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## **China - Peoples Republic of Livestock and Products Annual**

### **Chinese Hog Farmers Take Risks to Restock Despite Widespread African Swine Fever**

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#### **Report Highlights:**

African Swine Fever (ASF) is endemic across China, but high pork prices will incentivize many Chinese hog farmers to restock or expand, despite the significant animal health risks posed by ASF. The overall herd size is estimated to decrease by 21 percent in 2019, then further decrease another 10 percent in 2020. While pork consumption is estimated to fall at least 9 percent in 2019, continuing demand for pork will drive a sharp increase in imports, up 60 percent year-on-year. Frozen domestic pork stocks and imports have insulated domestic price increases in the short term. The combined effects of smaller frozen stocks and an uncertain slaughter output between now and Chinese New Year in early 2020, increases the likelihood of significant consumer price hikes in early 2020. ASF will also contribute to increased beef demand (along with other animal proteins) in China. Despite soaring beef demand in China, U.S. beef imports remain constrained by market uncertainty, China's retaliatory tariffs, and other factors.

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<sup>1</sup> Special thanks to the Foreign Agricultural Service staff across China and the U.S Embassy's Animal and Plant Health Inspection Service Office for their significant contributions to this report.

## **Executive Summary:**

African Swine Fever (ASF) is endemic in China, creating potentially serious concerns about pork supplies in a country that consumes half of the world's pork. Despite an anticipated 21-percent herd reduction in 2019, it is likely there will be sufficient animal protein supplies to meet Chinese demand. Shrinking Chinese pork consumption, increased imports, rising consumption of other animal proteins (primarily poultry), and above-average frozen pork stocks (estimated at 3-5 million metric tons, or MMT) will balance the estimated 6 MMT drop in pork production and moderate the rise of pork prices. As pork supplies tighten through the second half of 2019 and demand strengthens near the Chinese New Year in January 2020, pork and all other animal protein prices will rise and imports will increase.

Looking forward, a number of factors will influence how and when China's swine herd will recover. Key factors will include:

1. The policy response of the Chinese government
2. The development of an effective ASF vaccine
3. The rising swine prices
4. The restructuring of the swine and pork industry
5. The implementation of effective biosecurity practices
6. The availability of global pork supplies, and
7. The availability of alternative animal proteins

While it is unrealistic to forecast how these factors will affect production and demand in 2020, based on current information and market trajectory, the swine herd may begin to stabilize in 2020, with the herd loss slowing to an additional 10-percent year-on-year decrease. However, the reduced herd size will result in a further 8-percent decrease to pork production, down to 44.2 MMT.

The long-term effects of China's ASF situation could extend past 2020. Due to the heavy loss of breeding sows in 2018 through 2020, China's swine herd could take years to recover to pre-ASF levels (both in terms of absolute numbers and productivity). Many small and medium farmers could be replaced by modern, large-scale operations with stronger biosecurity. Chinese consumers could shift from consuming hot/fresh pork to chilled/frozen pork. In addition, pork could permanently cede market share to other proteins, especially in first-tier cities.

## 2019 PRODUCTION, SUPPLY, AND DEMAND SITUATION FOR SWINE

Animal Numbers, Swine	2018	2019			2020	
	USDA Official	Old Post	USDA Official	New Post	New Post	YOY Δ
Total Beginning Stocks	441589	44000 0	428070	428070	340070	-21%
Sow Beginning Stocks	43610	44500	38375	37000	26000	-30%
Production (Pig Crop)	683862	72000 0	550000	514550	507000	-1%
Total Imports	10	6	6	6	10	-
Total Supply	1125461	11600 06	978076	942626	847080	-10%
Total Exports	1570	1650	1500	1500	1500	-
Sow Slaughter	0	0	0	0	0	-
Other Slaughter	693820	71600 0	620000	600000	538510	-
Total Slaughter	693820	71600 0	620000	600000	538510	-10%
Loss and Residual	2001	1200	6576	1056	1010	-
Ending Inventories	428070	44115 6	350000	340070	306060	-10%
Total Distribution	1125461	11600 06	978076	942626	847080	-
All units in 1,000 head						

Note: Not Official USDA data.

### Animal Health

*The animal health situation is dire, despite lack of major disruptions to animal protein supply and demand*

The drop in available pork supplies in 2019 will largely be offset by increased imports, strategic releases of frozen pork supplies into the market, and a decline in consumer demand for pork. This balancing of pork supply and demand should not be conflated with control of ASF in China. When the herd eventually stabilizes and begins to recover, it does not necessarily imply that the threat of ASF has lessened, but rather, industry has adapted to raising hogs in spite of ASF. Absent significant policy changes by the Chinese Government, or the development of an effective vaccine, ASF could continue to circulate uncontrolled throughout China.

Other countries with ASF outbreaks have also taken long periods of time to control the disease and in many cases, other countries have been unable to completely eradicate the disease. Interestingly, factors

affecting the disease (e.g., density of the wild boar population) have shifted in the last decades making eradication in some regions more difficult. Due to the massive size and density of China's swine herd and the wide geographic spread of the disease, the animal health risk presented by ASF in China is unprecedented.

Widespread, uncontrolled ASF persistence in China presents a number of animal health concerns. First, wide circulation of the virus throughout the country raises the likelihood of ASF spreading to other countries/regions, especially those in close geographic proximity. Since China officially reported ASF outbreaks in August 2018, neighbors Mongolia, Vietnam, Hong Kong Special Administrative Region, Cambodia, Laos, and North Korea have all reported ASF outbreaks. While Taiwan has not reported any cases of ASF in swine, a number of dead pigs have washed up on the shores of Jinmen Island, an island off the coast of mainland China's Fujian Province but under the jurisdiction of Taiwan. Several of these "drift pigs" were confirmed as being positive for ASF. In addition, several countries (Japan, South Korea, Philippines, Australia, Taiwan) have reported detecting ASF virus in pork products brought by travelers on airline flights originating from China. A number of countries with large commercial swine herds have enhanced their screening for ASF and updated their response protocols, including the United States.<sup>2</sup>

*Underreporting of ASF has been an obstacle to controlling the disease*

As of July 2, 2019, China had reported 144 ASF outbreaks to the World Organization for Animal Health (OIE). While these reports contain the minimum required information (e.g., location, date, number of animals culled, etc.), they generally do not include relevant information from epidemiological investigations. Each outbreak is reported as a new outbreak, with no linkage information related to the index farm. In other words, based on the available information, it appears China is treating each outbreak as if it were the first appearance of ASF in the particular area, even when the outbreaks seem to be within close temporal and physical proximity. In a news conference on March 1, 2019, a MARA spokesperson stated that "all 111 outbreaks (the number of cases reported to the OIE at the time) that occurred were promptly disposed of effectively and no second spread occurred."<sup>3</sup> In most cases, the only follow-up to an outbreak is the notification by MARA to the OIE that no new cases have been detected in the initial area (the focal, perifocal, or surveillance areas), and China is lifting the restrictions put in place for that outbreak.

When MARA discusses the ASF situation in public announcements, it refers to these officially reported OIE outbreaks as if they were an indicator of the actual number of outbreaks in the country. To illustrate, in a news conference on July 1, 2019, the China Daily newspaper reported a MARA spokesperson as saying, "China had recorded 143 African Swine Fever outbreaks by Sunday (June 30)." Continuing, he said, "The number of outbreaks for this year was 44 – a decrease from the latter half of last year . . . signifying progress in the control and prevention of the disease."<sup>4</sup> Based on

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<sup>2</sup> To see how USDA is protecting the United States from ASF, please see this announcement: <https://www.usda.gov/media/press-releases/2019/03/19/usda-continues-prevent-african-swine-fever-entering-us>; for the full text of the APHIS ASF Disease Response Strategy:

[https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/asf\\_strategies.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/asf_strategies.pdf)

<sup>3</sup> See the full transcript here: [http://www.moa.gov.cn/ztl/fzzwfk/gzdt/201903/t20190301\\_6173098.htm](http://www.moa.gov.cn/ztl/fzzwfk/gzdt/201903/t20190301_6173098.htm) (Chinese)

<sup>4</sup> See the full article, *Swine Fever Countermeasures See Continued Success*, here:

<http://www.chinadaily.com.cn/a/201907/01/WS5d19fb3da3103dbf1432b475.html?from=groupmessage>

extensive interviews with industry and supported by price dynamics (for live animals and feed), the number of actual outbreaks far exceeds the number MARA has reported to the OIE, which should not currently be taken as an indicator of the severity of the situation in China.

One of the likely reasons for this underreporting lies with the role of provincial governments. Industry reports that local and provincial animal health officials are aware of outbreaks within their respective jurisdictions, but refuse to report these outbreaks to higher level authorities to avoid the appearance of not controlling ASF. Industry also reported that when presented with evidence of ASF outbreaks on farms, local and provincial officials have requested, and in some cases demanded, that farmers not report the ASF outbreak due to the lack of local or provincial funds. Rather than pay the farmer a per-head subsidy to cull their animals, officials have reportedly promised support to help farmers restock their herds. This likely leads to further spread of the disease due to improper disposal of affected animals. Despite the significant decrease in the number of OIE reports, ASF outbreaks continue to appear in distant areas, creating great uncertainty as to the actual conditions leading to the spread of the disease. This lack of accurate reporting is one of the greatest obstacles to controlling the disease and implementing effective countermeasures.

#### *Lack of epidemiological information hinders effectiveness of countermeasures*

The lack of accurate reporting not only undermines the severity of the ASF situation, but prevents effective epidemiological investigations which are key to developing countermeasures that address the specific situation. As noted in the APHIS ASF Disease Response Strategy, “an epidemiological investigation can identify the index case, determine risk factors for transmission, and support the development of mitigation strategies.”<sup>5</sup> Back in December 2018, MARA released a summary of their early epidemiological findings.<sup>6</sup> However, since that time, there has been very little public information released about China’s epidemiological investigations into ASF outbreaks.

This lack of information on how the disease continues to spread in China has resulted in a sense of helplessness from a number of Chinese farmers, some of whom have lost multiple herds to ASF. While this uncertainty persists, large-scale restocking will be constrained.

One potential blind spot in existing ASF countermeasures is the possibility of ASF circulating through contaminated commercial feed. Corn and other feed grains are commonly dried on roadsides, which are also traversed by trucks carrying hogs. In one study, numerous samples of Chinese feed were analyzed and 1 to 2 percent tested positive for ASF.<sup>7</sup> Based on interviews with multiple contacts, very few Chinese farmers are concerned about commercial feed being a possible ASF vector. One contact did report that they are aware of the risk and use high-temperature treatment on all of their feed.

However, due to the lack of public information about how ASF is being transmitted through China, this potential gap in ASF countermeasures will likely continue, extending the time necessary for effective control.

In summary, the animal health situation is dire. Without a change in the policy response by the Chinese

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<sup>5</sup> See the full plan here: [https://www.aphis.usda.gov/animal\\_health/emergency\\_management/downloads/asf\\_strategies.pdf](https://www.aphis.usda.gov/animal_health/emergency_management/downloads/asf_strategies.pdf)

<sup>6</sup> See the full announcement here: [http://www.moa.gov.cn/ztl/fzzwfk/rdgz/201812/t20181212\\_6164823.htm](http://www.moa.gov.cn/ztl/fzzwfk/rdgz/201812/t20181212_6164823.htm)

<sup>7</sup> See full article at <https://farmweeknow.com/story-veterinarian-feed-likely-source-asf-china-0-188674>.

government, ASF will likely persist uncontrolled across China. Furthermore, this uncertainty about how ASF is circulating in China will prevent many hog farmers from restocking, extending the recovery process.

**Factor #1: CHINESE GOVERNMENT’S POLICY RESPONSE TO THE ANIMAL HEALTH CRISIS**

The Government of China has the primary responsibility of formulating and implementing policies to detect, monitor, and control the spread of African Swine Fever in China. Based on its policy positions, the GOC can either help or hinder the control of ASF.

Policies that discourage open discussion of ASF will hamper awareness and education efforts and reduce the GOC’s credibility.

Policy announcements that lack sufficient national government support will also hinder efforts to control the disease. For example, when MARA first announced a subsidy program for culled swine, the per-head subsidy was set at 800 RMB (\$120 USD). While the subsidy was later increased to 1200 RMB (\$180 USD), the local governments were left responsible for funding a large portion of the subsidy bills and, reportedly, lacked the funds to do so. As a result, most farmers do not expect to receive subsidies for culled animals, undermining their incentive to follow the stated regulations.

- Watch MARA’s policy announcements to see how it is addressing ASF. ASF policy announcements: <http://www.moa.gov.cn/ztl/fzzwfk/gzdt/> (Chinese).

*Waiting for a vaccine to resolve the ASF situation is not a feasible option*

There is currently no vaccine for ASF. Researchers have been studying the ASF virus for decades searching for a viable vaccine that offers protection from the virus, is safe, allows distinction between vaccinated and naturally infected animals, and is able to be commercially distributed. Since ASF was first reported in China, public and private sources (inside and outside China) have devoted additional resources towards developing an ASF vaccine. Although there are sporadic reports of breakthroughs in vaccine development, experts agree that a commercial ASF virus is likely years away.

**Factor #2: DEVELOPMENT OF AN EFFECTIVE ASF VACCINE**

The development and distribution of an effective vaccine against ASF could advance the timetable for the recovery of the swine herd. However, it is unlikely that a vaccine will be prepared by 2020 and will not have an effect on next year’s situation.

- Watch for announcements about ASF vaccines that are the result of peer-reviewed research.

**Swine Production**

*Natio*

*nwide herd inventory to decrease by 21 percent*

Based upon current information, the total herd inventory is estimated to decrease by 21 percent in 2019, from 428 million head to 340 million head. This new forecast represents a downward revision from February’s estimated 13-percent decrease.<sup>8</sup> Because the majority of ASF outbreaks are not officially reported, it is difficult to determine the actual losses due to ASF. Estimated inventory losses range from 10 percent up to 70 percent in 2019.

<sup>8</sup> See FAS GAIN Report CH19006 for additional information on how ASF has affected China’s swine industry

It is difficult to quantify these losses because half of China's swine are produced on small farms and half of China's pork is produced by private slaughterhouses. China does not have a system in place to reliably report swine numbers or pork production. One reason for this is half of China's swine herd is currently raised on hundreds of thousands of small family farms across China. After finishing these hogs, the farmer has a number of different options. If the farm is raising swine on contract, the hogs will be marketed by the integrator. If there is a commercial slaughter facility nearby, a farmer may sell the pigs to the slaughter facility. If the local slaughter facility is not buying hogs, the farmer can rent a bay at a slaughter facility and pay someone to slaughter the hogs or do it themselves. If this option is not available, most villages have a private slaughterer who can slaughter for a fee. In the latter two cases, the pork is generally consumed at the local wet market as hot/fresh meat. Industry contacts have reported that as much as half of the pork produced in China comes from these private slaughterers. As a result of this disparate production system, it is difficult to quantify the total losses from ASF.

Despite reports of much higher losses, multiple interviews across a broad cross-section of the industry, combined with information from the animal feed sector, suggest a measured herd reduction in 2019.

First, a herd expansion began in 2018 due to two previous years of strong profits. The effects of this expansion carried through 2019, especially among large scale operations. During the first half of 2018, the swine industry appeared headed towards overcapacity, driving live hog prices down. Although ASF began to be reported in August 2018, the new growth carried over to 2019, resulting in increased productivity for the swine farms that remained healthy, helping to offset some losses due to ASF.

Second, drastic reductions in the swine inventory are not supported by feed demand analysis. Reductions in feed grain consumption (both corn and soybean meal) due to ASF have been moderate. While these reductions were partially offset by increased feed grain demand in the growing poultry, waterfowl, and aquaculture sectors, the reductions do not support reports of 50-percent herd losses. In marketing year FY2018/2019, corn consumption for feed and residual use slipped by 8 percent nationwide, primarily due to ASF.<sup>9</sup> Similarly for soybean meal, FY2018/19 only saw a 5-percent reduction in total soybean meal consumption.<sup>10</sup> In addition, prices for corn and soybeans have remained relatively strong throughout the first six months of 2019, supporting sustained feed demand for hogs.

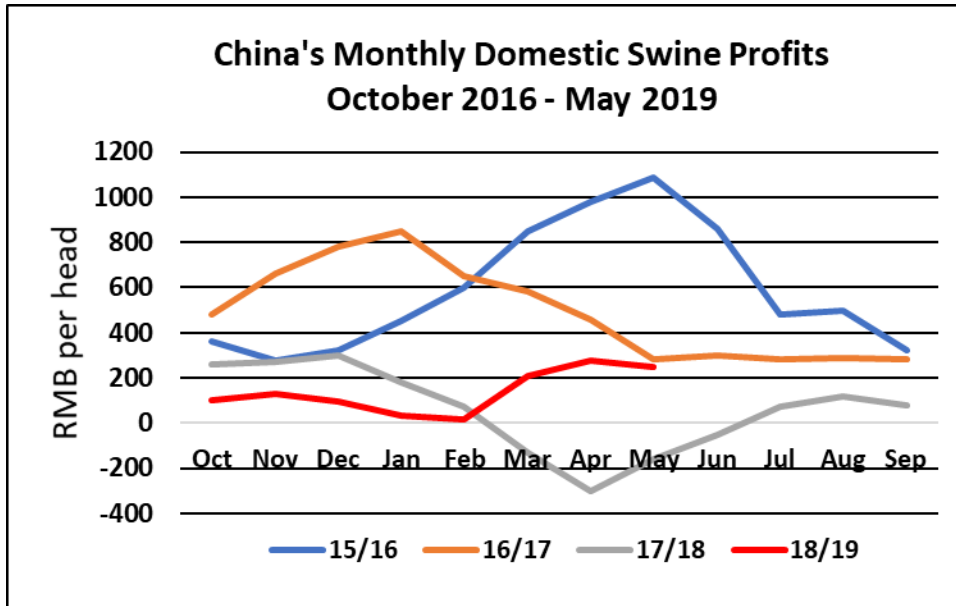
Third, anticipating continuing rises in live hog prices in 2019, many farmers are trying to delay slaughtering their hogs and are raising their hogs to higher weights. Post estimates a 10-percent overall increase to slaughter weights nationwide. As a result of these increased slaughter weights, paired with weak demand, relatively fewer hogs will need to be slaughtered in 2019, slightly offsetting the drop in inventory due to disease and culling.

Fourth, due to panic slaughtering, quarantine-related movement restrictions, and weakening consumer demand for pork, a larger than average frozen pork reserve has built up in cold storage facilities across China. Industry estimates put these stocks currently between 3-5 MMT. As a result of these frozen stocks being available to be released into the market, less hogs will need to be slaughtered in 2019.

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<sup>9</sup> For more information on the feed grain situation, please see FAS GAIN Report CH19036.

<sup>10</sup> For more information on the oilseed situation, please see FAS GAIN Report CH19034.



Source: China JCI

Current exchange rate: \$1 USD = 6.7 RMB

Last, attempts at restocking have already begun. While a majority of the medium and large scale producers are taking a wait-and-see approach to restocking, a substantial number of small farmers have already started trying to restock, hoping to profit from rising swine prices. This is a risky venture, as ASF is still uncontrolled and outbreaks continue to occur, even in provinces that have not reported ASF for many months. However, the industry currently reports an average profit of 200 - 400 RMB per head (\$30 - 60 USD) and many small farmers cannot pass up the opportunity. As live hog prices continued to increase in the latter half of 2019, per head profits could rise up to 800 – 1,000 RMB per head (\$120 – 150 USD). Several industry experts have compared these small farmers to gamblers, hoping to strike it rich by avoiding ASF.

### **FACTOR #3: RISING SWINE PRICES INCREASE THE INCENTIVE FOR RESTOCKING**

Rising swine prices provide strong financial motivation for many farmers to attempt to raise hogs, despite the high risks from ASF. In the first half of 2019, prices have held fairly stable, as demand fell alongside supply. When live swine prices start to rise more rapidly, even more conservative operations may try to restock. Each province may have its own price dynamics. Rising live swine prices are generally indicative of restocking, whereas decreasing prices indicate that farmers are liquidating herds due to ASF outbreaks, depressing prices.

- Watch the pace of price increases in each province.

*Increased practice of retaining gilts for breeding will allow rapid short-term growth*

Due to the scarcity (and high prices) of breeding sows and the risk from introducing new animals into an operation, many farmers are using their own gilts for replacement, instead of purchasing them. While purchasing replacement gilts is generally an easier system to manage, maximizes terminal hog



production, and provides continued genetic improvement, reserving gilts has become increasingly popular among Chinese farmers. While most small farms lack the scale and technical expertise to properly raise their own gilts for breeding, this method allows farmers to quickly ramp up production in the short-term and limits contact with outside animals.

#### *Structural shifts in China's swine industry*

Chinese's swine industry is highly fragmented, with hundreds of thousands of small farms accounting for half of total swine inventory. Before ASF was reported, the swine industry was already undergoing a consolidation and modernization. Due to increasingly strict environmental regulations, swine operations were being moved away from population centers towards the West and Northeast (China's Corn Belt). Many smaller farms lacked the resources to relocate and exited the market, resulting in industry consolidation.<sup>11</sup>

#### **FACTOR #4: INDUSTRY RESTRUCTURING**

In the short-term, small farmers may be able to generate high profits by successfully raising hogs in the current ASF environment. However, in the long-term, modern large-scale integrated facilities will be more sustainable. The speed and manner in which this consolidation happens will influence the trajectory of China's recovery from ASF.

- Watch for news of additional consolidation by large scale operations.

In addition, many large swine operations are expanding in the North and Northeast. Due to ASF, China is moving away from shipping live hogs to shipping chilled carcasses, primarily to manage the risk of shipping live animals across the country. In order to effect this change, China will need to build additional slaughter capacity closer to the new production facilities and add significant cold-chain capacity. The speed at which the industry is able to implement these restructurings will affect when China is able to stabilize production.

- Watch for new slaughter and cold-chain capacity being built in the North, Northeast, and Southwest as the industry shifts from transporting live hogs to transporting chilled/frozen pork.

#### *Industry devotes attention to biosecurity, but still room for improvement*

Swill feeding, or feeding of table waste, was a traditional practice among Chinese swine farmers. In an early report by MARA, swill feeding was identified as one of the leading causes of ASF outbreaks. Since then, MARA has strengthened its regulations on swill feeding and almost all industry contacts have noted that swill feeding has declined dramatically. This important biosecurity measure appears to have been quickly adopted by most Chinese swine farmers.

Industry has also reported other observable improvements in biosecurity practices. Restricting visitor

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<sup>11</sup> For more information about swine movement due to environmental pressure, please see FAS GAIN Report CH17053 here: <https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Livestock%20and%20Products%20Annual%20Beijing%20China%20-%20Peoples%20Republic%20of%2010-4-2017.pdf>

access to hog farms has been widely reported across all parts of China. Requiring farm workers to stay on the farm for long periods of time has also become a common practice. Anecdotally, some farms are offering bonuses based on how long workers stay on the farm: normal salary for a one-month term, salary and a half for two months, double salary for three months. Another example is the widespread use of handheld sprayers, ostensibly filled with disinfectant. At small animal health inspection stations set up in the countryside, it was observed that spraying disinfectant on the animals was consistently performed before receiving official transportation documents. Although the actual application of the disinfectant was cursory, it evidences local authorities working with industry trying to implement control measures.



Photo credit: Caixin, Caixinglobal.com

As another example, most new slaughterhouses have onsite labs to do in-house testing for ASF and other animal diseases. While industry reports that many of these labs lack qualified personnel, or only run the tests during a pre-planned inspection, the infrastructure for this monitoring and detection capacity is being developed.

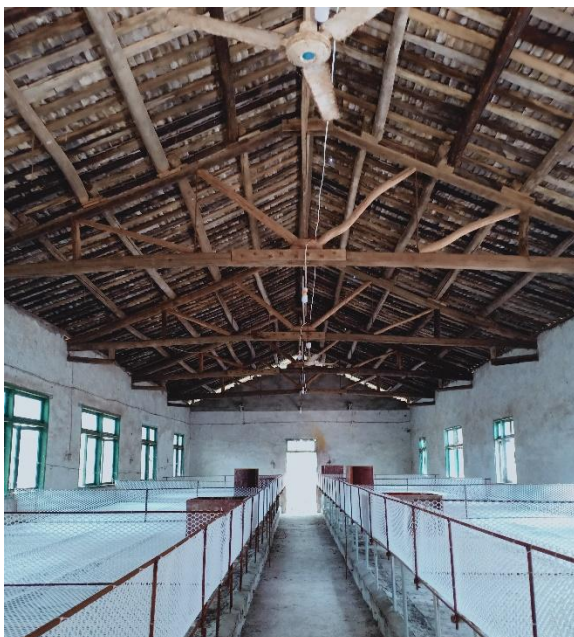
A final biosecurity measure favored by small farms has been to retreat into the mountains. While the majority of China's population resides in river deltas, 70 percent of China is taken up by mountainous terrain. A number of small farmers have reported that their restocking plan is simply to retreat into the mountains and raise hogs there. Although there may be long-term consequences to this type of movement, it allows small farmers to quickly restock and raise hogs with minimal capital investment, in the short-term.

Industry reports that there are frequent trainings on improving biosecurity. Most of these trainings are organized by companies or local swine associations. Speakers are generally drawn from countries that have had experience with controlling ASF. Several industry contacts reported that they do not view the local or national government representatives as authorities on technical control measures, saying that the information put out by the government was either too general or not feasible.

Aside from biosecurity, other control measures that have been implemented to some degree or another include lot testing at slaughterhouses, restrictions on the slaughter of live hogs at wet markets, certification of health requirements for transportation, and testing of frozen pork. In one hypermarket chain, it is store policy for the health certificates for individual lots of pork to be clearly displayed above the merchandise.

In summary, there have been demonstrable improvements in biosecurity and other control measures at discrete locations across China. While these improvements will allow some farms to continue to operate in this environment, there are significant and widespread shortcomings that must be addressed in order to bring ASF under control.

*Most large and medium facilities taking a wait-and-see approach*



While waiting for improvements to the ASF situation, some swine farmers have converted their pig barns to duck hatcheries. Photo: OAA

Many small farms may be willing to risk operating in an ASF-environment with rudimentary biosecurity improvements; however, most medium and large facilities are taking a more conservative wait-and-see approach. Medium and large operations must deal with the existing environment, as opposed to retreating to the mountains, and must develop the expertise and make capital investments necessary to appropriately manage the increased ASF risk.

On May 28, 2019, MARA announced an agricultural guarantee program to subsidize interest payments on short-term loans for large hog producers (>5000 head) and breeding operations with the aim of “effectively stabilizing the production of hogs.”<sup>12</sup>

Despite ASF risks, some large facilities are already attempting to expand their operations. For example, a large swine and feed producer recently reported to shareholders that the company was moving ahead with new construction projects in Guangxi, Hebei, and Shaanxi Provinces. The Shaanxi project will involve two 300,000 head operations. While the company did not

give specific details about how it would manage the risk of ASF, it has access to resources to build modern facilities with best-in-class biosecurity protocols.

**FACTOR #5: IMPLEMENTATION OF EFFECTIVE BIOSECURITY MEASURES**

For small facilities with little to no biosecurity measures, there are many improvements that can be made through basic farmer education and implementation of biosecurity measures.

<sup>12</sup> [http://www.moa.gov.cn/govpublic/CWS/201906/t20190603\\_6316049.htm](http://www.moa.gov.cn/govpublic/CWS/201906/t20190603_6316049.htm) (original in Chinese)

- Watch for increased awareness of biosecurity risks and mitigation steps.

For medium to large operations, increasing biosecurity can be a capital intensive undertaking. Spending resources on capital improvements alone will not result in increased biosecurity. Widespread education and changes in business practices must accompany capital investment. The local and national government can play a pivotal role in helping these farmers implement biosecurity improvements. For example, China's recent announcement to subsidize interest payments for short-term loans to swine farmers will likely have a positive effect on biosecurity investment by large farms, speeding the pace of a recovery.

- Watch for announcements from publicly-listed companies regarding upgrading facilities and implementing stricter biosecurity policies.

### *Declining pig and slaughter numbers in 2019 due to ASF*

The reduced sow herd and ongoing losses due to ASF in 2019 will likely reduce the pig crop by 25 percent year-on-year to 515 million head. In 2019, China will slaughter an estimated 600 million hogs, a decrease of 94 million hogs or 13 percent compared to last year. As farmers hold off on slaughtering their hogs to capitalize on rising prices, the average slaughter weight will increase, slightly offsetting pork production losses.

In summary, based on current conditions, swine production will decline significantly in 2019. While it is unrealistic to determine what the actual effects of ASF will be in 2019, based on the current circumstances, the overall swine herd is estimated to decrease by 21 percent in 2019. While local reports may note much higher losses, the average nationwide inventory has been bolstered by some early restocking from small and large-scale farms. However, most farmers will take a wait-and-see approach to expansion as they either wait for prices to increase or implement stronger biosecurity protocols.

## **2019 PRODUCTION SUPPLY AND DEMAND SITUATION FOR PORK**

Meat, Swine	2018	2019			2020	
	USDA Official	Old Post	USDA Official	New Post	New Post	YOY Δ
Slaughter (Reference)	693820	680000	620000	600000	538510	-10%

Beginning Stocks*	0	0	0	0	0	-
Production	54040	53070	48500	48000	44200	-8%
Total Imports	1561	1500	2200	2500	3500	40%
Total Supply	55601	54570	50700	50500	47700	-6%
Total Exports	203	170	160	150	150	0%
Human Dom. Consumption	55398	54400	50540	50350	47550	-6%
Other Use, Losses	0	0	0	0	0	-
Total Dom. Consumption	55398	54400	50540	50350	47550	-6%
Ending Stocks	0	0	0	0	0	-
Total Distribution	55601	54570	50700	50500	47700	-6%
All units in 1,000 MT CWE, unless otherwise specified						

\*This report does not normally track pork stocks maintained from year to year. However, this does not mean that pork stocks are not carried over in practice. Note: Not Official USDA data.

#### *Pork production decreased by 6 MMT*

2019 pork production is estimated at 48 MMT, a reduction of 11 percent from 2018. As farmers await increased prices for live hogs, they have delayed slaughtering, resulting in heavier carcass weights. This increased weight partially offsets the reduction in the number of hogs slaughtered. In addition, large supplies of frozen pork have accumulated, helping to offset a drop in slaughter rates later this year. Industry estimates between 3-5 MMT of frozen pork, currently held in cold storage across China, can be released into the market to dampen rising prices.

#### *Imports were weak through during the first half of the year, but will likely pick up in the latter half of 2019*

Since the ASF outbreaks, expectations were that 2019 pork imports would dramatically increase due to the shortage of domestic supplies and higher prices. Industry reported that orders for pork imports did pick up briefly in March 2019, corresponding with a sharp jump in domestic live swine prices. However, in the first four months of 2019, China only imported 471,000 MT of pork, a modest 8-percent increase over the same time period last year. The anticipated import demand was likely not realized because in the first three months of 2019, the pork price stayed relatively flat even though the peak consumption season is around Chinese New Year in January. As discussed above, prices were flat because pork demand dropped in parallel to (or faster than) the pork supply, leading to a further accumulation of stored pork.

Second, some of China's imports were sourced from the United States and are subject to additional tariffs. As the United States and China actively engaged in trade discussions during the first three months, traders placed orders in anticipation of a trade deal and the removal of the additional tariffs. That trade agreement has yet to materialize and importers are paying to store the pork or paying additional import duties. For non-U.S. imports, some traders paid higher prices overseas expecting the domestic price to increase. When this increase failed to materialize, many traders left their product in bonded warehouses instead of declaring them for import. As a result, there is a large amount of frozen

imported pork in bonded warehouses across China's ports. Industry experts report that some warehouses are currently refusing to accept new shipments because they are at capacity.

As supplies tighten and prices increase, importers will begin clearing those cargoes and the shipments will show up in the import data. It is expected that new orders will also begin to increase in the latter half of 2019. In anticipation of tight supplies during the Chinese New Year holiday, importers will need to place orders in August/September for a November/December delivery.

Because of the overall reduced supply of pork in China, orders for imported muscle cuts are likely to increase. Muscle cuts have traditionally been a minor portion of total pork imports due to the high margins enjoyed by variety meats and offals. Importers already report expanding the scope of products they are sourcing to make up for shrinking domestic supplies.

Despite the slow start to the year, imports are expected to pick up in the latter half of 2019 to an estimated 2.5 MMT, representing a 60-percent year-on-year increase. The lion's share of these imports are expected to ship during the last three months of 2019. In the first four months, sharp import gains were made by Spain (up 17 percent), Canada (up 30 percent), and Brazil (up 18 percent). Germany, traditionally the largest single-country supplier, slipped 6 percent compared to the same period last year.

#### **FACTOR #6: AVAILABILITY OF IMPORTS**

Based on relatively high worldwide volumes of pork, it is possible for China to dramatically increase its imports in 2019. However, non-price related disruptions to the market can affect the availability of imports, thus driving up prices. For example, China recently suspended Canadian meat imports.<sup>13</sup> This development will serve to constrain available imports and further drive up prices, fueling imports from other sources.

- Watch for any major changes to the availability of pork imports, especially new or expanded China market access.

## **Consumption**

*Pork consumption was already in a gradual decline*

Per capita pork consumption in China is among the highest in the world. For several years now, pork consumption has gradually been in decline as incomes increase and consumers seek to diversify their diets with other proteins, including beef, mutton, and seafood. Also, for younger Chinese consumers, chicken is seen as a healthier option. With an increasing number of western style fast food restaurants in China, chicken and beef consumption have seen steady increases, at the expense of pork. One expert estimates pork consumption declined by 5 percent, between 2013 and 2017. Finally, pork consumption varies from region to region, based on availability of other proteins and regional cuisine. For example, average per capita pork consumption is much higher and inelastic in Sichuan, when compared to Beijing.

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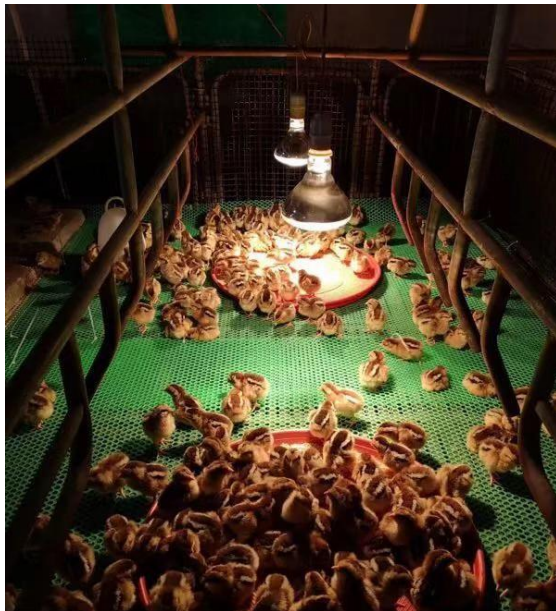
<sup>13</sup> See announcement from Chinese Embassy in Canada here: <http://ca.china-embassy.org/eng/sgxw/t1675693.htm>

*Due to ASF, pork consumption has dropped sharply, primarily due to unfounded food safety concerns*

In 2019, pork consumption is expected to drop by 9 percent, mainly due to unfounded food safety concerns. Despite regular public announcements about ASF not being a danger to humans, many Chinese consumers report consciously avoiding pork products. During the first few months of ASF outbreaks in 2018, there were several reports of institutional cafeterias removing pork from their menus. Those types of reports are less frequent in 2019, but food safety is still the primary reason consumers report not choosing pork.

With the onset of ASF, China plans to restructure how pork is produced and consumed in China. Traditionally, Chinese consumers prefer hot/fresh meat that has recently been slaughtered. This system requires transporting live hogs close to the city for slaughter, increasing the risk of spreading animal diseases over long distance. Slaughtering hogs closer to the production areas and shipping chilled/frozen pork could help to improve disease control. However, this change requires Chinese consumers to change their dietary habits. In fact, Beijing City already made the switch to chilled pork several years ago during an outbreak of avian influenza. Now, hogs are slaughtered far outside the city and chilled carcasses are brought to the market every day.

*Consumption of other animal proteins has increased*



Source: Industry

Due to ASF, demand for other animal proteins has increased, driving up prices. Poultry, waterfowl, and eggs have seen the largest price increases as they are readily substituted for pork. Demand for poultry and waterfowl has pushed prices to record highs and industry contacts report that a number of swine farmers have now switched to raising chickens or ducks. Beef and mutton have also experienced increased demand, but to a lesser extent because of the price differential.

*Balancing the protein gap*

Given China's GDP growth above 6 percent and rising household incomes, consumer demand for animal protein is expected to remain stable. In 2019, pork production will shrink creating a protein supply gap of 6 MMT. Poultry meat and other animal proteins will make up the protein gap created by declining pork production.

In conclusion, while ASF production losses will greatly affect herd inventory in 2019, the disruption to the animal protein supply will be minimal, under current circumstances. The 6 MMT drop in pork production will be mitigated by shifting consumer demand to other proteins, increased imports, and other factors.

**FACTOR #7: AVAILABILITY OF REPLACEMENT ANIMAL PROTEINS**

Replacing pork with other animal proteins relies on the ability to increase the supply of these proteins. For beef, a shrinking domestic herd requires the increase to come from imports. For poultry, the majority of additional supply will come from domestic increases (imports account for less than 4 percent of total consumption). Availability of imported pork is discussed above in Factor #6. If there is a major change in the availability of either of these replacement proteins, it could affect the rest of the supply.

- Watch for increased production of other animal proteins, especially white-feather broilers.
- Watch for increased imports of other animal proteins.

## **2020 PRODUCTION SUPPLY AND DEMAND FORECAST FOR SWINE AND PORK**

### **Production**

#### *Restocking efforts begin to stabilize herd losses*

Given the current situation, the swine inventory is forecast to continue falling in 2020, but at a slower pace, ending the year an additional 10 percent lower (compared to a 21-percent drop in 2019).

It is expected that farmers across China will have already begun to restock to take advantage of high profits. The profit vs. risk calculation will further incentivize some producers to begin expanding their herds in 2020. On the profit side, it is expected that live hog prices will continue to increase into 2020. On the risk side, ASF is likely to continue to circulate uncontrolled and farmers will attempt to mitigate the risk of ASF outbreaks by adopting additional biosecurity measures. A clear understanding of ASF vectors (through epidemiological investigations), region-specific industry education, government-subsidies to support investment in biosecurity, and supportive government regulations could all help reduce the ASF risk. As the per-head profit increases and the industry better understands how to manage risk, farmers will increase production.

#### *Focus on rebuilding the sow herd*

From January 1, 2019 to December 31, 2019, the sow number is expected to drop an estimated 30 percent due to animal disease losses and culling. Starting from 26 million head in 2020, the sow number could grow as restocking attempts begin in earnest. Farmers will continue to reserve gilts and incorporate them into their breeding stocks. At the end of 2020, it is expected that the sow herd will have stabilized. However, this outcome will depend heavily on many factors that must be effectively addressed in order to control the ASF risk.

### **Trade**

#### *Increase in imported swine genetics to replenish breeding operations*

Imports of breeding sows will likely increase in 2020. As the number of large farms continues to increase, demand for high-quality, imported genetics will grow. While the demand for imported genetics will be high, realizing trade may be gradual due to concerns about spreading ASF outside of China. Industry reports that attendance at animal husbandry events in China has dropped considerably



in 2019. In addition, the number of Chinese buyers heading overseas to meet with potential sellers has also dropped.

*Increased pork imports*

Pork imports are expected to increase to 3.5 MMT in 2020 as domestic supplies are unable to meet the demand.<sup>14</sup> This will be the second year of 40-percent annual growth increases. While the herd rebuilding could take place throughout 2020, the overall pig crop and the available pigs for slaughtering will continue to be constrained. The types of pork imported in 2020 will include a greater ratio of muscle cuts than before for several reasons. First, imported pork muscle cuts are generally not as competitive as domestic cuts because Chinese consumers generally prefer hot/fresh meat to chilled/frozen. As domestic supplies are constrained and there is more chilled/frozen pork being offered for sale, overseas imports will be more competitive. Second, imported pork will likely be viewed by Chinese consumers as safer, due to ongoing news reports of ASF in domestic product.

**Consumption**

*Consumption continues to fall, but replacing pork in the diet becomes more difficult*

Consumer demand for pork is likely to continue falling in 2020. Due to food safety concerns and high prices, pork consumption is forecast to fall to 48 MMT, representing a further 6-percent decrease. While some consumers will switch back to pork as prices stabilize, it is possible that the overall market share for pork will never return to pre-ASF levels.

**CATTLE**

**PRODUCTION, SUPPLY, AND DEMAND TABLES FOR CATTLE**

Animal Numbers, Cattle	2018		2019		2020	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post

<sup>14</sup> Note, USDA does not include variety or offals in its PS&D trade estimates. Total numbers of pork imports, including offals and variety meats, will be higher.

Total Cattle Beg. Stks	90387	90387	90000	90000	0	90140
Dairy Cows Beg. Stocks	12000	12000	12000	13000	0	14000
Beef Cows Beg. Stocks	52000	52000	51800	52500	0	53000
Production (Calf Crop)	47500	47500	47100	48500	0	49000
Total Imports	140	140	150	150	0	160
Total Supply	138027	138027	137250	138650	0	139300
Total Exports	15	15	10	10	0	10
Cow Slaughter	0	0	0	0	0	0
Calf Slaughter	0	0	0	0	0	0
Other Slaughter	46800	46800	48000	47500	0	47700
Total Slaughter	46800	46800	48000	47500	0	47700
Loss and Residual	1212	1212	1240	1000	0	1060
Ending Inventories	90000	90000	88000	90140	0	90530
Total Distribution	138027	138027	137250	138650	0	139300
(1000 HEAD)						

Note: Not Official USDA data.

## Production

### *China's beef cattle inventory will remain stable in 2020*

China's beef cattle herd will remain stable in 2020, fluctuating upward less than 1 percent to 90.5 million head. Despite the demand growth for beef, the Chinese national herd has not kept pace with demand and over the last five years, the herd has shrunk due to a high extraction rate (slaughter head/beef cattle inventory). In 2017, industry experts estimate the extraction rate at over 50 percent, or almost double the level considered "safe" in other major cattle producing countries.

While larger commercial herds of 20,000+ head do exist, the majority of cattle operations in China slaughter nine or fewer cattle per year.<sup>15</sup> Cow-calf operators are generally small and have limited access to modern ranching technology to improve their calf output. Across China, beef cattle average about 2 calves every three years.

China's State Council Leading Group Office of Poverty Alleviation and Development is charged with coordinating China's national efforts to eradicate poverty by 2020. Through the provincial governments in Inner Mongolia, Gansu, Ningxia, Qinghai, and Sichuan, programs have been established to provide beef cattle to low-income farmers. Coupled with stable, high beef prices, these programs are reportedly successful at helping rural residents become financially self-sufficient.

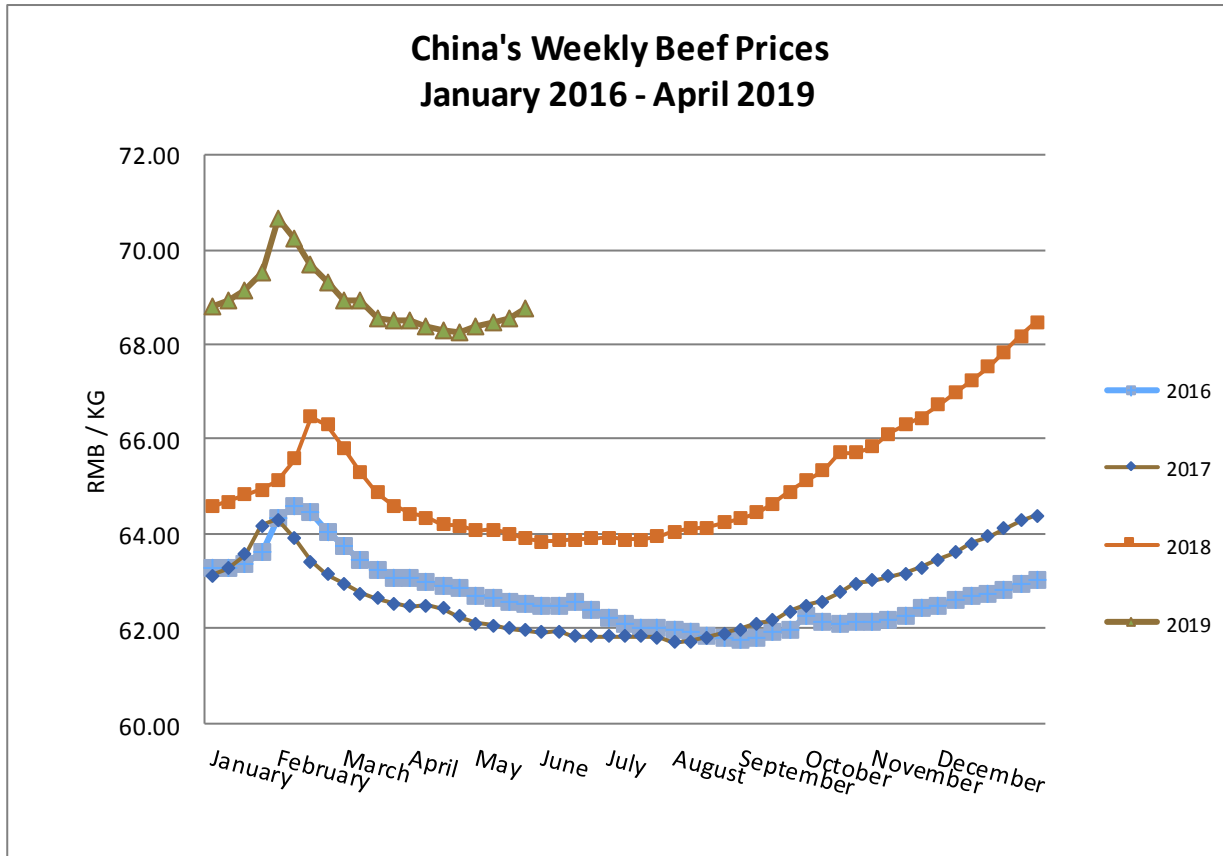
ASF outbreaks across China have also forced many small and medium farm operators to exit the swine

<sup>15</sup> Figures from the 2017 China Animal Husbandry Yearbook

sector after losing herds to the disease. Some of these displaced farmers have switched over to raising beef cattle, and in some cases, are converting their pig houses into cattle barns.



Source: Industry



Source: MARA

## Imports

*China's live cattle imports continue to increase in 2020*

Live cattle imports are forecast to increase by 7 percent to 160,000 head in 2020. China primarily imports live cattle from Australia. In 2018, Australia accounted for over 80 percent of total live cattle imports. On January 1, 2019, Chinese tariffs for Australian live cattle fell to zero under the China-Australia Free Trade Agreement. This tariff-free treatment will drive increased imports of beef cattle for breeding and for slaughter.

To meet its growing demand for beef, China is also establishing quarantine stations along its border with Myanmar in Yunnan Province. While the live cattle import program is still in its pilot phase, once implemented, it will formalize an avenue for importing live beef cattle from South Asia. Due to China consumer preferences for fresh/hot meat over frozen meat, this southern corridor for live cattle could be fully operational by 2020.

## BEEF

### PRODUCTION SUPPLY AND DEMAND TABLES FOR BEEF

Meat, Beef and Veal	2018		2019		2020	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
China						
Slaughter (Reference)	46800	46800	48000	47500	0	47700
Beginning Stocks	20	20	0	0	0	0
Production	6440	6440	6575	6550	0	6600
Total Imports	1467	1467	1680	2050	0	2800
Total Supply	7927	7927	8255	8600	0	9400
Total Exports	17	17	15	15	0	15
Human Dom. Consumption	7910	7910	8240	8585	0	9385
Other Use, Losses	0	0	0	0	0	0
Total Dom. Consumption	7910	7910	8240	8585	0	9385
Ending Stocks	0	0	0	0	0	0
Total Distribution	7927	7927	8255	8600	0	9400

(1000 HEAD) ,(1000 MT CWE)

Note: Not Official USDA data.

### Production

*Beef production will increase 1 percent in 2020*

China's beef production is forecast at 6.6 MMT in 2020, representing a 1-percent year-on-year increase. The production increase is primarily due to a slight increase in overall slaughter and higher slaughter weights. Commercial beef slaughter facilities are limited in China, clustered around the large scale enterprises in Jilin, Inner Mongolia, Shanxi, and Henan. These modern facilities generally process beef for high-end retail outlets or e-commerce channels. The majority of cattle are slaughtered by individuals and the meat is marketed through traditional wet market channels.

The beef price will continue to rise as demand outstrips available supplies. Due to concerns about ASF in pork, middle and high-end Chinese consumers are choosing to eat even more beef, as a substitute for pork. As ASF is expected to continue in China for the foreseeable future, beef prices will continue to strengthen heading into 2020.

### Consumption

*Consumer demand for beef increases, partially driven by ASF-related concerns with pork*

China's beef consumption will reach 9.4 million tons in 2020, about 9-percent increase over 2019. Economic growth is the primary driver of growing beef demand. Continued urbanization, increasing living standards, and growing income levels will all support demand growth for beef. Industry experts estimate that at the current population, every 100 gram increase in per capita consumption equates to roughly 140,000 MT of new beef demand.<sup>16</sup> Recent estimates put Chinese per capita consumption at 5.8 kilograms, or only two-thirds of the world average.

## Imports

Beef imports will increase by 37 percent to 2.6 MMT in 2020 to meet growing consumer demand. Nearly all importing countries will realize volume gains in 2019. From January to May, Brazil (up 15 percent), Uruguay (up 24 percent), Argentina (up 123 percent), Australia (up 63 percent), and New Zealand (up 80 percent) are all on track for record beef exports to China in 2019.

Partner Country	2014	2015	2016	2017	2018
<b>Brazil</b>	0	56429	171157	197565	322693
<b>Uruguay</b>	89080	123206	155441	195874	218553
<b>Argentina</b>	16983	42688	51957	86334	180377
<b>Australia</b>	135210	155938	110911	115779	173089
<b>New Zealand</b>	40384	70266	72053	79485	110807
<b>Mongolia</b>	0	0	308	677	8338
<b>Canada</b>	14724	23125	13588	8977	8178
<b>United States</b>	0	1	4	2207	6925
<b>Rest of World</b>	1573	2183	4882	8896	18779
<b>World</b>	297954	473836	580301	695794	1047739

Units: Metric tons; Source: GTA

The top South American exporters (Brazil, Argentina, and Uruguay) remained the top suppliers to the China market and typically account for over 60 percent of imports. Brazil and China recently negotiated an agreement to approve 30 new meat plants as eligible to ship poultry, pork, and beef to China.

Although Australia's beef production has been negatively affected by dry hot weather, under the China-Australian Free Trade Agreement, tariffs on beef fell to zero and could bolster Australian shipments.

Despite restoring market access in 2017, U.S. beef imports will fall in 2020 due to the bilateral trade issues between the United States and China. Imports are limited not only by the additional 25 percent tariffs, but due to the uncertainty of how political issues may end up affecting trade. However, U.S. beef exports remain at a low level and are marketed to high-end restaurants and hotels. Popular imported cuts include short plate, brisket, rib finger, chuck, oyster plate, and sirloin. As long as the trade tensions continue, it is likely that U.S. beef imports to China will be constrained.

<sup>16</sup> See the full article here:

[https://www.researchgate.net/publication/325476324\\_Current\\_situation\\_and\\_future\\_prospect\\_of\\_beef\\_production\\_in\\_China](https://www.researchgate.net/publication/325476324_Current_situation_and_future_prospect_of_beef_production_in_China)

