there is a potential foreign animal disease problem or if a bioterrorism act has occurred. "As a part of their 'kit' they should have contact information for their local sheriff and livestock official. Everything that comes from the veterinarian will determine the next step."

Hairgrove encourages every food-animal-supply veterinarian to get involved. "We need more train-the-trainer programs. Older practitioners who may be slowing down in practice have a wealth of experience and knowledge, and would be invaluable in educating veterinarians and producers. Biosecurity is biosecurity, be it foot-and-mouth or BVDV. Good biosecurity and management for common diseases also apply to biosecurity and biocontainment of a foreign animal disease."

The AVMA recognizes the importance of training programs such as ALIRT which enables the veterinary profession to be adequately prepared to meet the challenges of protecting public health, animal health and food production, Case adds. "The veteri-

narian is the first line of defense in responding to outbreaks of diseases in animals."

Each state is unique

Obviously, Arizona has numerous challenges when dealing with livestock emergencies, potential foreign animal disease or even bioterrorism. "It has a combination of very extensively managed cow-calf producers with very intensive dairy and feedlot industries," Cuneo explains. It also has large rural areas that are underserved by veterinary support, an international border and large areas of Native American lands.

Lytle adds that the average ranch in Arizona will have a carrying density of 3–15 cows per section (one section is 1 square mile or 640 acres). "With ranches running from 100–15,000 head of mother cows, one can see that we are spread far and thin," Lytle says. "It is conceivable to have a major problem and the producer not be aware of it for some time. Add to this remoteness the porous international border, foot traffic and garbage left behind, our exposure to problems is great." Lytle says another problem is legal international

travelers by the thousands who are hours out of countries with FADs who travel our rural highways and because of their interest in the "western lifestyle, often stop and, look and have contact with livestock.

Every state, however, has its own unique set of challenges. Florida is considered a sentinel state due to its geography and the number of people entering and leaving the country via the state. "We have numerous ports, airlines, cruise lines, and an extensive border coast line," Irsik says. "We have a huge tourist draw which brings in people from all over the world, as well as people trying to enter the country illegally from water routes." He adds that Florida has a State Agriculture Response Team, which is mobilized more in response to a hurricane or weather event rather than a foreign animal disease.

Cuneo says that New Mexico has implemented the ALIRT program that mirrors Arizona, and that Colorado and Washington are working on similar programs. But protecting the border against potential foreign animal disease or bioterrorism is not just a one-sided activity for the United States. Mexico has been a valuable partner in working with the United States and implementing its own programs (see sidebar). "Sonora and Chihuahua, Mexico, have requested our training program and are working toward development of an ALIRT-type program," Cuneo adds.

While there is no single national emergency program, the AVMA is committed to advancing all-species/all-hazards animal emergency preparedness and response efforts, Case says. "We encourage veterinarians to be active in disaster preparedness

and response efforts at the local, state and federal levels. Additionally, the AVMA offers educational materials to assist veterinarians, animal owners and others interested in the well-being of animals to prepare for animal safety in the event of a disaster. All disasters and emergencies are local. Encouraging states to prepare for the needs of the individual state increases the likelihood of a more effective response."

The Arizona training is a good start, and from these sessions practitioners can go back to their states and develop a state-specific program, Irsik suggests. "The logistics need to be in place before a disaster ever occurs, not during or after an event. Under certain conditions, the economy of the United States could be threatened and responsible groups need to be prepared." ■

Toxicologist Tony Knight, BVSc, MS (center), led an exercise dealing with a potential toxic plant or chemical.



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