

BUILDING A FACTORY FARMED FUTURE, ONE PANDEMIC AT A TIME



A wave of African swine fever outbreaks has been wreaking havoc on global pork production over the past decade, with ripple effects across the whole meat industry. Luckily this livestock disease is not a direct threat to human health, but a quarter of the global pig herd may have already been wiped out and the economic costs are running well into the hundreds of billions of dollars. Yet while small farmers have been decimated, the outbreaks are a windfall for transnational meat companies, and the companies that supply them. They are once again shamelessly using this pandemic, which they helped to propagate, as a political weapon to consolidate their dominance. A new approach to livestock diseases is urgently needed that protects small farmers, consumers and animals by dismantling the main source and vector of lethal pathogens— Big Meat’s factory farms and global supply chains.

Duong Van Vu is one of thousands of Vietnamese farmers who risked everything to industrialise his pig farm. He took out loans to construct two confined barns, bought the top breed of piglets, and nourished his pigs with branded feeds sold by multinational corporations.

But in January 2019, several pigs at one of his barns in Dao Dang village fell violently ill. He thought it might be the feed making them sick, so he called the feed company. They did some tests and administered some medicines but his pigs got worse. So he called the local veterinary authorities. They took samples and sent them onwards to a lab. Those tests concluded that Mr. Vu’s farm was Vietnam’s first official case of African swine fever (ASF)-- a lethal pig disease that has killed up to a quarter of the world’s pig population over the past few years.

It was a devastating moment for Mr. Vu. He lost all his pigs and was barred from restocking for a year. A few weeks later, the pigs in his other barn were culled when they started to show similar symptoms.¹

Mr. Vu was perplexed. He’d done everything the veterinarians and company technicians had said he needed to do to keep his pigs free of diseases. He wondered if the disease may have been brought in by the traders who come to the village to buy pigs. After all, it’s likely

the disease was circulating in Vietnam unreported prior to the outbreak on his farm, as it had been detected in processed meats at around the same time.² An equally plausible explanation is that it came in through the feed he purchased (see Box 1: *Industrial feeds as a vector for ASF*).

The reality is that there is little that Mr. Vu could have done to protect his pigs from ASF. Dao Dang village, like countless other villages suffering through this current ASF pandemic in Asia and Europe, was cajoled and coerced into a globalised chain of production, subjecting farms to the new and deadly diseases that this system brings with it. ASF is just the latest in a growing list of diseases that can ruin any one of these farms on any given day.

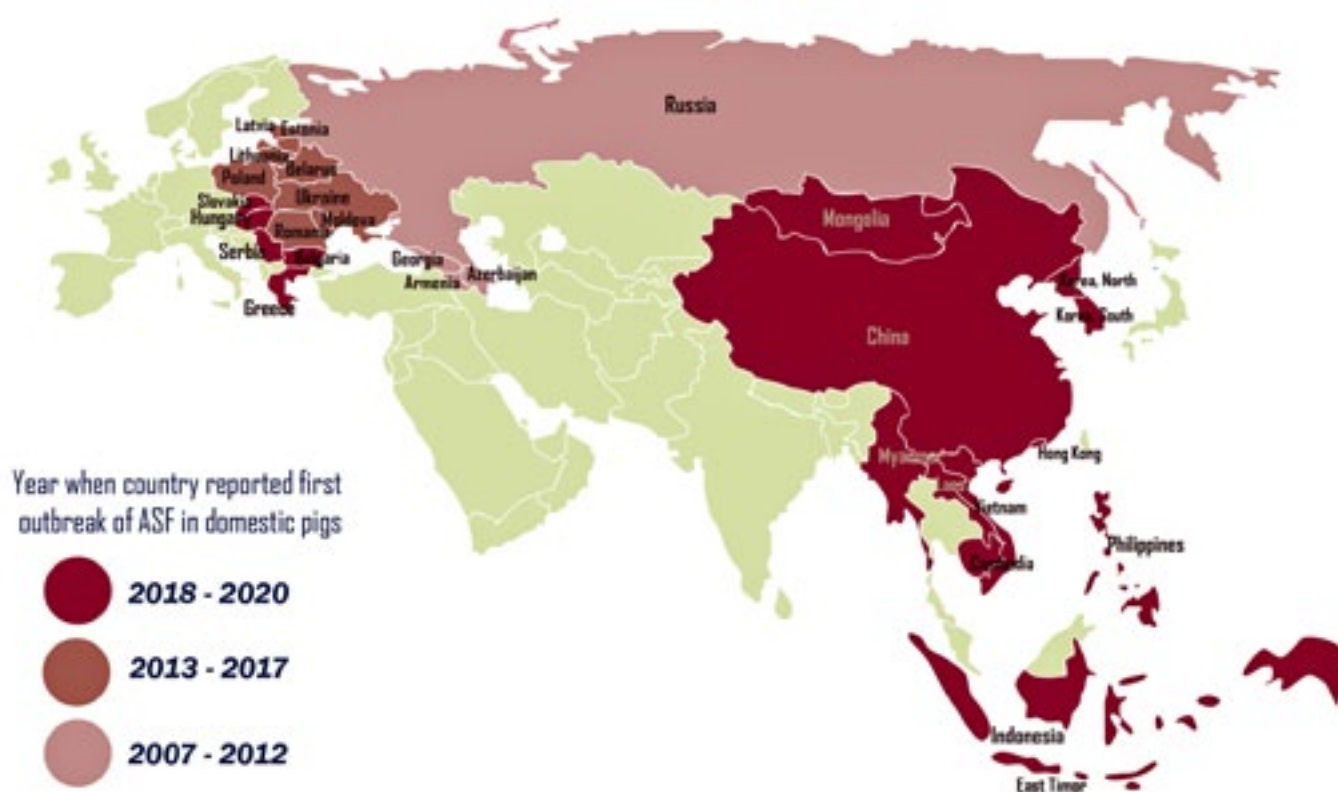
This connection between the expansion of industrial pig farming and outbreaks of ASF is often ignored. Fingers are instead pointed at small farmers and local traders, who are accused of poor hygienic practices.

“The main reason that you have African swine fever in China and Eastern Europe is that you have a lot of backyard farming in both parts of the world,” says Rick

1. “Trắng xóa chuồng trại nơi ổ dịch tả lợn châu Phi,” Nong Nghiep, 20 February 2019: <https://nongnghiep.vn/trang-xoa-chuong-trai-noi-o-dich-ta-lon-chau-phi-post236977.html>

2. On February 5, Taiwanese authorities confiscated a pork sandwich carried by an airline passenger from Vietnam to Taiwan that tested positive for ASF. See Mai Nguyen, “Vietnam confirms first African swine fever cases on three farms,” Reuters, 19 February 2019: <https://www.reuters.com/article/us-swine-fever-vietnam/vietnam-confirms-first-african-swine-fever-cases-on-three-farms-idUSKCN1Q80ZP>

Countries touched by ASF Georgia strain since 2007



Map 1. Reported outbreaks of the ASF Georgia strain

Janssen, president of the European Association of Porcine Health Management.³

But the geographic path of this current ASF outbreak in Europe and Asia corresponds more with the aggressive build up of factory farms, contract production systems and export-oriented slaughterhouses over the past decade and a half. ASF outbreaks are especially concentrated in the frontier areas where the big pork companies have been expanding, integrating these areas once dominated by small farms and local markets into transnational pork supply chains and the global trade in live pigs and animal feeds-- two of the most important vectors in the spread of ASF.

The narrative matters: it determines not only how effectively ASF is dealt with but also who wins and who loses. With the current wave of ASF outbreaks, and other recent global livestock pandemics, the false portrayal of small-scale pig farmers as the conduits for the

disease has favoured a response based on a corporate model of biosecurity that has decimated small farms and accelerated the expansion of factory farms and corporate control over the entire pork production chain (see Box 2: *GRAIN's research into global livestock diseases*).⁴

ASF goes viral in Russia's factory farms

ASF's first encounter with domestic pigs occurred in Africa at the beginning of the 20th century, when it caused lethal outbreaks in the pigs of European settlers in Kenya. The disease has mostly stayed in Africa since then, but the improper disposal of contaminated meats by shipping vessels is said to have caused several periodic outbreaks elsewhere, in both pigs and wild boars. Each of these outbreaks outside of Africa were dealt with through mass culling campaigns, since no vaccine is yet available for the disease.

3. "Can China learn from Russia and save its pigs from African swine fever?" Bloomberg, 7 December 2018: <https://www.scmp.com/news/china/politics/article/2176866/can-china-learn-russia-and-save-its-pigs-african-swine-fever>

4. GRAIN, "Viral times - The politics of emerging global animal diseases," 2008: <https://grain.org/e/614>. See also the work of Rob Wallace at Farming Pathogens: <https://farmingpathogens.wordpress.com/tag/big-farms-make-big-flu/>

Box 1: Industrial feeds as a vector for ASF

ASF can contaminate animal feeds and survive processing, storage and transportation, and even hide out in the linings of commercial feed bags.⁵ Both Russian and Chinese authorities have identified industrial feed as one of the main vectors for ASF outbreaks in their countries.⁶ Moreover, China is a global supplier for several key ingredients routinely used in industrial animal feeds that are known to transmit ASF-- including vitamin supplements and proteins made from pig's blood.⁷ Despite the obvious disease risks, pig's blood collected from pig slaughterhouses, often referred to as "porcine plasma", remains an important ingredient in industrial pig feeds, which the animal feed industry has lobbied hard to maintain.⁸

5. Scott Dee et al., "Survival of viral pathogens in animal feed ingredients under transboundary shipping models," PLoS ONE 13(3): e0194509: <https://doi.org/10.1371/journal.pone.0194509>

6. A.A. Shevchenko et al. "The spread of African swine fever in the Krasnodar Territory," Kuban Vet, 2012: http://www.kubanvet.ru/journal_n5_20121.html?template=print; Betsy Freese, "Why you can't believe what China says about African swine fever," Successful Farming, 13 March 2019: <https://www.agriculture.com/news/livestock/china-says-african-swine-fever-is-under-control-but-nobody-believes-it>

7. See Scott Dee et al., "Survival of viral pathogens in animal feed ingredients under transboundary shipping models," PLoS ONE 13(3): e0194509: <https://doi.org/10.1371/journal.pone.0194509>; announcement by China's Ministry of Agriculture on new measures to control sales of contaminated feeds on 13 September 2018 (as translated by Avian Flu Diary): <https://afludiary.blogspot.com/2018/09/china-moa-issues-new-regulations-on-pig.html>; "China suspects ASF virus in porcine-based protein powders," Feedstuffs, 26 December 2018: <https://www.feedstuffs.com/news/updated-china-suspects-asf-virus-porcine-based-protein-powders>.

8. Dongming Zhao et al. "Replication and virulence in pigs of the first African swine fever virus isolated in China," Journal of Emerging Microbes & Infections, Volume 8, 2019 - Issue 1: <https://www.tandfonline.com/doi/full/10.1080/22221751.2019.1590128>; Jane Byrne, "PED virus: Is time running out for porcine plasma as a feed ingredient?" Feed Navigator, 25 February 2014: <https://www.feednavigator.com/Article/2014/02/25/PED-virus-Is-time-running-out-for-porcine-plasma-as-a-feed-ingredient>

The current wave of outbreaks of ASF outside of Africa began in the Eastern European country of Georgia in 2007. Prior to that, this particular strain of ASF had only been detected in Zambia, Madagascar and Mozambique. It's not known for sure how the disease reached Georgia; Georgian authorities speculate it came in from ship waste dumped near the port of Poti while Russian authorities blame a former Soviet bioweapons lab, which Georgia has operated since the early 2000s in cooperation with the US Department of Defence.⁹ In either case, the disease is known to have

9. While all scientific publications endorse the theory about the entry at the port of Poti, there is no firm evidence to back this theory up. According to Dr. Levan Tsitskishvili, Senior Scientist at the Ivane Beritashvili Center of Experimental Biomedicine, no ship was identified that could have transported contaminated pork products from southern Africa and the outbreak went undiagnosed for several months in multiple areas of the country before the first cases were confirmed to the OIE, with Poti listed as outbreak number 1. In fact, there was an initial outbreak report sent to the OIE that was revised a few weeks later as an ASF outbreak after samples taken

been circulating within the country, killing thousands of pigs, before it was officially diagnosed in early July 2007. One of these initial outbreaks occurred at the country's largest pig farm complex, which may explain how the disease spread so quickly across Georgia and into neighbouring countries.¹⁰

from outbreaks in other parts of the country turned up positive in tests conducted at a UK lab. That initial report made no mention of an outbreak in Poti. See https://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?reportid=5720; https://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?reportid=7885

10. As reported by Georgia to the OIE, "Outbreak number 4" occurred at a farm housing 16,073 pigs, although the location was incorrectly reported as "Senaki, Mtskheta-Mtianet". The correct location was in Samegrelo (Senaki) and this was the largest farm in the region. Personal communication with Dr. Levan Tsitskishvili, Senior Scientist at the Ivane Beritashvili Center of Experimental Biomedicine, December 2019.

Box 2: GRAIN's research into global livestock diseases

GRAIN began working on global livestock diseases in 2006, when we launched a report on the global bird flu pandemic. That report punched a hole in the accepted wisdom, promoted by meat companies and international agencies, that the disease was mainly being spread by wild birds and backyard farms. It exposed the rapid rise of factory farms in Asia as the likely source of this highly pathogenic virus, and the global meat industry as the principal conduit for its spread. We wanted to help the small farmers and wet market traders challenge the punitive measures that they were being unfairly subjected to, and to push for an effective global response to the disease that would also prevent the industrial meat system from producing more such lethal diseases. Unfortunately this has, for the most part, not happened, and more outbreaks have occurred, notably the swine flu outbreak in Mexico in 2009. Sadly, our investigations into today's ASF pandemic read like a *déjà vu* of the work we began over a decade ago.

Some of GRAIN's reports on livestock diseases:

Fowl play: The poultry industry's central role in the bird flu crisis, 2006: <https://grain.org/e/22>

Viral times - The politics of emerging global animal diseases, 2008: <https://grain.org/e/614>

A food system that kills - Swine flu is meat industry's latest plague, 2009: <https://grain.org/e/189>

Georgia has minimal veterinary services and pig farming is pretty much entirely handled by small farmers who let their pigs roam freely. Slaughtering and processing are also very much at a small scale and within local circuits.¹¹ Yet, despite dire warnings from agencies like the United Nations Food and Agriculture Organisation (FAO), the ASF epidemic in the country was over within a year. No official outbreaks were recorded after, even though cases are suspected to have occurred subsequently, including a major outbreak at a new factory pig farm in 2014 that shattered the company's efforts to resurrect industrial pig farming in the country.¹² A recent national survey of domestic pigs found no evidence of the disease.¹³

11. D. Beltrañ-Alcrudo et al., "Descriptive and multivariate analysis of the pig sector in Georgia and its implications for disease transmission," *PLoS ONE* 13(8), 2018: e0202800. <https://doi.org/10.1371/journal.pone.0202800>

12. According to the owner of the 13,000 pig Kalanda LLC farm, Soso Murvanidze, "local veterinary authorities" claimed the outbreak was of Classical Swine Fever (CSF). However, the infectious disease expert who was invited by the company to examine the pigs, diagnosed the outbreak as ASF based on a clinical examination. It seems that no laboratory test was conducted. According to this same expert, the diagnosis of CSF was made by a veterinarian working with the British company that supplied the pigs to Kalanda LLC. Personal communications with Soso Murvanidze, November 2019 and Dr. Levan Tsitskishvili, Senior Scientist at the Ivane Beritashvili Center of Experimental biomedicine, December 2019.

13. N.G. Vepkhvadze et al, Active surveillance of African swine

It is an entirely different story in the industrial pork producing regions of neighbouring Russia, where ASF struck next.

In the early 2000s, new companies, known in Russia as agroholdings, began buying up large areas of farmland and establishing massive pig farms in the southwest of Russia, near to the border with Georgia, as part of a national programme to develop agribusiness in the region. Much of this activity centred in Krasnodor Kray, where pig production was still largely in the hands of small holder farmers.

The first ASF outbreak in Krasnodor occurred at a large pig breeding complex owned by an agroholding.¹⁴ Russian authorities reacted quickly, culling all 6,800 pigs at the farm, and this appeared to work. The following year the disease was only detected in wild boars and in a herd of a dozen or so pigs at a small farm. But in 2010, ASF broke out in more agroholding pig farms, and things then escalated dramatically.

These agroholding operations were the perfect vector for the widespread dissemination of ASF in Krasnodor and beyond-- sprawling sets of factory farms that

fever in domestic swine herds in Georgia, 2014," *Rev. Sci. Tech. Off. Int. Epiz.*, 2017, 36 (3): <https://pdfs.semanticscholar.org/d435/b0be70f03f068e7f6bb8773832ce70a13533.pdf>

14. The owner of the farm, according to the initial report from the Krasnodor authorities, is KSP Kuban CJSC: http://pravo.gov.ru/proxy/ips/?doc_itself=&infostr=xO7q8+z17flg7vLu4fDg5uDI8vH/IO3IIIOlg7+7x6+Xk7eXpIPDI5ODq9ujo&nd=140015007&page=1&rdk=1#IO



Disposal of dead pigs, some wrapped in plastic bags, after ASF was detected at the Sheung Shui abattoir in Hong Kong, May 2019 Credit: SCMP

generate huge quantities of manure, that move pigs, staff, feed and equipment constantly between locations, and that pump tonnes of meat into supply chains that stretch across the country and beyond. Even the culls used to stamp out the disease at these farms could easily spread it, as they involve the disposal of tens of thousands of contaminated pigs.

The agroholdings could not keep ASF out of their operations. Kuban Agro, an agroholding owned by a close friend of Vladimir Putin's and one of the largest pig farming companies in Krasnodor, had two outbreaks at its farms in 2011 and another two in 2012, killing a combined 16,000 pigs.¹⁵ In 2016, its farms were hit again.¹⁶ Another agroholding owned by a Saint Petersburg businessman lost 45,000 pigs when its mega-barn had an

ASF outbreak in 2012.¹⁷ Even the ultra-modern factory farm of the Danish company Dan-Invest AS was no match for the disease. In 2012 the company had an outbreak that killed over 15,000 pigs, and then another in 2016 that killed 31,000.¹⁸

Between 2010-2012, ASF outbreaks destroyed over 255,000 pigs in factory farms in Krasnodor. There were far fewer reported deaths in small farms, about 1,400.¹⁹ Yet despite the disproportionate presence and risk of ASF among the large pig farms, the Russian authorities, under pressure from the agroholdings, focused their crack down on small farmers.

15. A.A. Shevchenko et al. "The spread of African swine fever in the Krasnodar Territory," *Kuban Vet*, 2012: http://www.kubanvet.ru/journal_n5_20121.html?template=print. Kuban Agro is owned by Oleg Deripaska, who is also an associate of Donald Trump's former campaign manager Paul Manafort. See "Here's what we know about the Russian billionaire at the center of a U.S. political scandal," *LA Times*, 24 March 2017: <https://www.latimes.com/world/la-fg-oleg-deripaska-20170323-story.html>

16. Oane Visser, Alexander Kurakin and Alexander Nikulin, "Corporate social responsibility, coexistence and contestation: large farms' changing responsibilities vis-à-vis rural households in Russia," *Canadian Journal of Development Studies*, 40:4, 580-599, DOI: 10.1080/02255189.2019.1688648

17. The Saint Petersburg businessman is Alexey Antipov, and he owned the farm, Delimit LLC, through his company Baltmor-Krasnodar LLC. After the ASF outbreak, the company was taken over by Argest LLC and Solnecynaya Kultura and then, in 2016 it was taken over by a company owned by the daughter of Russia's Minister of Agriculture. See "Minister Tkachev's daughter acquired Delimit bankrupt," *Yuga*, 5 March 2016: <https://www.yuga.ru/news/392143/> and Trading House Baltmor acquired Baltmor-Krasnodar, AK&M, 2016: <http://www.akm.ru/eng/news/2016/august/24/ns5609477.htm>

18. "Dansk kæmpefarm ramt af svinepest," *Finans*, 2 August 2016: <https://finans.dk/finans/erhverv/ECE8968383/dansk-kaempefarm-ramt-af-svinepest/>

19. The most comprehensive report on outbreaks in Krasnodor between 2008-2012 is by A.A. Shevchenko et al. "The spread of African swine fever in the Krasnodar Territory," *Kuban Vet*, 2012: http://www.kubanvet.ru/journal_n5_20121.html?template=print

Box 3: Can an ASF vaccine save the day?

A vaccine against ASF could go a long way to helping farmers, big and small, deal with ASF. Research, however, has languished-- partly because there wasn't enough economic interest in developing vaccines for an "African problem" and partly because the disease can mutate rapidly. Now, however, with a single strain of ASF causing massive losses on industrial pig farms in Europe and Asia, and threatening to hit North America, research into a vaccine is picking up.

Whether or not this increase in research will deliver a solution to small farmers could depend on how the race for patents plays out. There are already several patents on strains of the current ASF virus that is circulating in Europe and Asia. The Russian state veterinary lab has patents on virus samples it collected from Russian farms.²⁰ The Pirbright Institute in the UK, which is the OIE reference lab that first assessed the Georgia samples, and the US Department of Defence's Plum Island lab in the US both used the Georgia ASF isolates to develop and patent attenuated strains of the virus that can be used for the development of vaccines.²¹ Other research labs in Spain, Canada, China and Vietnam are also hunting for their own patents for ASF vaccines.

The pharmaceutical companies will come in next, when these labs try to ink exclusive agreements for commercial development.²² Those negotiations would determine whether a vaccine will be accessible to the average small pig farmer.

20. The patents are RU2439152C1, RU2575079C1 and RU2577997C1.

21. The Pirbright patent is US 10,507,237 while Plum Island holds two relevant patents (US 9,808,520 and US 9,474,797) and has likely applied for a third covering this research: "Development of a highly effective African swine fever virus vaccine by deletion of the I177L gene results in sterile immunity against the current epidemic Eurasia strain," <https://www.biorxiv.org/content/10.1101/861666v1.full>

22. The Pirbright Institute is already working with a New Jersey-based biotechnology company to create a viable vaccine candidate for the Georgia 2007 strain. See https://www.the-scientist.com/features/can-a-vaccine-save-the-worlds-pigs-from-african-swine-fever--66931?_ga=2.110059717.1182306610.1580416002-527485586.1580416002

All pigs on small farms, whether healthy or sick, were culled if they were within a five kilometre radius of an infected farm. In the case of the Danish farms, small farmers were banned from raising any pigs within a 25 km radius.²³ And while the big farms received compensation when their pigs were culled, small farmers rarely were. These measures were part of a government policy for ASF designed "to decrease pig headcount in households and family farms [in Krasnodor] by substituting them with other farm animals."²⁴

Other regional authorities followed the same line. In the Belgorod Oblast, where a fifth of Russia's pigs are raised, local authorities tried to buy up the entire supply

of pigs from small farmers and even implemented a pre-emptive cull of backyard pigs before ASF entered the territory.

The policies pursued by Russian authorities were vigorously supported by the agroholding companies, whose executives portrayed themselves as victims of poor biosecurity practices on small farms.²⁵ "The only way to reduce risks of ASF spreading is to ban the raising of pigs in small farms," said Maxim Basov, CEO of Rusagro, one of the country's largest agroholdings.²⁶ At the time, Rusagro had not yet had an outbreak at its farms. But, a year later, in 2017, ASF hit one of its mega farms near the

23. "Dansk kæmpefarm ramt af svinepest," *Finans*, 2 August 2016: <https://finans.dk/finans/erhverv/ECE8968383/dansk-kaempefarm-ramt-af-svinepest/>

24. Oane Visser, Alexander Kurakin and Alexander Nikulin, "Corporate social responsibility, coexistence and contestation: large farms' changing responsibilities vis-à-vis rural households in Russia," *Canadian Journal of Development Studies*, 40:4, 580-599, DOI: 10.1080/02255189.2019.1688648

25. Oane Visser, Alexander Kurakin & Alexander Nikulin, "Corporate social responsibility, coexistence and contestation: large farms' changing responsibilities vis-à-vis rural households in Russia," *Canadian Journal of Development Studies*, 40:4, 580-599, DOI: 10.1080/02255189.2019.1688648

26. "Rusagro": la situation de la peste porcine africaine est proche de catastrophique", Baker Group, 2016: <https://fr.baker-group.net/articles/news-of-the-confectionery-world-articles/rusgro-situcija-s-achs-blizk-k-ktstroficheskoi.html>



Dead pigs of Chinese pig farmer Sun Dawu, SEPT 2019

Ukrainian border. This farm supplied a company-owned pork processing plant in the Tambov Oblast that had just been approved to export pork to China.²⁷

Russia's culling campaign and crack down on small farms did little to stop ASF from heading northwards into other pig producing areas or into neighbouring countries. The measures did enable the big companies to recover their production, but only at a tremendous cost to Russia's small farmers. The production of pork on small farms since the ASF outbreak began was cut in half, while production by big industrial pig farms doubled.²⁸ The Russian approach to dealing with ASF was a disaster for Russian farmers that should never have been emulated in Eastern Europe, where the disease struck next.

ASF goes west

Once ASF started to spread within Russia, it was likely that neighbouring Ukraine would be next. Experts with the FAO and other animal health agencies cautioned

that the number one risk was the preponderance of backyard farms along Ukraine's border with Russia. "The smallholder pig sector represents the highest risk for ASF introduction," warned the FAO in 2010. "If ASF were introduced into Ukraine, the first premises infected would most likely be smallholder low-biosecurity farms or backyard holdings." The FAO went on to suggest that small Ukrainian pig farmers should be encouraged to shift to rearing other animals or to grow crops instead.²⁹

In mid-2014, ASF arrived in Ukraine as the FAO had predicted, near to the Russian border and at small farms that were likely infected by contact with wild boars. But these small outbreaks were quickly dealt with, and it would take another year before the disease reappeared. This time, however, it happened at a massive farm, far from the Russian border, just outside the capital Kyiv, where companies had been aggressively building up factory pig farms.

In early August 2015, a shipment of 277 pig carcasses tested positive for ASF at a slaughterhouse outside the city of Poltava.³⁰ The meat, which had arrived a couple of weeks prior, was traced back to a farm outside of Kyiv, 300 km from the Poltava plant, that was owned by the

27. "ASF hits large pig farm in Russia's key pig region," Pig Progress, 12 September 2017: <https://www.pigprogress.net/Health/Articles/2017/9/ASF-hits-large-pig-farm-in-Russias-key-pig-region-182579E/>; https://www.rusagrogroup.ru/en/business/meat-business/subsidiaries/#jfmulticontent_c138-1; "Russia creates pork hub to target China," Food Navigator, 17 February 2016: <https://www.foodnavigator-asia.com/Article/2016/02/17/Russia-creates-pork-hub-to-target-China>

28. Ros Agro Annual Report, 2016: https://financedocbox.com/Mutual_Funds/70800773-Contents-company-s-business-about-the-report-1-2-financial-results-about-rusagro-group-corporate-governance.html

29. FAO Transboundary Disease Bulletin, No. 36, 2010: <http://www.fao.org/3/i1958e/i1958e00.pdf>

30. See the official report submitted to the OIE that states the infection was found "in the meat from pigs that were imported from farm 'Kalyta' (Brovary district, Kyiv region) during the period from 23 to 27 July 2015 (before the official diagnosis for ASF in this farm was established)." https://www.oie.int/wahis_2/temp/reports/en_imm_0000018355_20150811_194100.pdf

Box 4: What makes this pig disease African?

ASF is called *African* swine fever because that's the name white settlers in Africa gave it, when their pigs started dying of a mysterious disease that looked a lot like classical swine fever. But it is also true that ASF is mainly endemic to large parts of Africa, causing sporadic and sometimes devastating outbreaks.

ASF has become more of a problem in Africa over the past three decades as pig production has doubled and trade has increased. It has shifted from a disease spread mainly by host ticks and wild pigs to a disease spread through pig farming and the pork supply chain. While the reported losses of pigs from ASF over the past 4 years are nowhere near those of Asia or Europe, ASF is still one of the main impediments to pig production on the continent.³¹

31. Penrith, M.-L., Bastos, A. D. S., Etter, E., & Beltrán-Alcrudo, D. (2019). Epidemiology of African swine fever in Africa today: sylvatic cycle versus socio-economic imperatives. *Transboundary and Emerging Diseases*. doi:10.1111/tbed.13117

Kalita Agrocomplex, one of the country's largest producers of pork.³²

This was no ordinary farm. It was the country's largest fattening barn, holding over 60,000 pigs. Contaminated meat originating at the complex was likely sent out far and wide across the country, before the disease was officially registered. Moreover, the farm itself, which is situated within a larger complex of horticultural farms and a feed mill, generated multiple pathways for ASF to amplify and spread if left to fester for a few weeks, as it apparently had.

There have been over 350 reported outbreaks of ASF in Ukraine since the Kalita outbreak, hitting both large and small operations. One of the more recent and dramatic occurred on August 18, 2019 at a massive factory farm owned by the Danish company Zythomir Holding and backed by Nordic development banks.³³ The outbreak destroyed 95,000 pigs, nearly 2% of the entire national pig herd. It was more evidence that Danish

factory farms, which claim to practice the highest levels of biosecurity, are particularly susceptible to ASF (See *Box 5: The failure of Danish-owned farms to stop ASF*).³⁴

Romania's first brush with ASF also took place on backyard farms, to the north of the country in 2017. This initial outbreak was rapidly controlled, but a year later a series of outbreaks erupted at large farms in the southeast, generating a glut of dead pigs that the local authorities could not properly dispose of.³⁵

32. "African Swine Flu found at Kalita farm in Kyiv Oblast," *Interfax-Ukraine*. 29 July 2015: <https://www.kyivpost.com/article/content/ukraine-politics/african-swine-flu-found-at-kalita-farm-in-kyiv-oblast-394555.html?cn-reloaded=1>. The Kalita farm was constructed by a company belonging to the Ukrainian oligarch Vadim Novinsky (owner of Smart-Holding) who sold the farm in 2013 to founders of Ukraine's Karavan Hypermarkets. See "The owner of the Nikolaev shipyards found someone to sell his pig farm," *News PN*, 2013: <https://news.pn/ru/money/85569>

33. The farm in western Ukraine's Lviv region is part of the Halychyna Zahid group, which is 83% owned by Zythomir Holding A/S, a holding company established by a group of Danish pig farmers. The Nordic development banks involved are the Investment Fund for Developing Countries and the Nordic Environment Finance Corporation (NEFCO). See: <https://halwest.com.ua/en/about-us/>

34. "Dansk storfarm i Ukraine rydder," *Landbrugs Avisen*, 20 August 2019: <https://landbrugsavisen.dk/dansk-storfarm-i-ukraine-rydder-staldene-ramt-af-afrikansk-svinepest>; "Ukraine Pork Industry Takes A Huge Hit from African Swine Fever," *Pork*, August 2019: <https://www.porkbusiness.com/article/ukraine-pork-industry-takes-huge-hit-african-swine-fever>

35. Subsequent investigations by a Romanian journalist found that the Romanian government had cancelled routine health inspections of large farms that spring, and this may have been done to cover up an outbreak at a large farm owned by the son of the former head of the ruling Social Democratic Party (PSD), who is now in jail for corruption. According to the investigations, this farm slaughtered most of its pigs just prior to announcement of the presence of ASF in the area. See "Apocalipsa porcilor din Braila a venit pe apa Dunării," *Braila*, 26 August 2018: https://adevarul.ro/locale/braila/apocalipsa-porcilor-braila-venit-apa-dunarii-Seful-directiei-veterinare-cetatenii-inconstienti-vina-1_5b826cbadf52022f75cf03ac/index.html and "Băiatul lui Dragnea a scăpat de 10.000 de porci înainte de molimă! Guvernul știa că vine pesta, dar populația și ceilalți fermieri au aflat ultimii!" *Libertatea*, 7 August 2018: <https://www.libertatea.ro/stiri/investigatie-exclusiva-baiatul-lui-dragnea-scapat-de-10-000-de-porci-inainte-de-molima-valentin-dragnea-un-om-de-afaceri-mai-bine-informat-decat-altii-2354597>.

Box 5: Danish-owned farms are no match for ASF

In 2012, a truckload of 700 Danish breeder pigs heading to a factory farm owned by Rusagro was intercepted at the Polish border by Russian customs authorities. Investigations uncovered that 37 pigs had died *en route* and had then been dumped along the roadside in Poland, without notification of the incident to the Russian border authorities or the provision of the required test results for disease.³⁶ The Russian government, fearing that the pigs may have died from ASF, threatened to ban imports of Danish pigs.

The truck load was one of many that are sent to Russia and other Eastern European countries every day from Denmark. Danish pig companies export around 10,000 breeding pigs a year to Russia, accounting for about 40% of the total. The pigs pass through Poland, which now imports over 6 million Danish pigs each year.³⁷

But Danish pig companies are not merely taking control of Eastern Europe's live trade in breeder pigs; they also now own many of the region's largest pig farms. The Danish companies say their operations are modern and more environmentally friendly than the dilapidated farms of the former Eastern Bloc, and they claim to have the highest standards for biosecurity. But locals are outraged by the pollution generated by the Danish mega farms and the aggressive tactics these companies use to establish them.³⁸ The reality is that Danish companies operating in Eastern Europe are having a hard time managing diseases, particularly when it comes to ASF. Outbreaks of ASF at Danish-owned farms accounted for about a quarter of all the pig deaths from ASF outbreaks in Eastern Europe that were reported to the OIE between 2016 to May 2019.³⁹

Table 1. ASF outbreaks reported at overseas Danish pig farms

Company	Location of farm	Number of pigs killed from ASF outbreak	Year of outbreak	Summary
Russia Baltic Pork Invest ASA	Russia	110,000	2018	This outbreak in July 2018 in the Kaliningrad region is considered Russia's largest single ASF outbreak. Russia Baltic Pork Invest was founded by businessmen from Denmark, Finland and Norway to establish large-scale Danish pig farms in Russia. In 2013, Charoen Pokphand acquired a major stake in the company and owned 76% at the time of the outbreak. ⁴⁰
Goodvalley	Russia	58,000	2016; 2012	The Danish company Goodvalley (formerly Axzon), which has received equity financing from the World Bank, has pig farms in Poland (Poldanor), Ukraine (Danosha) and Russia (Dan Invest). Its Dan Invest farm in Russia's Krasnodar region was hit by ASF in 2012, resulting in the death of 17,000 pigs, and then again in 2016, killing another 41,000 pigs. ⁴¹

36. "Russia may ban import of breeding pigs from Denmark," Pig Progress, 22 May 2012: <https://www.pigprogress.net/Breeding/Management/2012/5/Russia-may-ban-import-of-breeding-pigs-from-Denmark-PP008801W/>

37. See "Two billion and rising: the global trade in live animals in eight charts," Guardian, 20 January 2020: <https://www.theguardian.com/environment/2020/jan/20/two-billion-and-rising-the-global-trade-in-live-animals-in-eight-charts>

38. See for example, "Lithuanian locals kick up stink over Danish pig farm," AFP, 28 May 2005: <http://www.terradaily.com/2005/050528024253.403zbaop.html>. When the local communities won their court case against the Danish company, Saerimner, the company filed an investor dispute case against the Government of Lithuania in 2012, for damages. See: <https://www.pigprogress.net/Pork-Processing/Meat-Companies/2012/7/Lithuanian-pork-producer-Saerimner-seeks-damages-from-the-state-PP009006W/>

39. Total from OIE is 777,244 pigs (see: https://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Disease_cards/ASF/Report_17_Global_situation_of_ASF.pdf); Calculations for Danish-owned farms are from Table 1.

40. "En farm på den russiske savanne," Berlingske, January 2014: <https://www.berlingske.dk/virksomheder/en-farm-paa-den-russiske-savanne>; "Russia: ASF reduced backyard farms; large farms profit," Pig Progress, 17 January 2019: <https://www.pigprogress.net/Health/Articles/2019/1/Russia-ASF-reduced-backyard-farms-large-farms-profit-382386E/>

41. "98 000 danske griser rammet," Svin, 26 February 2019: <https://svineportalen.no/98-000-danske-griser-rammet/>

Company	Location of farm	Number of pigs killed from ASF outbreak	Year of outbreak	Summary
Idavang	Lithuania	40,000	2014; 2018	The Danish company, Idavang (formerly Saerimner), which is 20% owned by the World Bank's IFC, is the largest pig farming company in Lithuania and one of the largest in Russia. The second ASF outbreak in Lithuania occurred at the company's farm complex in the Ignalina and Utena districts in July 2014 killing 20,000 pigs. The complex was exporting live pigs to Poland at the time. Another company farm in Skabeikiai was then hit in 2018 killing a further 20,000 pigs. ⁴²
DCH International A/S	Romania	31,000	2020	The Danish company DCH International owns nine pig farms in Romania through its subsidiary Premium Porc Group. In 2018, an ASF outbreak at a farm the company rents in Ianca killed 5,000 pigs. Then, in January 2020, the company had an outbreak at its own farm in Braila county, resulting in the loss of 26,000 pigs. ⁴³
Zythomir Holding A/S	Ukraine	95,000	2019	Zythomir Holding, a Danish company backed by Denmark's Investment Fund for Developing Countries and the Nordic development bank NEFCO, began investing in pig farming in Ukraine in 2006. In August 2019, the company's farm in western Ukraine's Lviv region had an outbreak of ASF, killing 95,000 pigs.
Heilongjiang Asia-Europe Animal Husbandry	China	73,000	2019	Heilongjiang Asia-Europe Animal Husbandry is a joint venture between the Chinese financial company Shanghai Pengxin and Denmark's state investment company Investeringsfonden for Udviklingslande. In 2019, its farm in Heilongjiang had an outbreak of ASF, killing 73,000 pigs.
	Total	397,000		

42. "Idavang igen ramt af afrikansk svinepest," Svin Effectivt Landbrug, 13 August 2018: <https://effektivtlandbrug.landbrugnet.dk/artikler/svin/idavang-igen-ramt-af-afrikansk-svinepest.aspx>

43. "Svinepest rammer dansk farm - 26.000 svin skal slagtes," Nyheder, 9 January 2020: <https://nyheder.tv2.dk/business/2020-01-09-svinepest-rammer-dansk-farm-26000-svin-skal-slagtes>; DCH International company report, December 2018: <https://premiumporc.com/wp-content/uploads/2019/09/20181210-EGF-Pr%C3%A6sentation-2018-18.0.pdf?x74642>

To the south, in Bulgaria, the initial cases of ASF in wild boars and a backyard farm were also quickly and effectively dealt with. But in July 2019, ASF struck again, this time in the country's major pig-producing region of Ruse. Four of the country's largest pig farms had outbreaks, wiping out over a fifth of the country's national pig herd.⁴⁴ The government declared a state of emergency in the affected districts and, in line with the demands of the big pig farming companies, ordered the culling of all pigs held on small farms within a 20km

44. "ASF Bulgaria: 130,000 pigs culled," Pig Progress, 9 August 2019: <https://www.pigprogress.net/Health/Articles/2019/8/ASF-Bulgaria-130000-pigs-culled-459856E/>

radius of each large farm, even though the authorities were already completely overwhelmed with trying to dispose of the dead pigs from the large farms.⁴⁵

As was the case in Russia, these draconian measures deployed against small farms were ineffective. ASF broke out again at the start of 2020, this time in the farms of Bulgaria's largest meat company. Early reports are that the farms were violating biosafety protocols and infected pigs from the company's pig breeding

45. "ASF: Bulgaria's pig industry calls for national emergency to be declared," Sofia Global, 2 August 2018: <https://sofiaglobe.com/2019/08/02/asf-bulgarias-pig-industry-calls-for-national-emergency-to-be-declared/>



People protesting against a planned, mass cull of pigs in North Sumatra, Indonesia, FEB 2020; Credit: IndonesiaExpatsBizz

complex were the likely source of contamination for the outbreak at its fattening farm. All told, 44,500 pigs were destroyed in these two farms alone.⁴⁶

Similarly, in the hog producing region of Braila County, Romania, where the authorities preemptively killed 29,000 healthy pigs in small farms in August 2018 to “protect” the big farms, ASF still swept through the county’s factory farms a couple of weeks later, destroying over 200,000 pigs, including 140,000 pigs at a single farm, the second biggest pig farm in the EU.⁴⁷

All told, ASF has killed far more pigs in Europe’s factory farms than on small farms, but it is the small farmers who are paying the price. Bigger companies have insurance and are compensated with public funds when they have outbreaks. One mega farm in Romania, for instance, owned by a Dutch businessman that no local has ever seen, received 36.5 million from the EU when

200,000 of its pigs were killed from an ASF outbreak at its Romanian farms in Gropeni.⁴⁸

The big pig farming companies can thus quickly restock, and local and national authorities typically do everything they can so these large operators get a disease-free status as soon as possible. There is even a push at the EU level, led by some of the big Danish companies invested in pig farming in Eastern Europe, for “compartmentalisation” in which corporations operating large farms in ASF-affected areas would get special authorisation to move their pigs and equipment in and out of the area.⁴⁹

Small farms, on the other hand, have been devastated by the ASF outbreaks in Eastern Europe. Not only are they struggling to deal with a new, lethal disease, but they also have to deal with the hostile “cure” administered

46. “Animals of Brestak pig farm to be euthanized,” Focus, 13 January 2020: <http://www.focus-fen.net/news/2020/01/13/443186/animals-of-brestak-pig-farm-to-be-euthanized.html>

47. “Pesta porcin , r zboi cu s tenii,” Obiectiv, 7 August 2018: <http://obiectivbr.ro/content/pesta-porcin%C4%83-r%C4%83zboi-cu-s%C4%83tenii>; “Pesta porcin african , confirmat la cea mai mare ferm din România,” RL, 25 August 2018: <http://romanalibera.ro/actualitate/a-doua-ferma-ca-marime-in-europa-aflata-in-ijudetul-braila-suspecta-de-pesta-porcina-749030>

48. “ASF hits the largest Romanian pig farm,” EuroMeat, 16 September 2018: <https://www.euromeatnews.com/Article-ASF-hits-the-largest-Romanian-pig-farm/3254>; “Apocalipsa porcilor din Br ila a venit pe apa Dun rii,” Braila, 26 August 2018: https://adevarul.ro/locale/braila/apocalipsa-porcilor-braila-venit-apa-dunarii-Seful-directiei-veterinare-cetatenii-inconstienti-vina-1_5b826cbadf52022f75cf03ac/index.html

49. See, for example, the comments from the CEO of DCH International in “Danske DCHI øger sin biosecurity mod afrikansk svinepest,” LandbrugNord, 8 September 2018: <https://landbrugnord.landbrugnet.dk/artikler/global/danske-dchi-oeger-sin-biosecurity-mod-afrikansk-svinepest.aspx>



Pigs killed by ASF that were purchased from the Mavin Group, Tuyen province, Vietnam. NOV 2019.

by their governments. Belarus, for instance, passed a law that allows the government to imprison small farmers if their pigs are infected with ASF.⁵⁰ Several states enacted measures prohibiting the grazing of pigs, such as Romania which passed an ordinance prohibiting farmers from keeping more than two pigs if they do not install confined operations matching EU regulations, something which few small farmers can afford.⁵¹

For many small farmers dealing with ASF in their areas, the only time they see public veterinary authorities is when they come to cull their pigs. "There are hardly any vets for small farmers in the rural countryside in Romania so all they do is come and kill the pigs when there is an outbreak in the vicinity," says Attila Sz cs of the Romanian grassroots peasants association Eco

Ruralis. "They shoot the pigs in the head and then leave them dead for the farmer to look after."⁵²

Few small farmers are compensated when their pigs are culled. Compensation in the EU is only provided to farmers who have registered their pigs. But most small farmers do not register their pigs because they would then have to comply with EU regulations that are inappropriate and not practical for their operations. And even those farmers who do register their pigs and follow EU regulations are not guaranteed compensation. In Poland, small farmers that have modernised their farms in line with EU directives were still denied compensation when their pigs were culled because they failed to comply with some highly technical element of the EU regulations- such as not having the right kind of door mat.⁵³

50. Meanwhile, the Government of Belarus is heavily suspected of concealing ASF outbreaks at its own state-owned factory pig farms. See: "Is there life after the ASF epidemic," Pig Progress, 2015: <https://www.pigprogress.net/Health/Articles/2015/11/Belarus-Is-there-life-after-the-ASF-epidemic-2712797W/>

51. Communication with Attila Sz cs of Eco Ruralis, January 2020.

52. Communication with Eco Ruralis (Romania), January 2020

53. See the case of farmer Hubert Ojdana in "2 lata walki o odszkodowanie za ASF," TPR, 20 January 2019: <http://www.tygodnik-rolniczy.pl/articles/hodowla-zwierzat/2-lata-walki-o-odszkodowanie-za-asf/?page=2>



Polish farmers block the A2 highway in protest of their government's actions on ASF; DEC 2018; Credit: RMF24

Small farmers are trying to stop this unfair attack. Romanian villagers have organised militias to protect their pigs from culls, and in Bulgaria farmers have blocked major highways to protest their country's ASF measures. Rural mayors in both countries refused to comply with the decrees of the national government.⁵⁴ But at the top levels, little has changed, and ASF continues its rampage through Eastern Europe's factory farms. Last year was the worst year on record for ASF outbreaks in Europe, and the first weeks of 2020 saw massive, new outbreaks on factory farms in Romania and Bulgaria.

It is only a matter of time before ASF heads further west. But, for now, the eastward movement of the disease is what is destroying pigs in epic proportions.

ASF explodes in China

In August 2018, the nightmare became real. ASF was officially declared in China, home to more than half the world's pigs.

It is still not clear how the disease moved from Eastern Europe to China. What we do know is that the first outbreaks were in the northeastern part of the country, and

54. Communication with Eco Ruralis (Romania), January 2020 and "ASF: Compulsory culling of pigs begins in southern Bulgaria," Sofia Global, 29 August 2019: <https://sofiaglobe.com/2019/08/12/asf-compulsory-culling-of-pigs-begins-in-southern-bulgaria/>

that the disease had likely been circulating there since at least March. By August, when ASF was first officially reported, the disease had already penetrated the region's trade in piglets, its factory farm sector and the supply chain of the world's number one pork producer, the WH Group-- a Chinese corporation that also owns Smithfield, the largest pig company in the US, Romania and Poland.⁵⁵

55. The first outbreak in Liaoning was traced back to 100 piglets that had been purchased in March in Jilin City by a farmer who then sold his pigs to the farmer who reported the outbreak. The second outbreak was reported at the WH Group slaughterhouse in Zhengzhou, Henan Province, and this was traced back to pigs that had been shipped over 2,000 km by road to the plant from the far northern province of Heilongjiang. The third outbreak took place in Haizhou District, Lianyungang City, Jiangsu Province at a large-scale finishing farm which claimed to be following modern biosecurity protocols, thus suggesting that contaminated feed may have been a factor in the outbreak. See "Second outbreak of ASF found in China," University of Minnesota, 16 August 2018: <https://cahfs.umn.edu/news/second-outbreak-asf-found-china/>; "Pork processor shut down over outbreak," China Daily, 18 August 2018: <http://www.chinadaily.com.cn/a/201808/18/WS5b7765e3a310add14f38673b.html>; and, "The First African Swine Fever Diagnosis Report of Jiangsu," China Animal Quarantine, 2018: https://www.vet-med.umn.edu/sites/vetmed.umn.edu/files/jiangsu_asf_first_report_2018.pdf



Vietnamese farmer Duong Van Vu inspects his farm, after suffering the country's first reported ASF outbreak, FEB 2019

This northeast is where the WH Group and other big corporations in China's pork industry have been aggressively expanding, as part of a national government project to reduce pig farming in the populous south of the country where pollution from pig farms has become unbearable and relocate it northwards.⁵⁶ But the speed and scale of this orchestrated build-up of factory pig farms, feed mills and meat processing plants in China's northeast was not at all matched by a build-up in capacity to manage the pollution and risks for disease outbreaks that it generated. Once ASF penetrated into this viral powder keg, it went off like a bomb.

Local authorities and farmers were completely overwhelmed. Diseased pigs were sent to slaughter; and millions of dead pigs were improperly buried or dumped

56. China's five-year pig production plan (2016-2020) issued by the Ministry of Agriculture divided the country's provinces into a "major" development zone (mid-northeast provinces of Henan, Shandong, Sichuan and Hebei), a zone with "potential" for development (the north-eastern provinces of Jilin, Liaoning, Heilongjiang and Inner Mongolia and a "restricted" zone encompassing most of the south-east and major cities. <https://www.reuters.com/article/us-china-farming-pigs-factbox/factbox-policies-companies-in-northern-expansion-by-chinas-pig-farmers-idUSKBN1DM12R>

along roadsides and in rivers.⁵⁷ ASF ripped through the northeast pig-producing zones and then spread rapidly to the rest of the country. Pigs literally disappeared from the Chinese countryside. One farmer from Hunan Province told the New York Times that pigs had become so rare in his area that crowds of villagers were coming out of their homes to witness him transporting his pigs to the market. "People gathered around the truck to stare at them," he said. "It's like they were seeing a panda."⁵⁸

Only a small portion of this disaster is reported in official accounts. The Chinese state claims that 1.2 million pigs were culled, when industry insiders put the real number of dead pigs from ASF outbreaks nearer to 200 million. The government essentially left China's farmers to their own devices in dealing with a lethal disease that they had no previous experience with.

57. See for example, "How Secrecy and Loopholes Fueled China's Swine Fever Crisis," Caixin, 5 July 2019: <https://www.caixinglobal.com/2019-07-05/how-secrecy-and-quarantine-fueled-chinas-swine-fever-crisis-101436251.html>

58. "China Responds Slowly, and a Pig Disease Becomes a Lethal Epidemic," NY Times, 17 December 2019: <https://www.nytimes.com/2019/12/17/business/china-pigs-african-swine-fever.html>

Box 6: Small farms pushed out in Vietnam

Vietnam's pork production has grown exponentially over the past decade, fuelled by an influx of investment into large-scale pig farms and contract-growing schemes by foreign and national companies. Many Vietnamese pig farmers now fatten pigs under contract for these companies, which supply them with the piglets, feed and other inputs. The context was fertile ground for a severe ASF outbreak.

ASF spread through Vietnam's industrialised pig sector like wildfire after the first official outbreak in January 2019. By November that year, there had been 8,429 reported outbreaks, leading to the death of 5.8 million pigs. The government castigated small farms for their lack of biosecurity, but the expensive biosecurity systems on the new corporate farms were no match for the disease either.

The industrial farms of the Australian-Vietnamese owned Mavin Group, for instance, were presented as a model for biosecurity during the early months of the outbreak. In October 2019, the company assured Vietnamese farmers that its breeder farms were completely safe from ASF and that it was ready to supply them with new piglets to restock from ASF outbreaks. "It is all thanks to strict biosecurity," said Dao Manh Luong, Mavin's CEO.⁵⁹

But a couple of weeks later, 400 piglets that a farmer in Tuyen province purchased from the company died within a few days. The piglets were certified as free of ASF, but when the farmer sent samples to a local lab it was confirmed that they were infected. The farmer immediately called the company to let them know, but they refused to acknowledge having sold him the piglets. When he threatened to report the incident to the local authorities the company said it would discuss things internally and get back to him. After a few days of waiting and trying repeatedly to call them, the farmer notified the authorities and contacted the media, with documents to prove that he had been sold ASF-infected piglets by Mavin. It was only then that Mavin responded, saying that it had suspended its supply of piglets and would investigate its farms.⁶⁰

The reality is that ASF outbreaks have hit all types of farms in Vietnam, even the small farms in the mountainous areas where traditional breeds of pigs are still raised. It is a traumatic situation for Vietnam's small farmers. The disease and the preventive culls enforced by the government have wiped out their pigs, and now they are afraid to restock in case the disease reappears. Some have received compensation, but the compensation is not enough to allow them to return to pig farming, leaving them without an essential source of income and food security.⁶¹

59. "African Swine Fever Update," Asian Agribiz: <https://asian-agribiz.com/magazines/asian-pork/asf-update/>

60. "Dân cầu cứu vì mua phải 400 lợn con của Mavin nhiễm dịch tả heo Châu Phi?," Nong Nghiep, 18 November 2019: <https://m.nongnghiep.vn/dan-cau-cuu-vi-mua-phai-400-lon-con-cua-mavin-nhiem-dich-ta-heo-chau-phi-post253150.html>

61. See the important study by Aaron J. Kingsbury and Ho Ngoc Son, "An Analysis of Value-Chains and Market Development to Support the Smaller-Scale Production of Pork by Ethnic Minority Women in the Northern Mountainous Region of Vietnam," December 2019: <https://drive.google.com/file/d/1s9jXEaTzXo-kNx5ibDoJeG9pEOKTSZoX/view>

It is not possible, therefore, to know how many outbreaks occurred on large factory farms or in corporate contract growing production chains.⁶² Some companies

62. One of the few outbreaks at a large corporate farm that did get reported was at a showcase, modern farm built recently in Heilongjiang using the most advanced Danish equipment. Heilongjiang Asia-Europe Animal Husbandry is owned by two major players in global agri-finance-- the Chinese real estate company Shanghai Pengxin and Denmark's state investment company, Investeringssonden for Udviklingslande (IFU). It took the company over one month to report the outbreak to

have only recently admitted to outbreaks at their farms that occurred months prior. In September 2019, Thailand's Charoen Pokphand, one of the largest pig-farming companies and feed producers in China, told Reuters that "several" of its farms had outbreaks of ASF,

Chinese authorities after pigs started dying in unusual numbers at one of its barns. By the time that a cull was ordered of all the farm's 73,000 pigs, 3,766 pigs had already died from the disease. See: <https://www.caixinglobal.com/2019-03-25/in-depth-dream-of-star-pig-farm-turns-into-ghastly-nightmare-101396497.html>

including one in Shandong.⁶³ At around the same time, the US private equity company Proterra, which was established by Cargill, divulged to an industry media source that “several” of its farms in Shandong Province were also hit with ASF.⁶⁴ These two companies were clearly not the only ones affected: an industry insider told Reuters that by June 2019 half of the industrial hog barns in Shandong Province were completely empty. Yet, in the Chinese government official data, only one ASF outbreak was ever reported in Shandong.⁶⁵

There is also little information about the role feed companies may have played in spreading the disease. While the government and some major feed companies have acknowledged that industrial feeds were a key vector in spreading the disease, very little appears to have been done to deal with this threat.⁶⁶ In September 2018, the government issued a ban on a pig’s blood protein product that is commonly used in feed, including pig feed, after tests found that 95% of samples were positive for ASF.⁶⁷ But it then immediately backtracked after heavy lobbying from the major meat processors, making it possible for them to sell the product if it tested negative.⁶⁸ Soon after, in December 2018, the cus-

63. “Thai pig producer set to build bigger, cleaner farms in wake of African swine fever,” Pig Site, 24 September 2019: <https://thepig-site.com/news/2019/09/thai-pig-producer-set-to-build-bigger-cleaner-farms-in-wake-of-african-swine-fever>

64. AgriInvestor, 7 October 2019: <https://www.agriinvestor.com/african-swine-fever-inside-proterras-shandong-joint-venture/>

65. “Shandong’s pig stocks dropping as deadly African swine fever hits China’s pork supply, drives up prices,” South China Morning Post, 28 March 2019: <https://www.scmp.com/economy/china-economy/article/3003538/shandong-s-pig-stocks-dropping-deadly-african-swine-fever-hits>

66. Announcement by China’s Ministry of Agriculture on new measures to control sales of contaminated feeds on 13 September 2018 (as translated by Avian Flu Diary): <https://afludiary.blogspot.com/2018/09/china-moa-issues-new-regulations-on-pig.html>; Betsy Freese, “Why you can’t believe what China says about African swine fever,” Successful Farming, 13 March 2019: <https://www.agriculture.com/news/livestock/china-says-african-swine-fever-is-under-control-but-nobody-believes-it>

67. See announcement by China’s Ministry of Agriculture on new measures to control sales of contaminated feeds on 13 September 2018 (as translated by Avian Flu Diary): <https://afludiary.blogspot.com/2018/09/china-moa-issues-new-regulations-on-pig.html>

68. According to interviews with US-based feed company operating in China in Betsy Freese, “Why you can’t believe what China says about African swine fever,” Successful Farming, 13 March 2019: <https://www.agriculture.com/news/livestock/china-says-african-swine-fever-is-under-control-but-nobody-believes-it>

toms authority for the province of Tianjin announced that they had found ASF in a shipment of 73.93 metric tonnes of pig’s blood protein produced by one of the largest pig farming and meat processing companies in the northeast.⁶⁹

There is little doubt that big companies played a major role in the dramatic spread and scale of ASF in China and it should have caused the Chinese government to question its commitment to factory farming and the industrialisation of its food system. But the ASF outbreaks have instead only deepened this commitment. The government has responded by lavishing the big players with subsidies, loosening environmental restrictions and leaving their competitors-- the smaller scale farms and meat processors-- out in the cold.⁷⁰ It is an unprecedented opportunity for the big pig farming companies to expand and consolidate their control, and they are rushing to seize it.

Thailand’s Charoen Pokphand plans to increase its pig herd in China from four million to 10 million pigs by next year.⁷¹ New Hope, now one of the largest pig farmers and animal feed producers in the world, is expanding to produce 25 million pigs a year by 2025, with the help of a US\$40 million loan from the Asian Development Bank towards the construction of two new mega farms

69. The company is Tianjin Baodi Agriculture & Technology. See “China suspects ASF virus in porcine-based protein powders,” Feedstuffs, 26 December 2018: <https://www.feedstuffs.com/news/updated-china-suspects-asf-virus-porcine-based-protein-powders>

70. “China races to expand its pig population after African swine fever,” Business Day, 23 October 2019: <https://www.businesslive.co.za/bd/world/asia/2019-10-23-china-races-to-expand-its-pig-population-after-african-swine-fever/>; “China to subsidize pig farms to ensure supply,” Xinhua, 9 September 2019: http://www.xinhuanet.com/english/2019-09/09/c_138377820.htm

71. Charoen Pokphand’s CEO for China says that they started investing in pig farms in China after the PRRS outbreak because it was “a strong signal that China’s traditional farms need to be replaced by intensive systems”: <https://thepigsite.com/news/2019/09/thai-pig-producer-set-to-build-bigger-cleaner-farms-in-wake-of-african-swine-fever>. The CEO of WH Group’s Smithfield, Kenneth Sullivan, says the porcine epidemic diarrhoea outbreak that devastated their US farms in 2014 was also profitable for them. “Here is the irony of that: We are the world’s largest hogs producer, and there’s this hog disease, and we had it. That caused a disproportionate rise in prices and we actually ended up making more money, certainly on the farms, than we did in previous years. So the price impact outweighed the loss of animals and in productivity.” <https://www.nationalhogfarmer.com/marketing/smithfield-ceo-looks-ahead-2019>.



An ASF contaminated package of crispy sausage produced by the WH Group was confiscated by Taipei airport authorities in NOV 2018, three months after an outbreak was reported at WH Group’s meat processing plant in Zhengzhou.

in Hebei and Guangxi provinces.⁷² Wen’s Group, China’s largest pig farming company, intends to ramp up its production to 70 million pigs a year, roughly 10% of the entire national, annual slaughter.⁷³

These are boom times for the big pig farming companies, but it is a full-blown crisis for China’s small farmers. There are over 40 million small-scale pig farmers in China, many of whom grow pigs for the bigger players. They were devastated by the first wave of ASF outbreaks and culling campaigns, and they are now struggling to get back on their feet, without any meaningful support from the government and with the risk that the disease

might return. The model of biosecurity that the big companies and government agencies are promoting as an answer to ASF is not possible for them to implement. Experts put the costs of chemicals and other associated inputs at about 220 RMB (US\$30) per pig, way out of the reach of the average small farmer.⁷⁴ Unless there is a real push to change tack on the country’s response to ASF, China’s long tradition of small pig farming is doomed.

A windfall for Big Meat

ASF spread very quickly from China into other parts of Asia, infecting Vietnam, Cambodia, Mongolia, North Korea, Laos, Myanmar, the Philippines, South Korea, East Timor and Indonesia (See Box 6: *Small farms pushed out in Vietnam*). Dead Chinese pigs with ASF also washed

72. “China Hog Companies in an Expansion Race,” Dim Sums, 19 September 2019: <http://dimsums.blogspot.com/2019/09/china-hog-companies-in-expansion-race.html> and see <https://www.adb.org/projects/53027-001/main#project-pds>

73. “How China’s Giant Pig Purge Is Shaking Up the \$118 Billion Pork Industry,” Bloomberg, 23 October 2019: <https://www.bloomberg.com/news/articles/2019-10-23/china-s-mammoth-pig-purge-to-shake-up-118-billion-pork-industry>

74. Simon Quilty, “Analysis: China at crossroads in rebuilding its pork industry, post ASF,” Beef Central, 7 November 2019: <https://www.beefcentral.com/trade/analysis-china-at-crossroads-in-rebuilding-its-pork-industry-post-asf/>

up on the shores of Taiwan and hundreds of packages of contaminated pork products from China and other ASF-infected countries have been seized by border control agents in Taiwan, Australia, the Philippines, Japan and elsewhere.⁷⁵ Greece reported its first ASF outbreak in February 2020, and there is little doubt that this strain of ASF will soon find its way into other countries.

The scale of this pandemic is unmatched in terms of dead pigs, but it is not unprecedented. Before ASF there was porcine epidemic diarrhoea (PED), a coronavirus that began devastating pig farms in China in 2010 before entering the US where it wiped out 7 million piglets in less than a year. And before PED there was the porcine reproductive and respiratory syndrome virus (PRRSV), known as “blue ear”, which first emerged in the factory farms of US and Europe in the 1990s and spread to China in 2007 and Vietnam in 2008, killing millions of pigs. Each of these pandemics, generated and propagated by the meat industry, have served to deepen and expand corporate control over global pork production.⁷⁶

“Here is the irony [about porcine epidemic diarrhoea]: We are the world’s largest hogs producer, and there’s this hog disease, and we had it,” said Smithfield’s CEO Ken Sullivan. “That caused a disproportionate rise in prices and we actually ended up making more money.”⁷⁷

Smithfield is now doing it again with ASF. Its owner, the WH Group, suffered initial losses in the first year of the ASF outbreak in China, but now it is capitalising on high pork prices by importing pig carcasses from its Smithfield operations in the US and from Brazil, where it signed a deal with the world’s largest meat company, JBS, to supply it with beef, poultry and pork for the Chinese market.⁷⁸

ASF has essentially wiped away the competition from small farms and processors, leaving the big companies

75. FAO Situation Report: http://www.fao.org/ag/againfo/programmes/en/empres/ASF/2019/Situation_update_2019_03_15.html

76. Thailand’s Charoen Pokphand for instance claims that it launched into pig farming in China subsequent to the outbreak of PED (known as “blue ear”) in 2008. “Blue ear hit China’s pig herd hard and sent a strong signal that China’s traditional farms need to be replaced by intensive systems”. The Pig Site, 24 September 2019: <https://thepigsite.com/news/2019/09/thai-pig-producer-set-to-build-bigger-cleaner-farms-in-wake-of-african-swine-fever>

77. “Smithfield CEO looks ahead to 2019,” Bloomberg, 21 December 2018: <https://www.nationalhogfarmer.com/marketing/smithfield-ceo-looks-ahead-2019>,

78. “Chinese meat packing giant locks in JBS supply,” AG Canada, 27 January 2020: <https://www.agcanada.com/daily/chinese-meat-packing-giant-locks-in-jbs-supply>

alone to capture surging prices for pork and increased demand for other meats. Industry people are calling this a “blue ocean” moment for Big Meat.⁷⁹ Already, by the financial quarter ending in September 2019, just one year after the ASF epidemic began, the top pig-farming companies in China had built back enough of their production to reverse losses and many of them were registering record profits.⁸⁰ The companies are now ploughing their profits into expansion plans that will ensure their dominance for years to come, not only within China, but also in other ASF-affected countries, such as New Hope’s mega farm project in Vietnam and Charoen Pokphand’s multiple investments in Russian pig farming companies.⁸¹

Meat exporters to China are also cashing in. Danish Crown just sold \$100 million worth of European pork to COFCO, China’s largest agricultural commodities company.⁸² Argentina’s Association of Pig Producers (AAPP) claims to have signed a \$27 billion investment deal with China this year to boost Argentina’s annual production from 6 million to 100 million pigs over the next eight years, to meet projected Chinese demand.⁸³ And it’s not just pork: US-based Cargill credits its stunning \$1 billion

79. “Blue ocean” refers to an uncontested market space. “Any country hit by African swine fever, be it Vietnam or China, is a blue ocean market for pig farming,” said Lei Yi, a Shenzhen-based analyst with China Merchants Securities in <https://www.reuters.com/article/us-china-newhope-pigfarming-vietnam/chinas-new-hope-breaks-into-southeast-asia-pig-farming-amid-disease-woes-idUSKBN1X812Z>

80. “Swine fever pushes Chinese pig farmers to record quarterly profits,” Reuters 31 October 2019: <https://www.reuters.com/article/us-china-swinefever-companies/swine-fever-pushes-chinese-pig-farmers-to-record-quarterly-profits-idUSKBN1XA11F>

81. “CPF’s Q1 profit jumped 40% as pig oversupply in Vietnam back to normal,” Pig 333, 13 May 2019: https://www.pig333.com/company_news/cpf%E2%80%99s-q1-profit-jumped-40-as-pig-oversupply-in-vietnam-back-to-normal_14957/; <http://cprussia.ru/en/production/sv/>; and “China’s New Hope breaks into Southeast Asia pig farming,” Reuters, 29 October 2019: <https://www.reuters.com/article/us-china-newhope-pigfarming-vietnam/chinas-new-hope-breaks-into-southeast-asia-pig-farming-amid-disease-woes-idUSKBN1X812Z>

82. “China ‘Scouring the World for Meat’ as African Swine Fever Impacts Protein Markets,” Farm Policy News, 10 November 2019: <https://farmpolicynews.illinois.edu/2019/11/china-scouring-the-world-for-meat-as-african-swine-fever-impacts-protein-markets/>

83. Fermín Koop, “Argentina looks to capitalise on China’s swine fever crisis,” Dialogo Chino, 29 January 2020: <https://dialogochino.net/33102-argentina-looks-to-capitalise-on-chinas-swine-fever-crisis/>

in profits in the first two financial quarters of 2019 to an increase in poultry exports to China, which surged after the ASF outbreaks.⁸⁴

A better way to deal with ASF and livestock diseases

The Big Meat companies did not create ASF. But they did create the conditions for a global pandemic of the disease that has wiped out hundreds of millions of pigs over the past decade. And ASF is only one of many new pandemics affecting livestock that the industry has propagated, some of which can cross over to affect humans, such as bird flu, swine flu and coronaviruses like the swine acute diarrhea syndrome.⁸⁵

These big companies want us to believe that there is only one way to deal with ASF and the growing list of deadly livestock pathogens. It is an approach built around the vulnerability of their farms, where thousands of genetically-uniform pigs are cramped into barns and fattened for market as fast as possible. The pigs in these farms are so vulnerable to disease and the economic consequences of outbreaks on these farms are so huge that every pathogen must be kept out, every possible contact with the surrounding environment must be shut down. It is now becoming standard practice at the biggest industrial farms to keep your workers confined on the premises for weeks at a time to minimise the chances of pathogens inadvertently coming in on their boots or clothing. But no matter how severe the measures, disease outbreaks still happen, with explosive consequences.

In this corporate vision of biosecurity, small farms are a risk to business that must be tolerated until they can be eliminated. "Backyard farms are like a bomb," says Ly Laville, the head of the big pig-farming companies lobby group in Cambodia.⁸⁶ This is how the corporate

world looks at small pig farmers -- as a threat to their existence.

The story that farmers get from the companies and their governments about how they need to modernise their farms and link up with corporate supply chains in order to survive is a ruse. The opposite is true. As farmers in Vietnam and Poland can attest, "modernisation" is killing them-- and making things less safe for their pigs.

Another way of controlling ASF is possible. Consider Madagascar, where, in 1997, a similar ASF strain struck for the first time and decimated 60% of the national herd. After two years, the disease died down, and became endemic, with sporadic outbreaks continuing across the country. As happened in Georgia, the situation was too economically risky for the large commercial farms and they soon disappeared. But the small farms, most of them free range farms, started to rebuild, ignoring a ban on free-ranging pigs that the government tried to impose in 2000. Today, Madagascar's pig population is above its pre-ASF level, despite on-going outbreaks of the disease.⁸⁷

This isn't to say that the situation in Madagascar is perfect. Small pig farmers are still affected by ASF, and the results can be devastating. But much has been achieved by small farmers working entirely on their own, and surely much more could be achieved if the government got serious about supporting them instead of trying to outlaw them.

It is also important to understand the role that local pigs can play in controlling ASF. Studies indicate that Madagascar's local pigs have developed some resistance to ASF, and that the mortality rates from outbreaks are decreasing.⁸⁸ Investigations into local breeds in other ASF-affected areas of Africa also indicate that local breeds can be more tolerant to the disease, something that farmers in Asia have observed as well.⁸⁹ And of course, it may not be just the local breeds that are responsible for this resistance to ASF; the traditional knowledge of farmers who keep such breeds could also

84. "Cargill profits jump after pig cull causes meat shortage," *Financial Times*, 7 January 2020: <https://www.ft.com/content/9d9e1d60-3160-11ea-9703-eea0cae3f0de>

85. Melody Schreiber, "A Novel Virus Killed 24,000 Piglets In China. Where Did It Come From?" NPR, 4 April 2018: <https://www.npr.org/sections/goatsandsoda/2018/04/04/599179621/a-novel-virus-killed-24-000-piglets-in-china-where-did-it-come-from>; Yong Le-Yang et al., "Broad Cross-Species Infection of Cultured Cells by Bat HKU2-Related Swine Acute Diarrhea Syndrome Coronavirus and Identification of Its Replication in Murine Dendritic Cells In Vivo Highlight Its Potential for Diverse Interspecies Transmission," *Journal of Virology*, Nov 2019, 93(24):e01448-19: <https://doi.org/10.1128/jvi.01448-19>

86. "African swine fever wipes out Asia's backyard pig farmers," *Nikkei*, 11 October 2019:

<https://asia.nikkei.com/Business/Agriculture/African-swine-fever-wipes-out-Asia-s-backyard-pig-farmers>

87. H. Rasamoelina Andriamanivo et al. How could an African swine fever outbreak evolve in an enzootic context? The case of Imerintsiatosika, Madagascar in 2015. *PLoS ONE* 14(9): e0221928, 2019: <https://doi.org/10.1371/journal.pone.0221928>

88. H. Rasamoelina Andriamanivo et al. How could an African swine fever outbreak evolve in an enzootic context? The case of Imerintsiatosika, Madagascar in 2015. *PLoS ONE* 14(9): e0221928, 2019: <https://doi.org/10.1371/journal.pone.0221928>

89. FAO, "African Swine Fever: Detection and Diagnosis," 2017: <http://www.fao.org/3/a-i7228e.pdf>

be a factor. But traditional knowledge and local breeds are not something that governments are seriously investing in as part of their efforts to stop ASF.

There is much that can be done to help small farmers to effectively manage ASF and other important diseases, if an approach is taken that is centred on their needs and realities. Such an approach will not protect the industrial operations of WH Group or Charoen Pokphand, but it can enable farmers to raise small herds of healthy pigs. It won't secure new frontiers for surplus, industrial pork production, but it can ensure supplies for local markets and the moderate levels of meat consumption

appropriate to an era of climate crisis.⁹⁰ It won't make big money for the pharmaceutical companies either, but it will help keep the world safe from global pandemics of animal diseases. Corporations will fight hard against such an approach, but it is the approach that makes sense for everyone else.

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90. GRAIN and IATP, "Emissions impossible: How big meat and dairy are heating up the planet," 18 July 2018: <https://www.grain.org/article/entries/5976-emissions-impossible-how-big-meat-and-dairy-are-heating-up-the-planet>



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