

Biosecurity trends at Colorado State University

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Disease outbreaks require updated biosecurity protocols

While Ebola is the top virus in the news, horse owners had a brush with a viral outbreak this summer. Vesicular stomatitis, spread to horses by flies, caused blister-like sores around the mouth and nose as well as seeping lesions around the coronary band on the hooves.



Ranch horse versatility team coach Corky Hall inspects a horse's mouth for signs of vesicular stomatitis, which is a viral infection that causes sores around the mouth and nostrils. It can also show up along the hoof of the horse in the area of the coronary band. The sores may start small, but can lead to painful blistering that can cause the horse to avoid water and food. Colorado was hit so hard this summer by an outbreak that the state veterinarian had to step in, quarantine horses to their home barns, and cancel events to try to halt the spread of the virus. Photo by Dixie Crowe.

The outbreak was so fast and severe that Colorado's state veterinarian quarantined horses to their home barns and asked equine event managers to cancel all activities to try to stop the epidemic. Some events were cancelled and barns and owners complied with the quarantine, but others continued with their plans, completely ignoring the danger of exposure.

Antibiotics were not an appropriate or effective treatment for the disease. Horses that did fall ill suffered lesions within 24-48 hours after an elevated temperature. Severity of the cases ranged from sores around the mouth that affected the horse's ability to eat and drink, lameness due to coronary band lesions, sloughing of the tongue's surface, and several months for horses to fully recover.

According to the [Colorado Department of Agriculture's](#) website as of mid-October, 326 premises tested positive for VS, and 65 were still under quarantine. Fourteen counties were affected by the outbreak including Larimer and Weld.

On October 27 and 29, [Dr. Josie Traub-Dargatz](#) from Colorado State University's veterinary teaching hospital shared her work solving biosecurity issues during disease outbreaks at equine facilities with students in the equine disease management class. "If you have a relatively mobile horse population, you're probably going to get a contagious disease in some of your horses, sometime, and the key is to be on top of it," Dr. Traub-Dargatz said. "Determine the cause, take action as though it's a bad thing, and if two days later it's not a bad thing, great. But if two days later, it's a really bad thing and you didn't do anything, then it's spread more on your farm."

Dr. Traub-Dargatz explained that biosecurity needed to be evaluated before an outbreak. In some cases, diseases were spread by design flaws in facilities, on the wheels of a vehicle driven into contaminated pens, or on the clothing or footwear of personnel.

"Have a day-to-day protocol that reduces the risk, hand washing being the main one," Dr. Traub-Dargatz said. "But when there's a problem, implementing this higher level of hygiene early and appropriately is really important."

For some owners, the vesicular stomatitis outbreak was the first time they considered biosecurity and the safety of their horses. Erin Munroe, a member of [CSU's ranch horse versatility team](#), said that it was the first time she'd run into a problem like this. "I had never thought about it, honestly, until something like this happens," Munroe said. "As I was working with horses here, I started thinking maybe I should change my clothes and my boots before I visit my horse."

Since the quarantine was lifted and students started using CSU's equine facility for team practices, they've had to follow specific procedures each time they brought their horses on the property. A member of the team checked each horse and rider into the logbook, the horse's temperature was taken and recorded, and the team's coaches visually inspect each horse's nose, mouth, and coronary bands along the hooves.



Paige Robertson (left), a biomedical engineering major, checks ranch horse versatility teammate Lisa Banbury and her horse into the team's horse health logbook. Lisa has to take her horse's temperature with a digital thermometer as part of the weekly check-in procedure. An elevated temperature may be an early indication of an infectious disease like vesicular stomatitis. Keeping the horses tied to their trailers keeps them from direct contact with other people or horses until they are cleared to enter the facility. Photo by Dixie Crowe.

However, not every equine facility in Colorado or in neighboring states followed their own rules. Dyllan Freeberg, a member of CSU's rodeo team, said that while up-to-date health paperwork was required it wasn't always checked.

"For all the college rodeos this fall, they required two-day or newer health certificates before you could come on grounds," Freeberg said. "But they only physically checked our certs out at one rodeo. The other four, we could have had stolen horses. I guess they put the responsibility on the coaches from your home school."

In 2012 a [biosecurity tool kit for equine events](#) was written to help event managers reduce the risk of infectious disease outbreaks at their event. The second part of the tool kit established a protocol for what to do if a disease was discovered at the event and how to handle it.

"It's about having a plan," Dr. Traub-Dargatz said. "So that when it happens we're not developing the plan, we already have one."

The [US Department of Agriculture produced a brochure](#) on biosecurity for horse owners. Dr. Traub-Dargatz said there also were tools available online for horse owners to self-assess their level of understanding of decision points in disease management.

“Biosecurity isn’t something the equine industry is as tuned into as let’s say the swine industry, or some of the other livestock commodities,” Dr. Traub-Dargatz said. “To some people it’s a very new concept.”

Graduate student tackles biosecurity planning for small ranches

Audio Player

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Use Up/Down Arrow keys to increase or decrease volume.

In agriculture, [biosecurity](#) is a form of risk management for infectious diseases. The goal is to stop the spread of infectious diseases among livestock and crops. Biosecurity may be a buzzword in society today because of human infectious disease outbreaks like H1N1 and Ebola, but it also encompasses food security.

Colorado State University graduate student Sarah Wynkoop talked with me about her thesis project on biosecurity for small ranches and what can be done right now for these food producers to create a more secure food supply.

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