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May 2019

African Swine Fever Implications for U.S. Ag

By Will Sawyer
Lead Economist, Animal Protein

Will Secor
Economist, Grain & Farm Supply

Inside…

Key Points:

- African Swine Fever has caused the loss of hundreds of millions of pigs in China and Southeast Asia in less than a year.
- China and Southeast Asia are expected to have a massive shortfall in animal protein supply in 2019, 2020, and possibly for years to come.
- The U.S. animal protein sector stands to benefit from increased exports to fill the supply void.
- Feed demand will drop off significantly, trimming U.S. feed and grain exports.
- Long term, growth in feed demand in China and Southeast Asia will likely be slower than pre-ASF projections as the region rebuilds its hog herd and becomes more feed-efficient.

Introduction

Last August when the first cases of African Swine Fever (ASF) were announced in Northeast China, it was immediately clear that the global pork sector – and every industry that competes with, or supplies, it – would be affected.

China accounts for half of the world's pork consumption and production. The country is dealing with a virus that is incredibly difficult to control, especially in a production system that relies heavily on backyard producers.

There's no question that China's pork industry will contract, but it is yet unknown to what degree and for how long. It's certain there will be significant implications for the U.S. animal protein and feed sectors. There are a few scenarios for how the next 12 months and few years could develop that would significantly reshape U.S. agriculture with both opportunities and challenges.

EXHIBIT 1: U.S. Animal Protein and Feed Outcome Matrix from ASF Outbreak in China/Asia

U.S. Feed Demand \ U.S. Animal Protein	HIGH	BASE	LOW
HIGH	U.S. and China resolve trade dispute bringing a surge in meat and grain shipments to China China transitions backyard pork production to modern/commercial production		ASF enters the North American pork sector shuttering exports for months U.S./China trade relations improve without a lift in protein exports but a rebuilding of China's hog production to modern/commercial
BASE	U.S./China trade relations improve and increased trade flow to China and regional markets for meat and grain China transitions a portion of its backyard pork production to modern production while also becoming more reliant on imports		
LOW	U.S. and China resolve trade dispute bringing a surge in meat shipments to China China's backyard pork production remains with a slow herd re-building process		ASF enters the North American pork sector shuttering exports for months & reducing U.S. feed demand U.S./China trade relations are at an impasse keeping U.S. agricultural products at a competitive disadvantage

Source: CoBank

Virus Impacts Global Industry

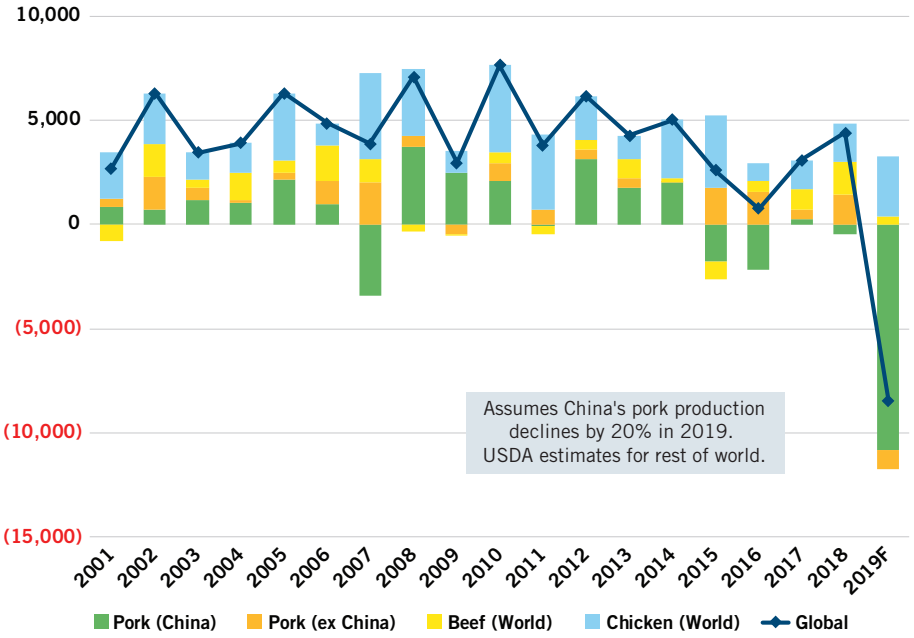
ASF has wreaked havoc in hog herd in parts of the world for nearly a hundred years. Most recently, pork producers of Eastern Europe and Russia have struggled to get their outbreak of the virus under control. It is likely that the transmission and re-transmission of the virus through wild boars in Eastern Europe and Russia brought ASF to China.

The impact of ASF on China's hog herd is hard to overstate. Using the April figures from China's Ministry of Agriculture, the country's breeding herd is down 22 percent and the overall hog herd is down 21 percent versus the year prior.

These are startling figures, especially considering that the hog herd continues to contract as hog producers rush hogs to market prematurely in fear of the virus spreading to their farm. Losses are challenging to quantify and the estimates range widely, but most projections call for China to lose roughly one-third of its hog production over the next 12 to 18 months.

ASF is now in every Chinese province and is spreading into Southeast Asia – and could very likely spread elsewhere. Earlier this year it spread to Vietnam, which has the sixth largest hog herd in the world. There are reports that the virus is also in Thailand, Cambodia, and North Korea. The impact in these smaller markets is more difficult to quantify, but they will also struggle to control ASF.

EXHIBIT 2: Global Animal Protein Production Growth (000S Mt)



Source: USDA, CoBank Estimates

Opportunities and Threats for U.S. Animal Protein

Hundreds of millions of pigs in China and Southeast Asia have been lost to ASF in less than a year. The region will have a massive shortfall in animal protein supply in 2019, 2020, and possibly for years to come.

Chinese consumers are already switching from pork to chicken and, to a lesser degree, beef. The average Chinese consumer eats nearly 3 pounds of pork for every pound of chicken and beef, so domestic producers of beef and chicken will struggle to fill the void. Imports will play a big role in helping to keep animal protein available for China's 1.4 billion consumers.

The U.S. (closely followed by Brazil) is the largest exporter of animal protein in the world, accounting for about one quarter of the 30 million tons of protein traded around the world every year. This puts the U.S. meat and poultry sectors in a strong position to be a major beneficiary as China and other Asian markets ramp up their imports of all proteins. But even with the 7 million tons of protein the U.S. exports each year, it can't keep pace with the supply gap caused by ASF.

The U.S. continues to remain a low-cost exporter of protein products despite our challenges of a strengthening U.S. dollar, wealthy consumer base, and diminishing ag labor availability. This low-cost producer status and export potential is greatly hindered by:

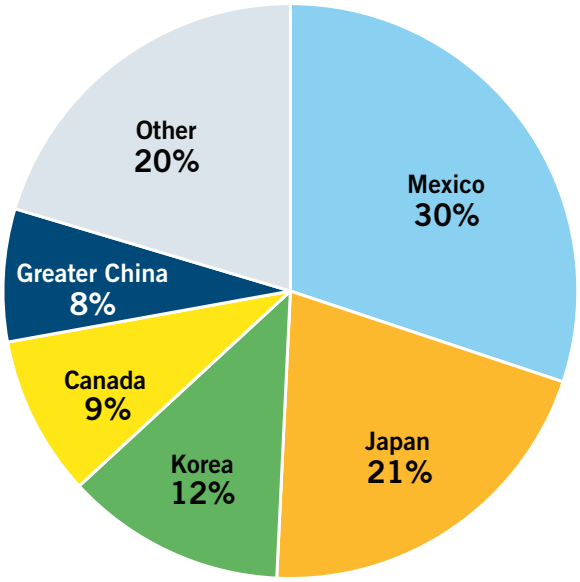
- **Retaliatory tariffs** – Tariffs on U.S. pork shipped to China are currently at 62 percent. A continuation of the trade dispute with China will clearly dampen the upside trade potential for the U.S. meat and poultry sectors. U.S. exports will remain open and competitive with all of its current trading markets and so U.S. product will be a secondary beneficiary. As competitors in the global meat trade focus on the China and Asian markets, U.S. product competitiveness in supply and price will improve, therefore enhancing prospects for U.S. protein producers.

- **Poultry ban** – Since 2015, U.S. poultry has been banned in China due to High Path Avian Influenza. Even if China reopens to U.S. poultry and commits to purchases of it and other proteins, the timing of those purchases will likely be uncertain. China may choose to purchase from Brazil, Canada, the EU, Australia or others.

- **Threat of ASF outbreak** – An outbreak of ASF in the U.S. pork industry would bring with it a shuttering of the trade flows that currently account for nearly 30 percent of U.S. pork production.

The U.S. meat and poultry industry experienced the consequences of a BSE (mad cow disease) outbreak 15 years ago. It took the U.S. beef sector, which barely exported 10 percent of its production, many years to recover. Today, the impact of an ASF outbreak would be far more damaging to the U.S. pork sector.

EXHIBIT 3: U.S. Pork Exports in 2018 by Volume



Source: USDA

The U.S. protein sector has been working for years to develop a systematic response plan to address animal disease outbreaks. If AFS were to infiltrate the U.S., eradication would still be a challenge but trade losses would be the greatest concern.

Unlike poultry, the U.S. pork sector would have to negotiate trade agreements with export customers to reopen markets after an ASF outbreak. Thankfully, these discussions have already started and recently the U.S. and Canada announced a zoning system that would allow pork and pigs from approved disease-free zones to continue to move between these two countries. Still it would likely take many months to reassure other export customers, but the process would be helped by the relatively concentrated nature of U.S. pork exports. The top four export markets for U.S. pork – Mexico, Japan, Korea, and Canada – accounted for nearly three-quarters of exports last year.

Opportunities and Threats for U.S. Feed

A decline in China's hog herd will have negative direct impacts on the U.S. grain and feed market. However, indirect effects may lessen the blow.

Direct impacts

Elevators, feed mills, and soybean crushers focused on feed exports to China will be hurt directly by ASF. In contrast, those that are positioned to meet the domestic and non-China export demand could benefit from ASF in China.

The potential direct impacts on feed demand due to China's smaller hog herd are staggering. If China's hog herd declines by one-third in 2019/20 from 2017/18 levels, we will likely see:

- Soybean meal consumption down by roughly 9 MMT (approximately equivalent to 11 MMT of soybeans).
- Corn consumption down by about 28 MMT.

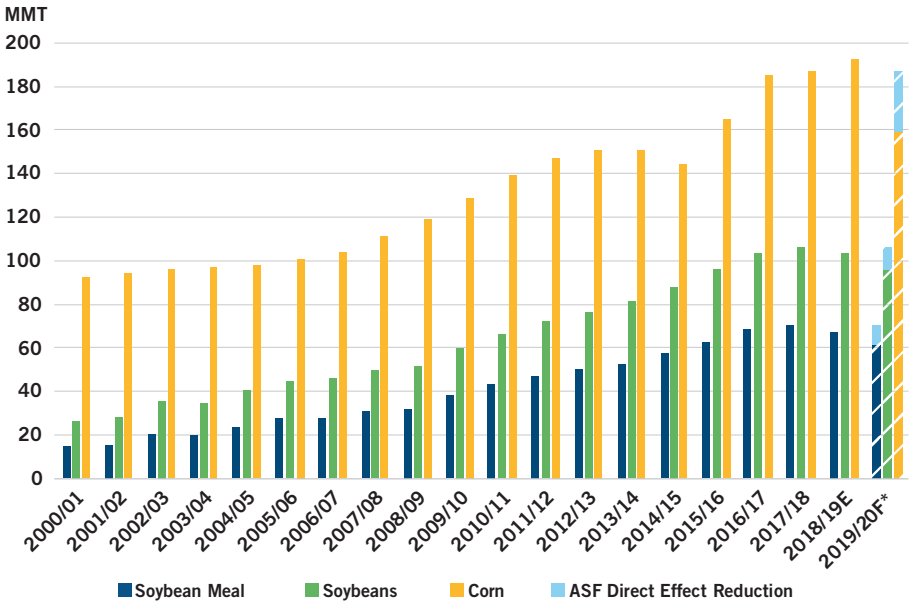
Indirect impacts

Indirect effects come in the form of increased feed demand from the beef and poultry sectors in China, the U.S. animal protein sector, and global animal protein sectors.

- **China** – Chinese consumers will likely buy more imported pork and more poultry, beef, and fish from domestic or international sources. This could mitigate some, but not all, of the negative impacts on feed demand. The reasons:
  1. While Chinese chicken, beef, and fish producers will ramp up production, they will fall short of making up for the decline in pork production.
  2. Chicken and fish have better feed efficiency ratios than pork.
  3. The shift to beef is unlikely to be large.
- **U.S.** – Demand for U.S. animal protein will grow, resulting in an increase in domestic feed demand. Elevators, crush facilities, and feed mills located close to, or in some way positioned to fill, domestic demand will likely benefit from this increase.

ASF demand destruction will be especially painful for elevators, crushers, and feed mills that are focused on Chinese markets. Exports may not decline as severely for those that can pivot to the EU and other markets outside China.

EXHIBIT 4: Chinese Feed Consumption



Source: USDA-FAS, CoBank Estimates

* Scenario depicting 2017/18 consumption less ASF's potential direct impact to China's hog industry

If the U.S. also experiences a case of ASF, feed demand would decline. However, the decline would not be as severe as in China where pork is consumed in a 3-to-1 ratio to beef and chicken. In the U.S., there is a greater potential for other meats to pick up the slack. Furthermore, it is unlikely that an outbreak of ASF in the U.S. would impact U.S. pork producers nearly as much as the virus has affected China's.

- **Global** – Animal protein producers outside China and the U.S. will also see an uptick in feed demand. The potential for U.S. feed exports will vary by country. For example, the EU will likely need to increase imports as it is already a major importer of corn, soybeans, and soybean meal. However, Brazil may not see a change in imports as they are already a major exporter of corn and soybeans.

Long-term Chinese demand: slower growth but larger total

Longer term, feed demand growth in China will likely be slower than pre-ASF projections, but overall demand could be larger. There are two main drivers:

1. **ASF will cause the hog sector to be re-built slowly.** The disease can be hard to eradicate and will reduce the ability for Chinese producers to re-stock their inventories. This will result in slower growth.
2. **Smaller, backyard producers are unlikely to re-enter the industry.** These backyard producers, which make up around 30 to 40 percent of hog farms, do not use much, if any, commercial feed. In their place, more efficient producers, using commercial feed, will grow. This will result in greater feed demand overall.

In China's commercial hog sector, there are roughly two categories: those feeding high-protein feed rations and those feeding a modern feed ration. The shift from backyard production to either category will increase corn and soybean meal demand. However, the share of modern versus high-protein feed rations will impact how beneficial this shift will be. As rations become more modern, the benefit would shift more towards corn rather than soybean meal. Additionally, as feed efficiencies improve, total feed demand will decrease, muting some of the growth benefit.

Three caveats may cap total feed demand:

1. **Improving feed efficiency and optimized feed rations.** A more-efficient hog industry will require less feed. Optimized rations will require less soybean meal.

2. **Potential growth of Chinese DDGS.** As China seeks to produce more ethanol to meet its goal of an E-10 blend in their gasoline, the supply of DDGS will grow. This could lower demand for soybean meal and corn if the DDGS are feed quality.

3. **Possible shift in the meat consumption mix in China.** Of concern would be a shift out of pork to chicken or fish. Chicken and fish convert feed more efficiently than hogs and cattle. The risk is that feed demand declines as consumers shift consumption to meat coming from more feed-efficient animals.

Conclusion

The effects from African Swine Fever's spread to China and Southeast Asia will be far-reaching. The U.S. animal protein sector will benefit barring ASF's spread to the United States. U.S. feed demand will likely shrink in aggregate. While those focused on China will likely be hurt the most, those elevators, crush plants, and feed mills positioned to meet the needs of U.S. and other global animal protein sectors may benefit.

CoBank's Knowledge Exchange Division welcomes readers' comments and suggestions. Please send them to KEDRESEARCH@cobank.com.