

# COVID-19 vs. African swine fever (ASF) FAQs

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## **Q: Are the recent novel Coronavirus and African swine fever outbreaks related?**

**A:** Two completely different viral outbreaks are making international headlines and originating in China – one affects people and one affects pigs. COVID-19 is caused by SARS-CoV-2 and ASF by the ASFV.

They share the similarity of being viruses, but that's where it ends. COVID-19 and African swine fever (ASF) are very different. Experts agree that these viruses are not linked. "What is clear about the ongoing COVID-19 outbreak is that it has nothing to do with African swine fever," says ASF expert Dan Rock, professor of pathobiology at the University of Illinois. "These viruses are very distinct from one another – they are not closely related at all."

## **Q: Can SARS-CoV-2, the virus that causes COVID-19) be transmitted from consumers eating pork?**

**A:** There is no evidence that pigs or pork are involved in the current novel Coronavirus outbreak that originated in Wuhan, China.

## **Q: Can pigs catch this Coronavirus?**

**A:** There is no evidence to suggest that pigs can contract this particular virus. It's also worth noting that the United States does not import pigs or pork from China and that, according to the CDC, none of the few cases reported in the United States were caused by contact with imported products. U.S. pork producers follow strict biosecurity protocols in an effort to prevent pigs from being exposed to any virus.

## **Q: Help me understand how we know they are not the same.**

**A:** The two viruses are completely different in terms of their basic structure and genome, the tissues in which they replicate and the diseases that they cause, says Virologist Linda Saif, Distinguished University Professor in the Food Animal Health Research Program at The Ohio State University.

Unlike ASF which has DNA genomes, Coronaviruses (CoV) have RNA genomes which allow the virus to mutate and change very similar to influenza viruses. Saif says this is how CoV acquires the ability to infect different tissues and to infect different species of animals.

"For many years, coronaviruses have been circulating in humans that cause only mild disease like the common cold," she says. "In fact, most coronaviruses are not deadly, especially in healthy adults. Most healthy adults and adult animals recover from coronavirus infections."

## **Q: Do Coronaviruses Affect Animals?**

**A:** In 1995, Saif's laboratory was the first to document the interspecies transmission of coronaviruses from wild ruminants to cattle and from cattle to poultry. In cattle, her team documented that respiratory CoV infections frequently occur in animals shortly after periods of stress such as arrival to feedlots following long-distance shipping, and they identified them as a component of the shipping fever complex.

Stress and co-infections can make CoV infections more severe. Saif's team also showed that the respiratory strain of porcine CoV is generally a mild infection in swine, but when coupled with co-infection with other viruses like porcine reproductive and respiratory syndrome virus (PRRSV), it can be more severe.

Most animal coronaviruses infect the intestinal or respiratory tracts and cause diarrhea or respiratory disease. Saif says the best examples of CoV that infect the gut and cause diarrhea and deaths in pigs are porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus that first emerged in the U.S. in 2013-14 and are still present in pigs.

These viruses are members of two different groups of coronaviruses – alpha and delta CoV. Saif explains they are genetically distinct and do not cross-protect against one another. SARS-CoV-2 is part of a third distinct group of coronaviruses (beta CoV) and is genetically and antigenically distinct from these two swine coronaviruses, she adds.

"They are most closely related in the coronavirus family tree, like a first cousin of the SARS-CoV that infected humans in China in 2002-03 and was from a bat origin," Saif explains. "SARS-CoV-2 is also thought to be a

descendant of a bat CoV but there may be other animal hosts, most likely another wild animal that was in the seafood and wild animal market in Wuhan China where this virus originated.”

**Q: Could COVID-19 impact the swine industry?**

**A:** There is no evidence from China that COVID-19 came from pigs or even that it could infect pigs, Saif says. In addition, there was no previous data that the related SARS CoV infected pigs.

Coronaviruses have the ability to jump species from time to time under the right circumstances, Rock says. Experts believe this likely happened with COVID-19. Humans were exposed under the right circumstances to become infected.

“A unique feature of this group of coronaviruses is that they appear to be a little more promiscuous with the host they use or can infect,” Rock adds.

**Q: What can people do about the COVID-19 outbreak?**

**A:** There are no antivirals for COVID-19, but Rock believes the knowledge gained from SARS of the rapid identification of that virus and its propagation in cell culture, indicates vaccines and antiviral treatments for COVID-19 could be more rapidly developed than before. “I am not as concerned about novel coronavirus as some of the media are. Time will tell how serious a matter it actually is,” Rock says. “I believe this epidemic will subside and the push for a vaccine will drop off.”

**Q: What can people do about ASF?**

**A:** When it comes to ASF, Rock says the fact that the ASF virus is now endemic in China’s pig herd poses a major threat to the U.S. swine industry because it’s out and about. From his perspective, that’s the big question – how does the swine industry manage and deal with that virus? “Now, as at all times, it is important to be vigilant and maintain high levels of biosecurity for swine herds,” Saif says. “But this is especially critical in an effort to keep out ASF, a more severe and deadly infection than CoV, because it infects all age groups, not just the young. ASF is even more stable, more transmissible and harder to eradicate once introduced.”

	<b>2019 Novel Coronavirus, or COVID-19</b>	<b>African Swine Fever</b>
Where was it discovered?	The first outbreak was discovered in wild animals sold at a wet market in the Chinese city of Wuhan.	The first outbreak was retrospectively recognized as having occurred in 1907 after ASF was first described in 1921 in Kenya.
When was it discovered?	2019	1907
What are the symptoms?	Symptoms in humans only: Mild to severe respiratory illness with fever Cough Difficulty breathing	Signs in pigs only: Fever Reddening of skin Early leucopenia and thrombocytopenia Increased pulse and respiratory rate Listlessness, anorexia, cyanosis and incoordination Vomiting Diarrhea Abortion in pregnant sow Sudden Death
Is there a vaccine?	No	No
Is there a treatment?	There are currently no approved antivirals for SARS-CoV-2. For now there are only symptomatic treatments to treat patients who develop pneumonia.	No
How can we control the virus?	Test for the virus, isolate infected individuals and avoid contact with sick individuals or fomites. Clean and disinfect all the clothes, other contact items and premises. For humans, this means good personal hygiene—wash your hands, sneeze or cough into tissues or elbow joint, avoid sick persons and stay home if sick.	Biosecurity and implementing several hurdles or layers of protection to keep the disease out.
How many people are affected globally, as of 03/13/20?	125,048 infections and 4,613 deaths	0
How many pigs are affected?	0	Millions. It's hard to get number of infections/culled, but there is no doubt the number is significant.
How does the virus spread?	This virus probably originally emerged from an animal source but now seems to be spreading from person-to-person. At this time, it's unclear how easily or sustainably this virus is spreading between people.	It can be spread by live or dead pigs – domestic or wild – and pork products. Transmission can also occur via contaminated feed and fomites (non-living objects) such as shoes, clothes, vehicles, knives, equipment, etc., due to the high environmental resistance of the

		ASF virus. It can also be transmitted through soft ticks.
Does this virus affect humans?	YES	NO
Is the virus a public health threat?	YES	NO
Can the virus affect my pets and other animals?	UNKNOWN The virus seems to have emerged from an animal source, but is now spreading from person-to-person. Travelers to China should avoid animals (both live and dead), but there is no reason to think that any animals or pets in the U.S. might be a source of infection with this new CoV.	NO
Can the virus survive in shipped products from China?	UNKNOWN Little is known at this time. In general, because of poor survivability of CoV on surfaces, there is likely very low risk of spread from products or packaging that are shipped over a period of days or weeks at ambient temperatures. Coronaviruses are generally thought to be spread most often by respiratory droplets. Currently there is no evidence to support transmission of COVID-19 associated with imported goods and there have not been any cases of COVID-19 in the United States associated with imported goods.	YES The virus can live in feed ingredients, pork products or be transmitted through fomites on travelers.
Is the virus in the U.S.?	YES The first infection was reported on Jan. 21, 2020.	NO

CDC Source: <https://www.cdc.gov/coronavirus/2019-ncov/faq.html>

ASF Source: <https://www.oie.int/en/animal-health-in-the-world/animal-diseases/african-swine-fever/>  
<https://www.pork.org/african-swine-fever-need-know/>

Special thanks to Farm Journal's PORK for the basis of this FAQ. <https://www.porkbusiness.com/article/heres-what-makes-coronavirus-and-african-swine-fever-different>