Photographer: Gilles Sabrie/Bloomberg

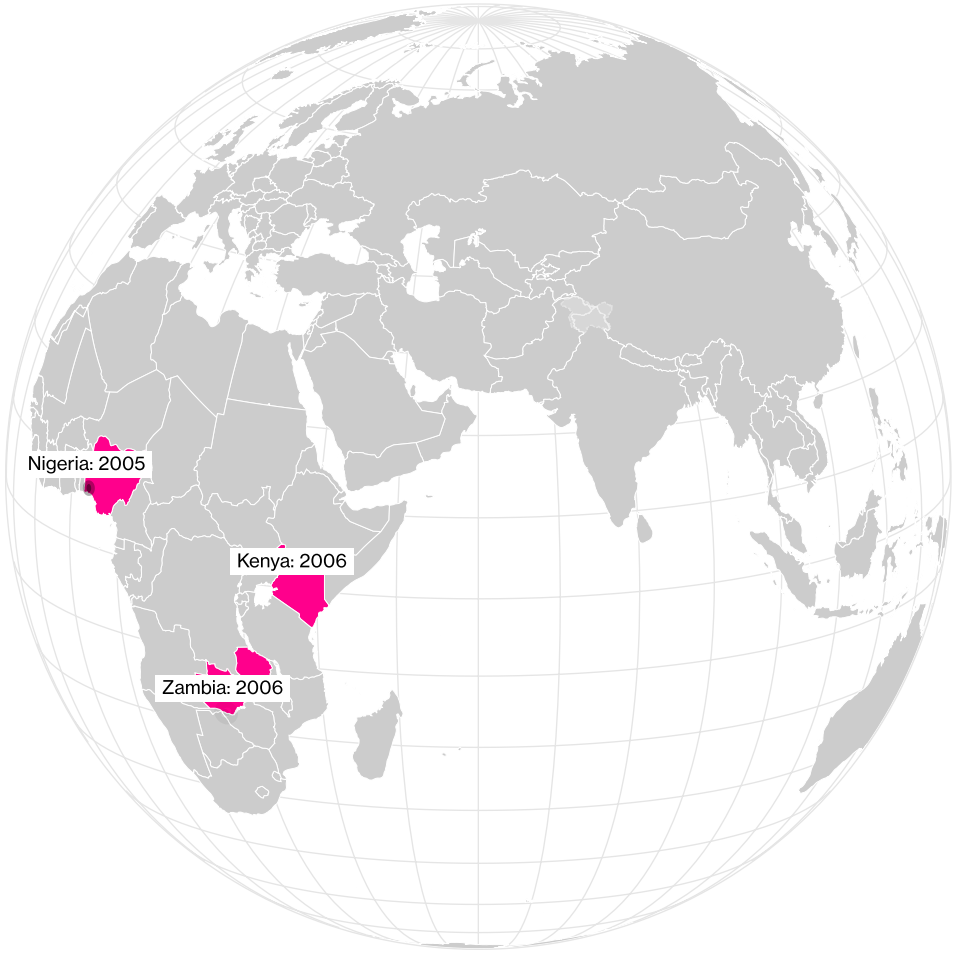
African Swine Fever Is Spreading Fast and Eliminating It Will Take Decades

By Jason Gale, Hannah Dormido and Adrian Leung
5 de junio de 2019

The deadly pig virus that jumped from Africa to Europe is now ravaging China's $128 billion pork industry and spreading to other Asian countries, an unprecedented disaster that has prompted Beijing to slaughter millions of pigs. But stopping African swine fever isn't so easy.

The virus that causes the hemorrhagic disease is highly virulent and tenacious, and spreads in multiple ways. There's no safe and effective vaccine to prevent infection, nor anything to treat it. The widespread presence in China means it's now being amplified across a country with 440 million pigs—half the planet's total—with vast trading networks, permeable land borders and farms with little or no ability to stop animal diseases.

Transcontinental Contagion
How African swine fever spread from Africa to Europe to Asia from **2005** to **2019**
Click to replay



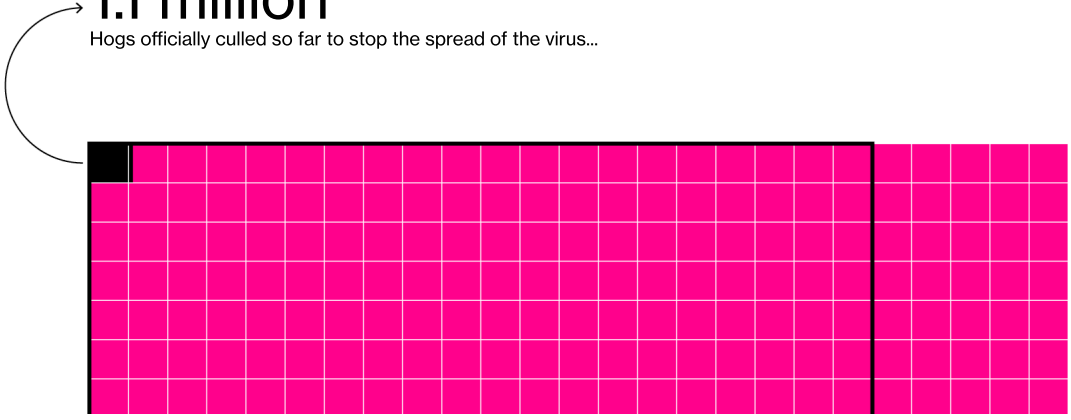
Source: OIE, as of May 23 2019

The number of pigs China will fatten this year is predicted to fall by 134 million, or 20%, from 2018—the worst annual slump since the U.S. Department of Agriculture began counting China's pigs in the mid-1970s. While the pig virus doesn't harm humans even if they eat tainted pork, the fatality rate in pigs means it could destroy the region's pork industry.

Culling in China

1.1 million

Hogs officially culled so far to stop the spread of the virus...



Source: Bloomberg Data

Spain's experience with the disease suggests that a cull alone won't be enough to solve the problem. The country implemented strict sanitary measures and industrialized its hog production system but it took 35 years and help from the European Union before the disease was eradicated in 1995. The Italian island of Sardinia has been trying unsuccessfully to get rid of the virus for four decades, and its hog population is a fraction of China's.

Multiple Routes
Main sources of African swine fever into Europe

Loading...

Source: J.M. Sánchez-Vizcaíno, et al, 2014, OIE

Mystery Source

One of the reasons why African swine fever is so hard to eradicate is that it's easy to transmit. In addition to direct contact with an infected pig, the virus can be passed on to animals that eat virus-laden pork or feed, via contaminated clothing or equipment or when a pig drinks water containing even minute quantities of the virus.

Studies show that the strain in China closely resembles one that's been spreading in Russia and other parts of Europe for more than a decade. But scientists still don't know the route it took to get into the world's most populous nation. Without knowing how the virus got in, China's customs officials will have a harder time preventing repeated introductions.

The disease is now in Mongolia, Vietnam, North Korea and possibly other neighboring countries that lack the resources to identify and control the disease. That increases the risk that, even if China does manage to control the disease domestically, it could re-enter the country via people or pork products that cross the border.

A pork stall at a market in Hanoi, Vietnam. Photographer: Yen Duong/Bloomberg

Dirty Garbage

Scientists say the virus may have arrived in China the same way it entered Europe in early 2007. A United Nations report suggests some food-waste containing pork was dumped from a ship visiting the port of Poti on the Georgian Black Sea and then eaten by one of the local pigs that are allowed to scavenge on garbage. Within weeks, 30,000 pigs had died and 80 percent of Georgia's districts were

A review of outbreaks showed that almost half were caused by the spread of virus material on vehicles and on non-disinfected workers, with feeding pigs contaminated swill or food scraps the second-biggest source. Feeding raw swill to pigs has been outlawed in China because of the risk of disease transmission, but clandestine use of non-heat-treated restaurant and household waste is reported to persist among suburban and smallholder farmers. About half of China's producers raise fewer than 500 hogs each.

Sticky Germs
Epidemiological studies of 68 outbreaks in China revealed three major causes of spread

Loading...

Source: China's Ministry of Agriculture and Rural Affairs

So far, government efforts to halt the spread through quarantining and sanitizing infected farms, culling vulnerable pigs, closing markets and restricting the movement of hogs have been insufficient, and the disease has become entrenched across the country.

Surreptitious

The virus is also hard to track. Pigs may incubate it for five to 15 days and can shed infectious particles for one to two days before falling ill. That means the virus can be silently spread in the waste, meat and blood of infected pigs that don't appear to be sick, especially when they are illegally transported or slaughtered before diagnosis.

In China, pigs are routinely trucked hundreds of miles as farmers and traders seek to take advantage of regional differences in livestock and meat availability and prices, as well as a preference for fresh meat. When hogs arrive at a new farm, they are typically mixed immediately with other swine, facilitating transmission of the disease.

Hiding Outbreaks

Identifying outbreaks early is critical for mitigating their spread. The Chinese government has pledged to pay a subsidy of 1,200 yuan per pig to compensate farms for losses, but some local governments are reported to be withholding payments—removing an incentive for farmers to report the disease.

In some instances, individuals have even been punished for publicizing outbreaks. A hog manager in Shandong province was allegedly arrested for reporting infected pigs to the national government after his efforts to alert local officials were ignored.

Saturated Blood

The virus, though, doesn't need traveling swine to spread. A single drop from an acutely infected pig can contain 50 million virus particles, and just one of those particles ingested in contaminated drinking water may be enough to transfer the disease to another pig.

Infected blood, or fluids from urine, saliva or feces, can be carried in dirt on truck tires and shoes, allowing the disease to travel hundreds of miles quite rapidly. Contaminated sources require heating to 60 degrees Celsius (140 Fahrenheit) for 30 minutes to be rendered safe.

Tens of thousands of swine have been infected in China and their carcasses represent an enormous

Stealthy Bug
African swine fever can survive temperature and pH extremes

Loading...

Sources: OIE, M.C. Niederwerder et al, S. Farez et al, K. Davies et al, European Food Safety Authority

There are no published studies reporting the incidence of African swine fever virus detected in food in China. But the virus has been in Chinese pork products that were confiscated by customs officials in Japan, South Korea and Australia, suggesting that the virus has permeated the food chain in China.

Even if China is able to stop the virus transmitting from pig to pig, two other disease vectors may frustrate eradication efforts: wild boars and Ornithodoros ticks. These are the natural hosts of African swine fever virus and are widely distributed in China, though it's not yet known what role they are playing in spreading the disease there. Zhejiang province, south of Shanghai, has about 150,000 wild boars.