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ARTICLE:

Coronaviruses In Human and Animal Health

Gabriele Maier, CE Specialist for Beef Cattle Herd Health and Production

April, 2020

Now that we are in the midst of the Covid19 outbreak, you might wonder about how this virus is different from coronaviruses that infect livestock and other animals. Let's try and answer some questions you might have with regards to this topic.

How widespread are coronaviruses?

Disease from coronaviruses is very common in humans and animals. Many species have their own version of coronavirus. In fact, one of the causes of the common cold in people is a coronavirus. What's important to understand is that in general, these viruses stick with a species based on how their surface proteins fit receptors on the cells of their target species, in a lock and key fashion. The reason this novel coronavirus is such a threat is because it is new to our species, there is no immunity to it in the population, it spreads easily, and it can cause severe disease.

What is the source of the novel coronavirus?

SARS-CoV-2, the official name of the new coronavirus, is thought to have jumped from animals to humans. The exact source is still unknown, but, at the moment, the most likely explanation is that it came from bats. You probably remember the SARS outbreak from 2003, which was caused by a similar coronavirus. Bats were found to be the likely source of the virus in the 2003 SARS outbreak, and probably passed it on to other animals that were sold in markets in China, such as the palm civet, a cat-like animal. Along the way the virus underwent mutations and finally was able to infect a new host – humans. Most

How is the novel coronavirus different from coronavirus in cattle?

The good news is that the bovine coronavirus we have in the US belongs to a **different strain** of coronaviruses than the SARS-CoVs that have jumped to humans during the 2003 SARS and the current Covid19 outbreaks. Bovine coronavirus is a cause of calf diarrhea, winter dysentery in adult cattle and is thought to cause respiratory disease, for example as part of the shipping fever complex. There is no expectation that the novel coronavirus can infect cattle or that the bovine coronavirus that is endemic in the US causes disease in people. There is also **no evidence** that imported animals or animal products pose a risk for spreading Covid19, according to the CDC. Overall, there is no connection between coronavirus in cattle and SARS-CoV-2.

What about coronaviruses in other animals?

Epidemiologists are often worried about pigs as a mixing vessel for viruses that affect people and animals, e.g. for influenza viruses. Pigs have their own versions of coronaviruses that are the cause of Porcine Epidemic Diarrhea (PED) and Transmissible Gastroenteritis (TGE). However, just like in cattle, the coronaviruses in pigs are different and there is no evidence that pigs can get infected with SARS-CoV-2 or that they can transmit and spread it.

Should I worry about my pets?

At this time, there are also no reports that pets can get infected with or transmit SARS-CoV-2. However, the CDC cautions to restrict contact with pets while you are sick from Covid19 because there is still a lot we don't know about this new virus.

Would the coronavirus vaccine we have for cattle work in people?

Unfortunately, the corona virus vaccine for cattle would not work for people in the current pandemic because of the difference in strains. In fact, intentional or unintentional injections of animal vaccines in people can have adverse effects such as toxic inflammation or allergic reactions and must be avoided.

Additional resources

It is hard to escape information about Covid19 during this time. While there is a lot of information out there, not everything may be accurate. A reliable and up to date source is the CDC webpage including a page about animals:

<https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>

As time goes by, we may find out more about the source of the virus and other important facts, so check back occasionally for the latest information and recommendations.



ARTICLE:**Spring Cattle Work and COVID-19**

Larry Forero, Sheila Barry, Josh Davy, Gabriele Maier

The COVID-19 pandemic has much of the California population staying home in an effort to reduce the spread of the virus. Across the state, many grocery stores have had shelves emptied of food and other day-to-day necessities as people have stockpiled these essentials. Bob Moller, a rancher in Shasta County, recalled this was similar to the grocery stores of 1945 that noted items were out of stock or customers were limited to the number of items they were allowed to purchase.

Agriculture workers are considered “essential” and are allowed to tend crops and care for livestock. Beef cattle ranching differs from more intensive agriculture production as much of the work (fixing fence, feeding, checking cattle) is generally a solitary activity. This changes as spring work commences. While the kind of work may differ between ranches with spring calving cows and fall calving cows, establishing and following some simple protocols should reduce the risk of contracting and spreading COVID-19. Though many working cattle are not in the high risk category, many will be, and future contact with someone that is will be inevitable so precaution is necessary.

1. Maintain the Center for Disease Control Social Distancing recommendation of six feet. This might mean:
 - a. Taking separate vehicles to the work site
 - b. Requiring that the chute operator conduct all the work associated with the animal in the chute (shots, tags, etc).
 - c. Developing a system to bring cattle to the chute such that the crew maintains at least this distance.
 - d. Branding crews might need to change the process up with just one person throwing the calf and changing the ropes and only one person conducting their assigned task at the calf at a time. Crews should adhere to social distancing while waiting to conduct their task.
2. Tools and Equipment
 - a. When a task is assigned to someone, provide them with the equipment to do the task (syringe, eartagger, etc). Have them wipe the tool down with a disinfectant. For syringes, just wipe the syringe handle--do not spray alcohol or something else on the vial. Do not expose modified live vaccines to disinfectants as they may inactivate the vaccine. Let the person assigned to the task do the job—resist the urge to ear tag the animal while they are refilling the syringe. The tool needs to be in their control.
 - b. Provide plenty of hand sanitizer and wipes to disinfect equipment and tools and/or wear gloves. Also remind everyone to not touch their face when working in a group.
 - c. Consider avoiding meals together. It might be better to give the crew a gift card for takeout.
3. Limit the number of people participating
 - a. The virus spreads readily through community contact. To reduce the possibility of spread, knowing who the crew is and having an idea of who they have been in contact with should help. If at all possible try to work with people who are not a high risk.

The authors recognize that not all of these ideas will be possible all the time, however, urge beef cattle producers to consider the severity of this pandemic and their importance as food producers as they plan their spring livestock work.

This newsletter is provided by the UC Cooperative Extension Natural Resources Program in the San Francisco Bay Area and provides information to managers of both public and private rangelands. RANGELAND, which is land characterized by natural vegetation i.e., grass, forbs and shrubs and managed as a natural ecosystem, is the predominate source of OPEN SPACE in the San Francisco Bay Area.

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