# Contextualising the 2019 African Swine Fever outbreak in South Africa

Bureau for Food and Agricultural Policy

in collaboration with

The South African Pork Producers' Organisation

September 2019

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# Executive Summary

The objective of this report is to provide a summary and contextualisation of the South African pork industry, against the backdrop of the recent world-wide outbreaks of African Swine Fever (ASF) and increasing outbreaks also in South Africa. The potential impact of ASF is quantified for both the South African formal and informal pig herds.

The executive summary of this report is presented in infographic style, with the more comprehensive report providing the details to the findings.

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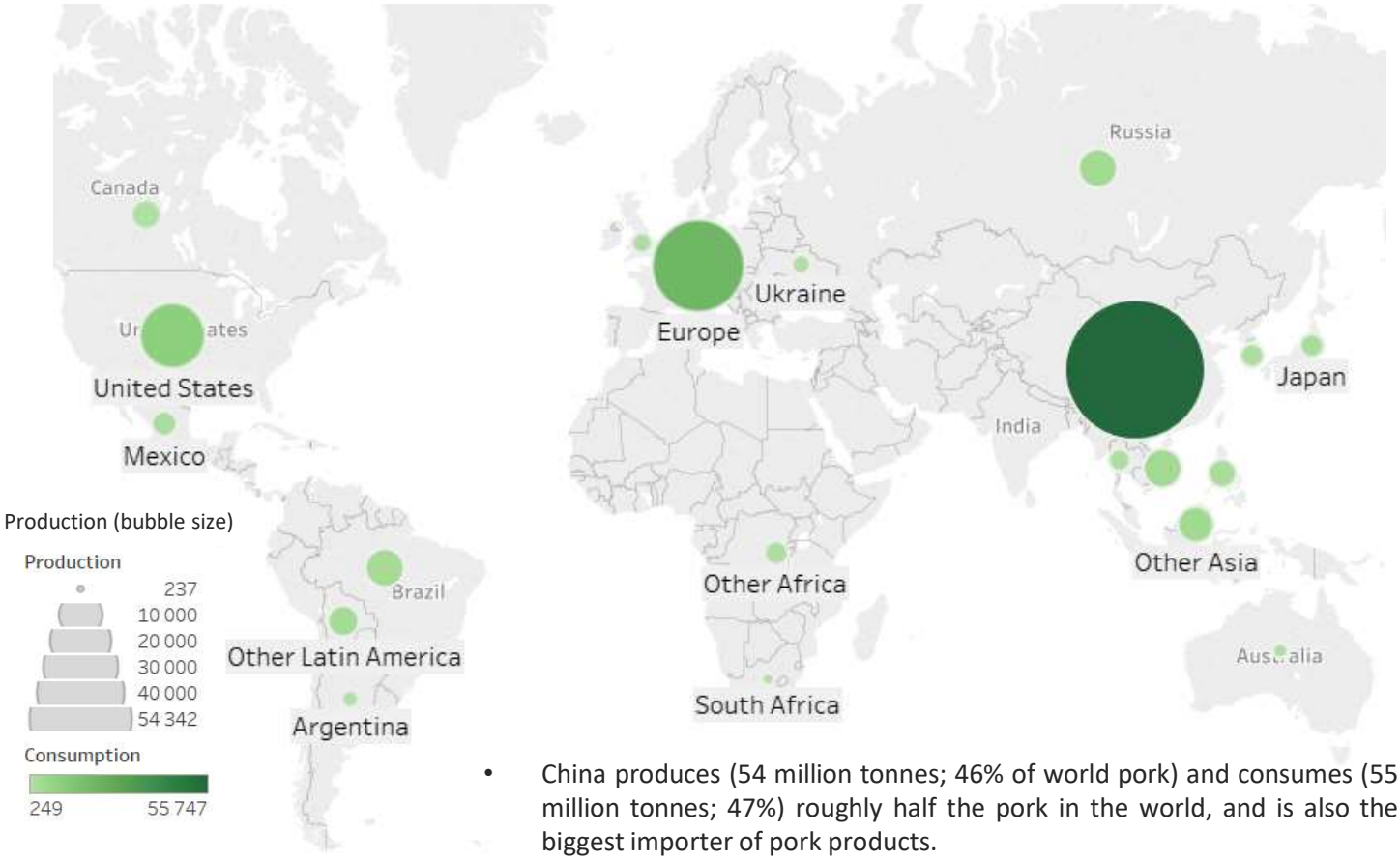
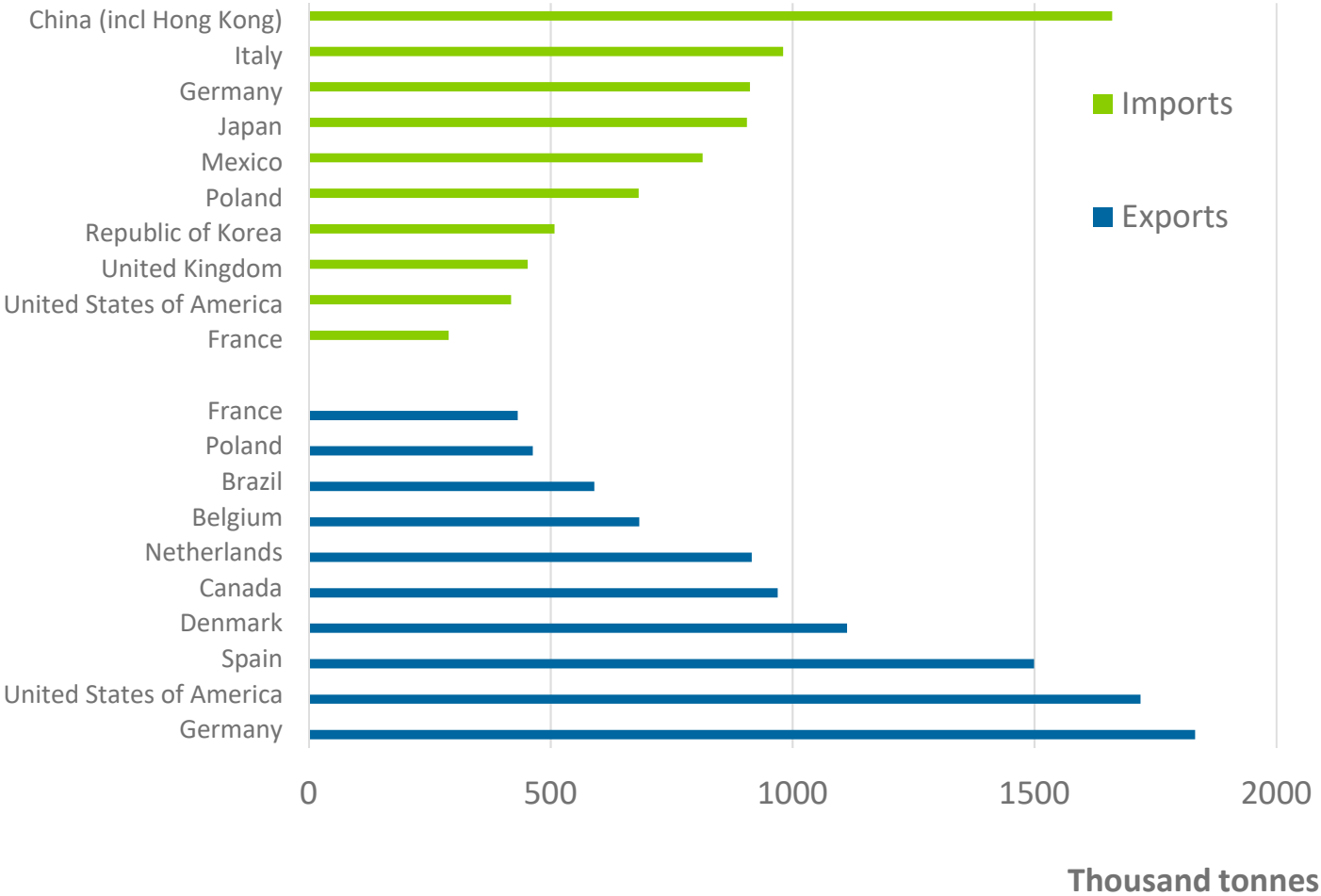
# International Pork Market

## Global Pork Production & Consumption




- China produces (54 million tonnes; 46% of world pork) and consumes (55 million tonnes; 47%) roughly half the pork in the world, and is also the biggest importer of pork products.
- Europe is the biggest exporter of pork products, and produces 23 million tonnes (20%) annually.
- The United States produces 11.4 million tonnes (10%) and consumes an average 9.5 million tonnes (8%) annually.

## Leading traders globally



# South African Pork Market

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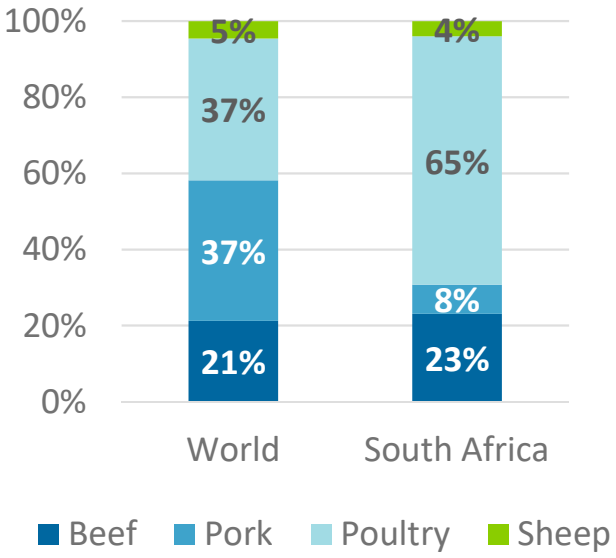
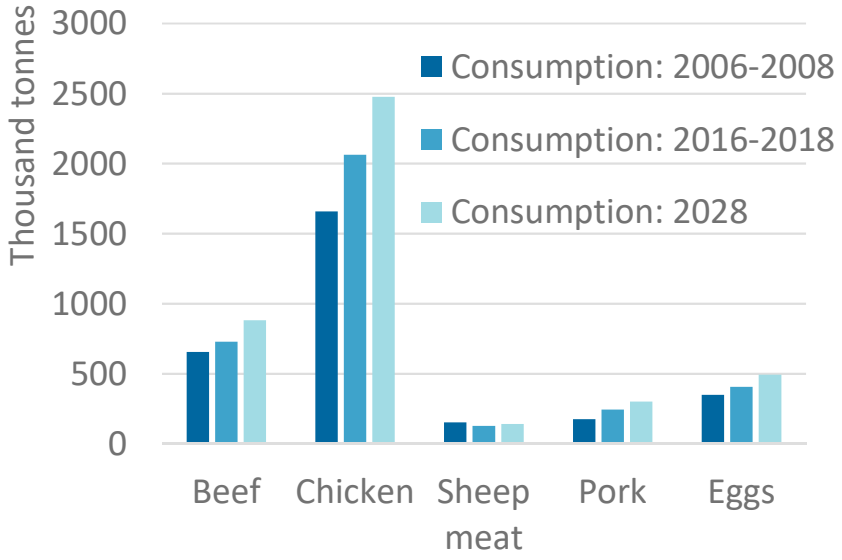
## Meat consumption mix: SA vs. world average

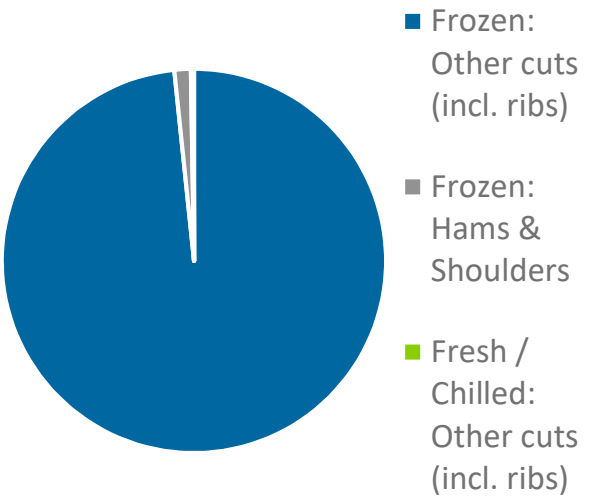



## South African meat consumption over time & outlook

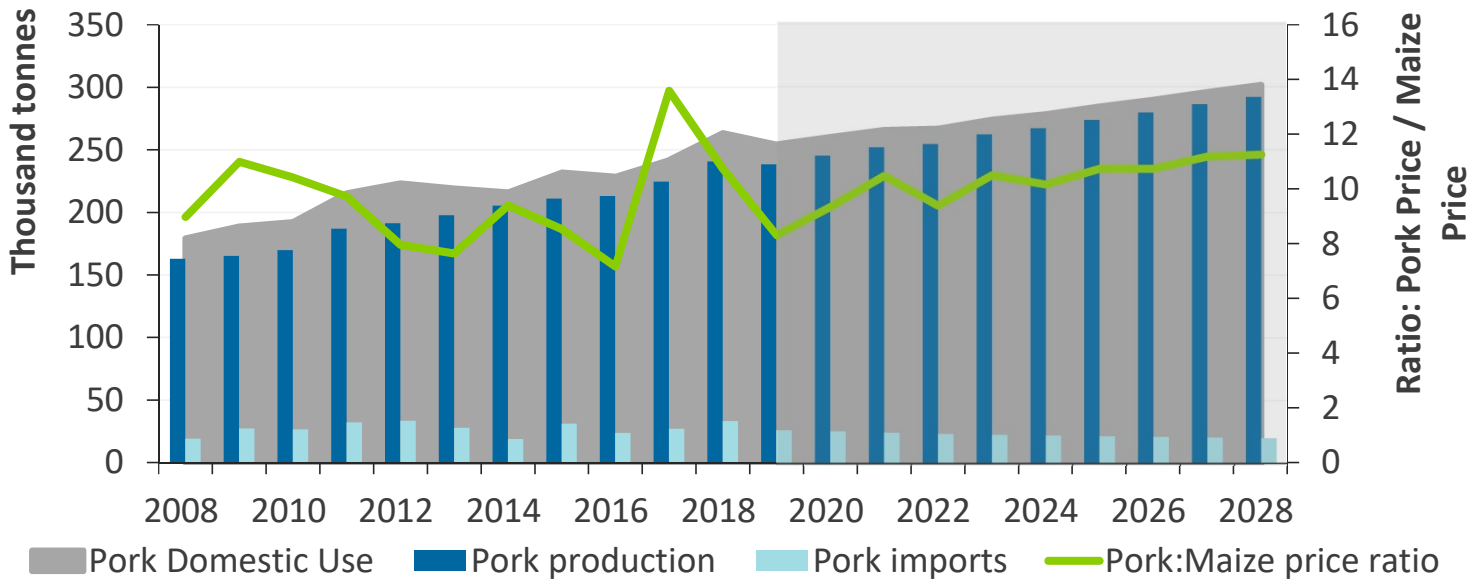



| SA Pork Sector in a nutshell | |
|---|---|
| Contributes 5% of Gross Value of Animal Production | Growth of 10% p.a. in gross production value over past decade |
| Production: +48% past decade | Consumption: +47% past decade |
| Formal Sector: 170 producers | Informal sector: 208 312 Households |
| 4% of production exported | 11% of consumption imported |

## SA import composition




## SA Pork market balance over time



# Formal & Informal Pig Herd

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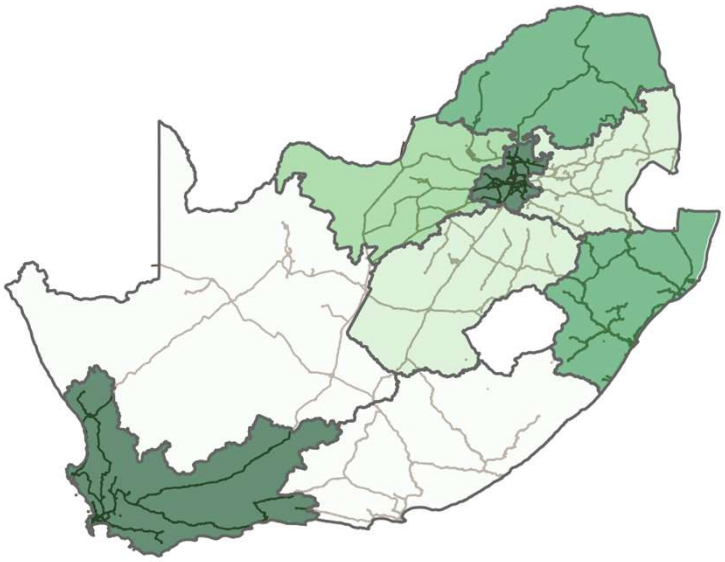
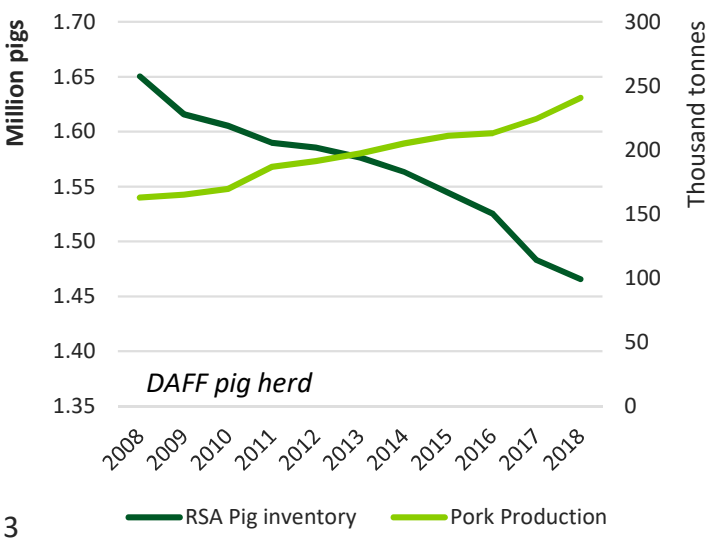
## FORMAL

*Households or Producers responsible **for more than 50 pigs***



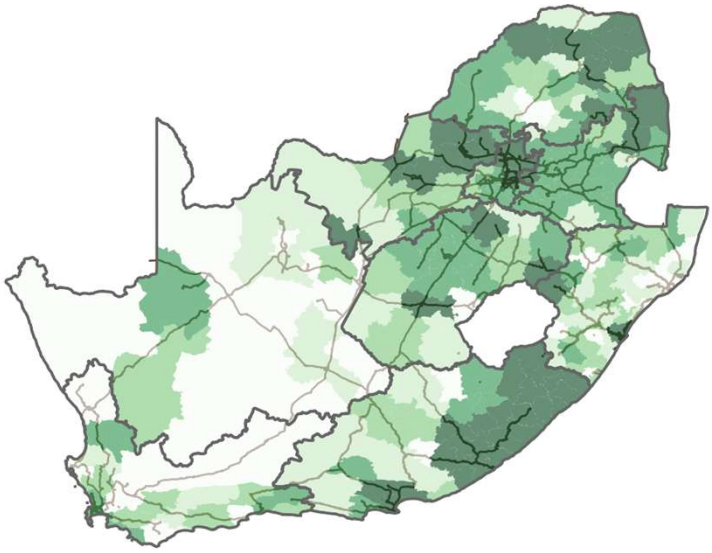
| Province | Pig Standing Stock | % of Total |
|---|---|---|
| Gauteng | 246 481 | 19% |
| Western Cape | 263 150 | 18% |
| KwaZulu-Natal | 246 481 | 17% |
| Limpopo | 200 640 | 14% |
| North West | 159 283 | 11% |
| Mpumalanga | 138 231 | 10% |
| Free State | 79 167 | 5% |
| Eastern Cape | 73 910 | 5% |
| Northern Cape | 14 883 | 1% |
| **Total** | **1 450 713** | |

**170 Producers**



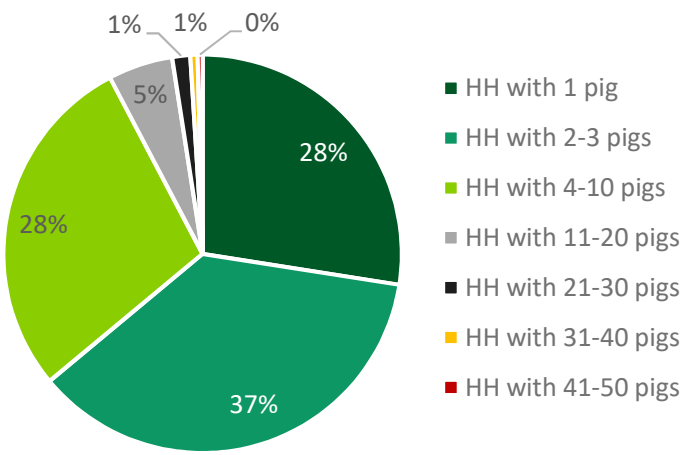

## INFORMAL

*Households or Producers responsible **for 50 or fewer pigs***

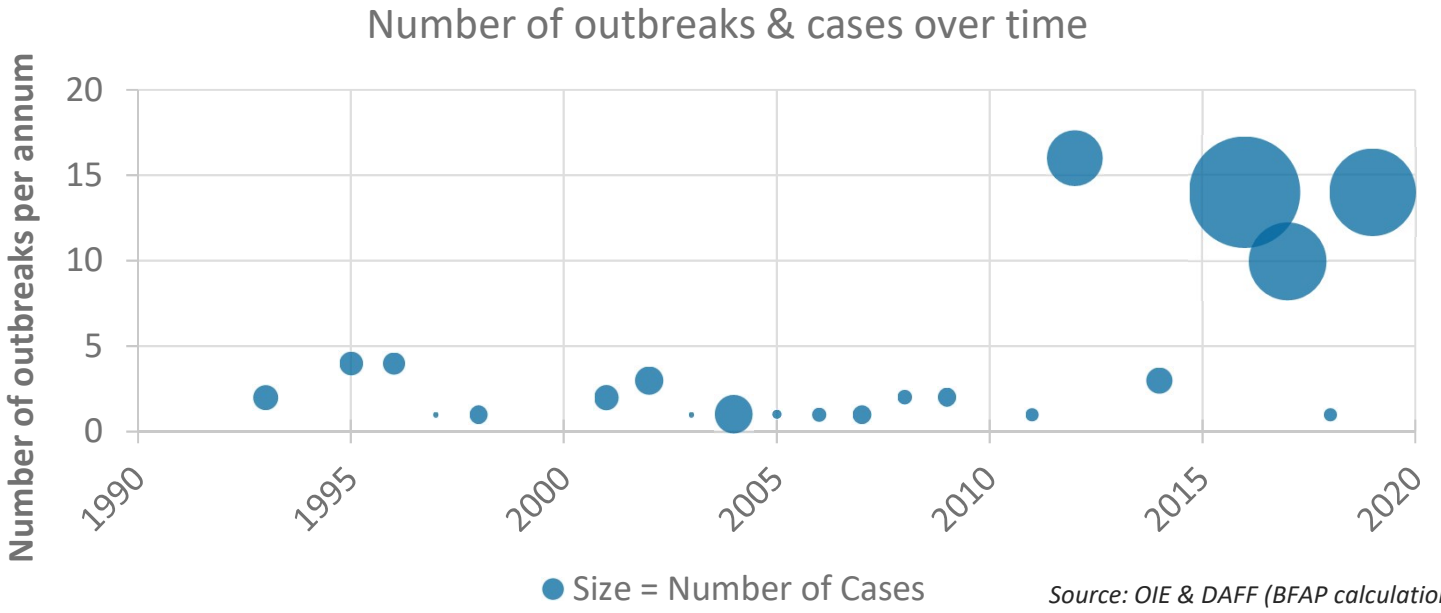


| Province | Pig Standing Stock | % of Total |
|---|---|---|
| Gauteng | 50 471 | 6% |
| Western Cape | 26 241 | 3% |
| KwaZulu-Natal | 61 703 | 7% |
| Limpopo | 118 385 | 13% |
| North West | 68 743 | 8% |
| Mpumalanga | 78 704 | 9% |
| Free State | 62 045 | 7% |
| Eastern Cape | 412 800 | 46% |
| Northern Cape | 14 170 | 2% |
| **Total** | **893 262** | |

**208 312 Households**



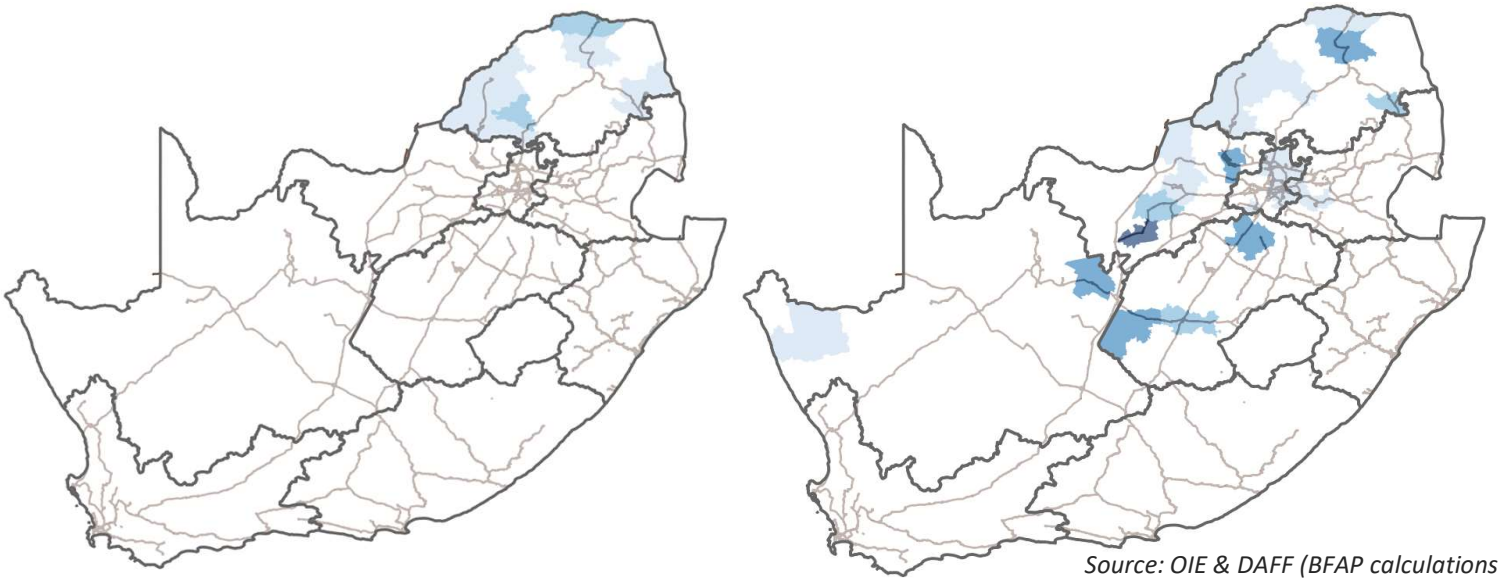
# African Swine Fever (ASF)




*Source: OIE & DAFF (BFAP calculations*

Average # of ASF cases **before 2010**

Average # of ASF cases **after 2010**



*Source: OIE & DAFF (BFAP calculations*

| 0 | 0-32 | 32-74 | 74-140 | 140-200 |
|---|---|---|---|---|

The average number of recorded ASF cases per annum increased from less than 5 before 2010 to more than 10 (more than 100% increase) after 2010. SAPPO has collaborated with DAFF and the SPCA to manage outbreaks.

Mitigate the disease risk by focussing on:

- Health Status
- Biosecurity
- Food Safety

## International spread of ASF: 2016 – 2019

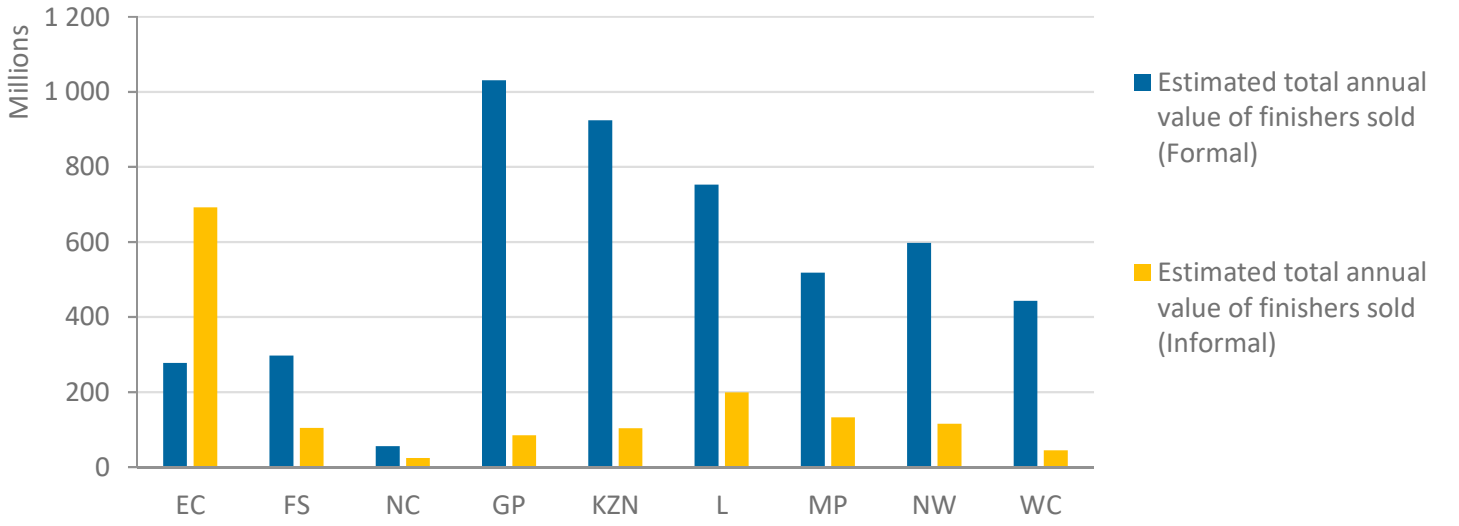
Source: OIE, 2019

| Region | First Reported Outbreak | Reported Losses (Jan 2016 – Sept 2019) |
|---|---|---|
| Africa | Endemic | 42 710 |
| Asia | August 2018 (China) | 1 771 348 |
| Europe | September 2016 (Moldova) | 1 013 172 |
| **Total** | | **2 827 230 pigs** |

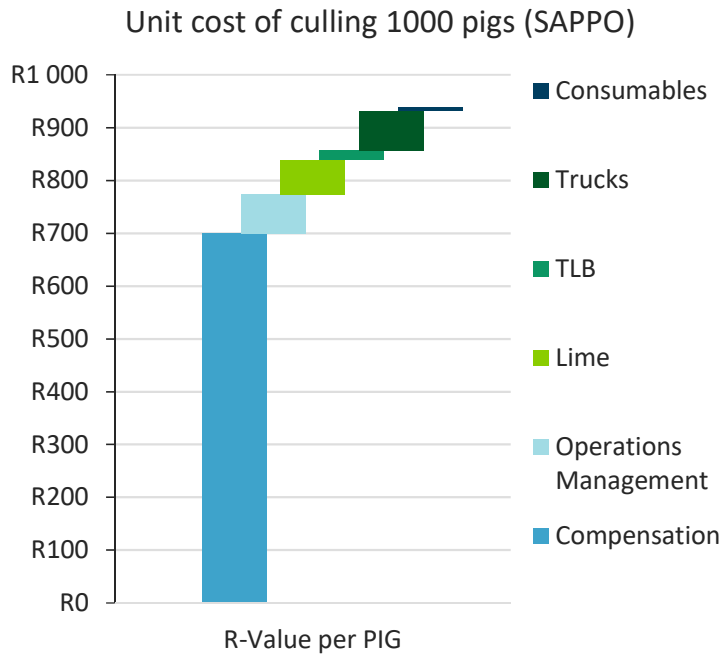
# Impact of ASF

Value of SA Formal Pig Herd (standing, i.e. at any given point in time) =
**R2.44 billion**

Value of Informal Pig Herd (standing, i.e. at any given point in time) =
**R1.24 billion**




| Formal market impact | Informal market impact |
|---|---|
| Direct cost of culling total standing stock: R1.33 billion | Direct cost of culling total standing stock: R822.9 million |
| 1 490 (highly skilled jobs) | 29 550 minimum wage jobs (value added per annum in informal industry, expressed in min. wage jobs terms) |
| R4.75 million (loss of revenue from selling finishing pigs for a production unit with 100 sows) | R45 300 (loss of income from selling finishing pigs for a household with 3 sows) |




Current outbreak management process:

1. Provincial veterinary services are notified by pig owners / farmer.
2. Provincial veterinary performs tests on tissue samples to confirm the presence of ASF.
3. Positive test results are sent to DAFF and SAPPO is officially informed.
4. Provincial veterinarian services and SAPPO meet with pig owners to negotiate culling and farmer support.
5. Once farmer agrees to cull, Provincial veterinary & SAPPO conduct the culling process with oversight and oversight from the SPCA.
6. All carcasses are moved and disposed of and holding pens are disinfected.

# Contextualising the 2019 African Swine Fever outbreak in South Africa

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## Introduction

Against the backdrop of recent world-wide outbreaks of African Swine Fever (ASF) and increasing outbreaks in South Africa, the Bureau for Food and Agricultural Policy (BFAP) was approached by SAPPO to contextualise and quantify the potential impact of ASF for both the formal and informal pork industries.

This report summarises the recent world-wide outbreaks and contextualises South Africa in the global pork market. The contribution of the Chinese pork industry to the global supply and demand is highlighted. Furthermore, the South African formal and informal pig herds are quantified and mapped. The BFAP Baseline (10-year outlook) for the pork industry is summarised and the informal pig production system is discussed.

Finally, this report quantifies the potential impact of ASF by the following metrics: the industry's value-add per annum, job / livelihood contributions and the potential cost of culling.

## Overview of the global pork industry

118.5 million tonnes of pork is produced globally with China, Europe and the US contributing 54.3 million tonnes (46% of global production), 23.2 million tonnes (20%) and 11.4 million tonnes (10%) respectively. In contrast, South Africa produces an average of 236 thousand tonnes. Regarding consumption of pork, China again takes the lead with 55.7 million tonnes being consumed (47% of global consumption), followed by Europe with 20 million tonnes (17%) and the United states consuming 9.5 million tonnes (10%). South Africa consumes an average 249 thousand tonnes per annum.

From **Figure 1**, it is clear that the countries producing most of the world's pork also consume the world's pork supply. However, an average 9.6% of total pork meat supply is exported annually. **Figure 2** shows the top exporters and importers worldwide. While Europe is the top exporter of pork, China is the largest importer of pork meat despite producing almost half of global pork supply.

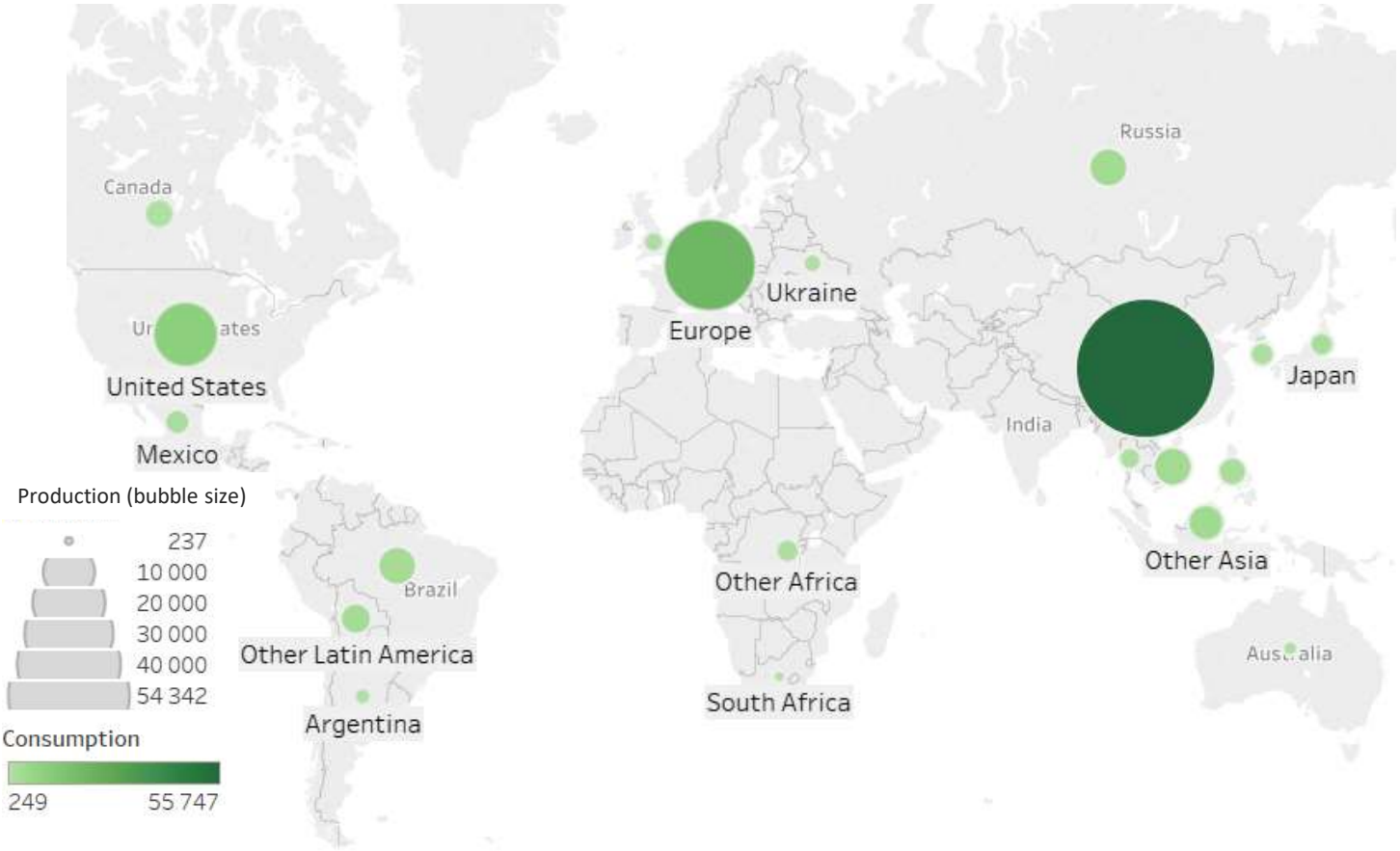



**Figure 1**: **Global pork production and consumption (Avg 2016 – 2018)**
**Source**: FAO, 2019

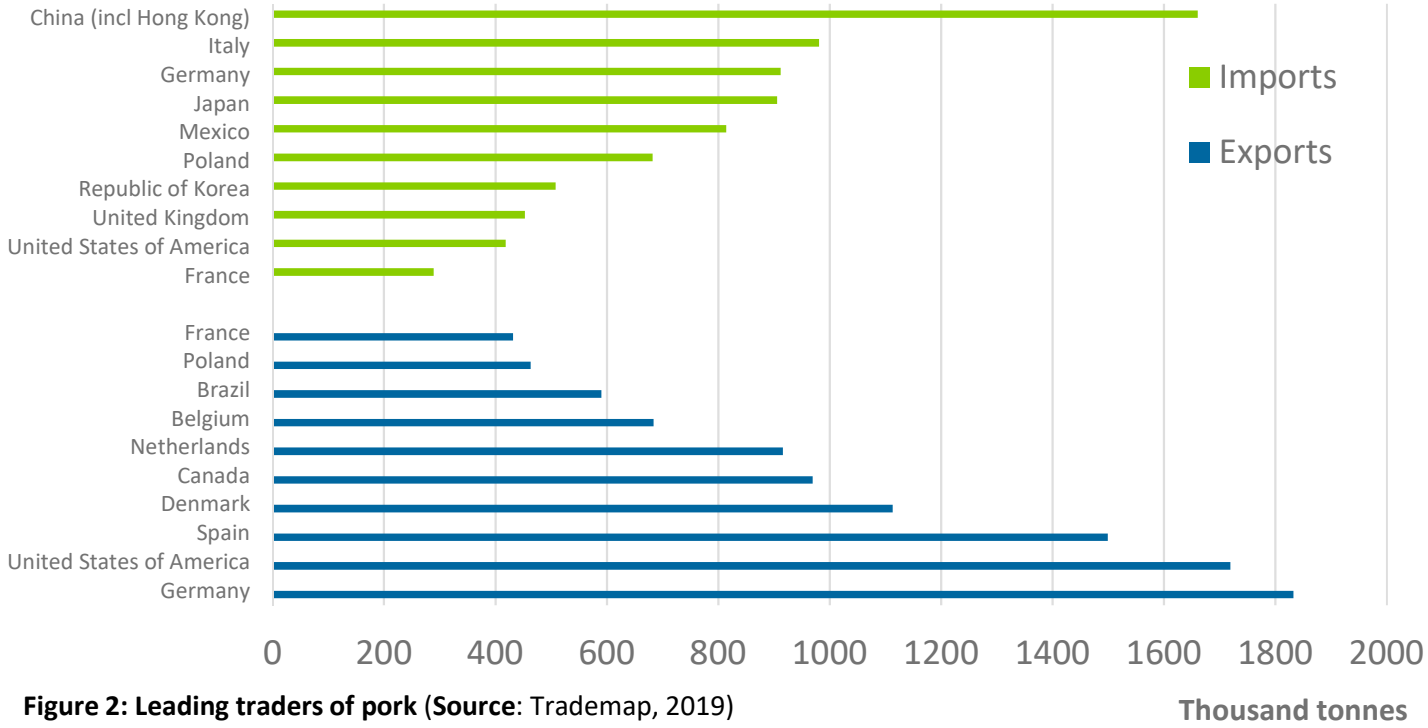



**Figure 2: Leading traders of pork** (**Source**: Trademap, 2019)

## Global impact of African Swine Fever

The World Organisation for Animal Health (OIE) reports a significant increase in reported cases of ASF globally since 2016. **Figure 3** indicates that the disease has spread to a number of regions. It was first reported in Europe in September 2016 and by September 2018 cases had been reported in Moldova, Czech Republic, Romania, Hungary, Bulgaria and Belgium. In Asia, the first case was reported in China in August 2018. Since then, the disease spread rapidly across most provinces in China, as well as other Asian countries, with cases reported in Mongolia, Vietnam, Cambodia, Hong Kong, Korea, Lao and most recently also in South Korea and the Philippines. The Food and Agriculture Organisation of the United Nations (FAO) estimates that almost 5 million pigs in Asia have died or have been culled due to ASF, while other sources estimate losses (culls and preventative slaughter) over 100 million pigs.

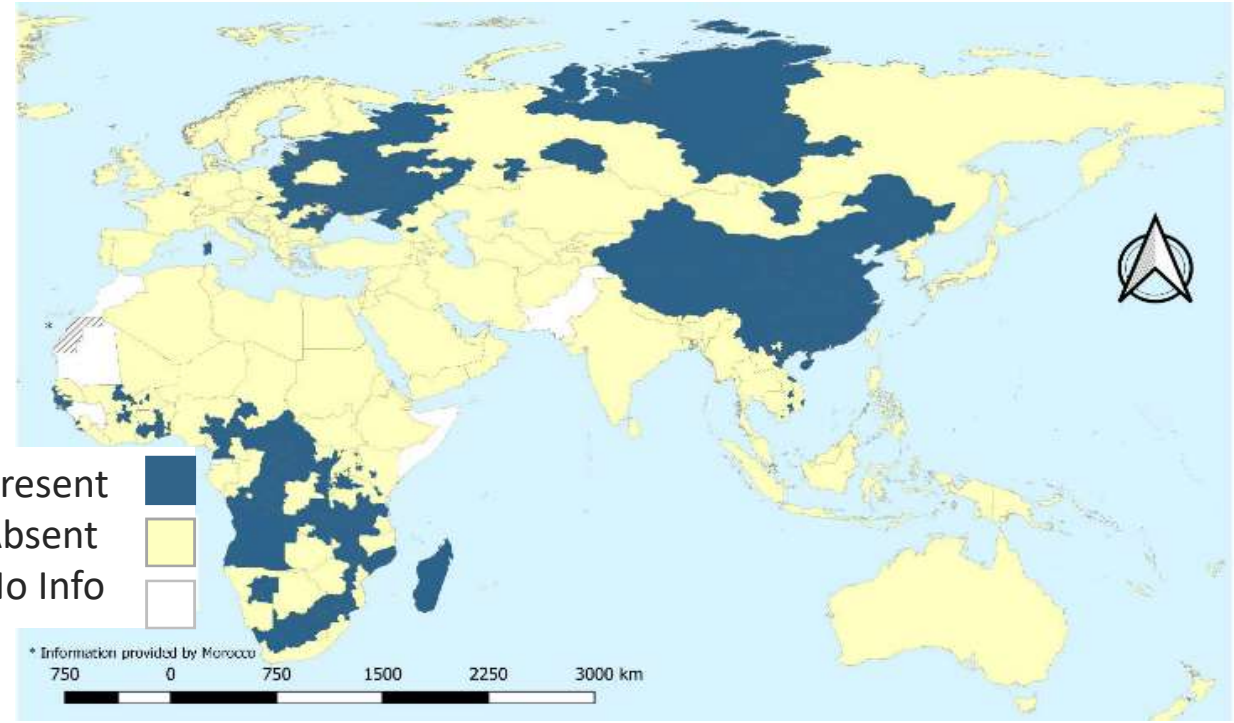



**Figure 3: Countries affected by ASF between 2016 and 2019 (May)**
Source: OIE, 2019

In terms of global market impact, the greatest concern relates to the continued spread of ASF in China. . Prior to the outbreak, China's pig herd was estimated at 360 million by Rabobank. The latest statistics from China's Ministry of Agriculture suggest that, by August 2019, both the national pig herd and the sow herd had declined by approximately 38% relative to the same period in 2018. This represents a sharp additional decline from the numbers reported in June 2019 and is still considered conservative due to suspected high incidence of under reporting. Industry estimates suggest that the contraction may be larger already, with Rabobank estimating a current decline of 40%, which could reach 50% by the end of 2019. In light of significant preventative culling and early marketing by producers following outbreaks in their vicinity, the reduction in pork production will be smaller in 2019 than the actual herd contraction. Rabobank estimates a 25% decline in 2019 relative to 2018, with a further 10-20% in 2020.

The final number will remain uncertain, particularly with the disease still not contained. **Figure 4** provides context on the size of China's pork sector and the magnitude of the production shortfall by comparing a 25%, 35% and 50% reduction in China's pork production (blue) to global trade volumes of major meat types (green), as well as China's total production of beef and poultry (grey). Constrained supply has resulted in a significant increase in Chinese pork prices (+52% from early July 2019 to late September 2019 – Figure 3), which will likely reduce pork consumption, but significant import volumes are still expected. Table 1 presents the relative increase in import volumes of different meat types for January to July in 2019 relative to 2018. To date, the 36% increase in pork imports has not impacted key exporting country prices significantly (**Figure 5**), but this impact could increase as volumes continue to rise over the coming months.

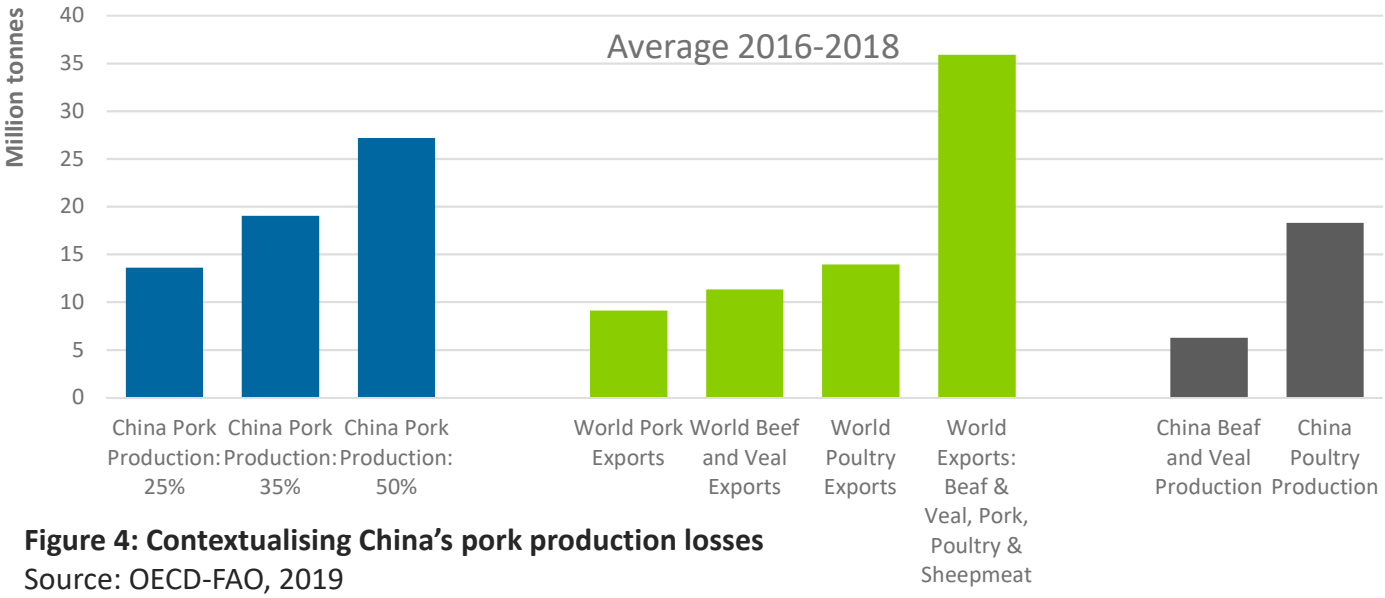



**Figure 4: Contextualising China's pork production losses**
Source: OECD-FAO, 2019

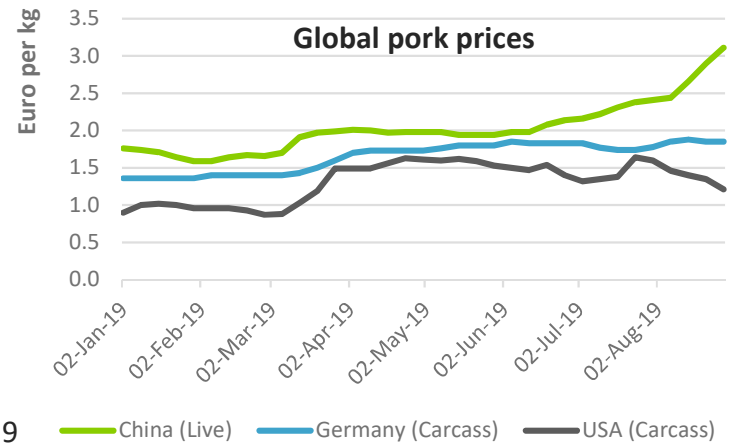



**Figure 5: Pork prices in China, Germany and the USA**
Source: Pig333, 2019

**Table 1: China meat imports 2019 vs. 2018**
Source: ITC Trademap, 2019

| | Jan - Jul 2018 | Jan - Jul 2019 | % change |
|---|---|---|---|
| **Bovine** | 539.65 | 850.04 | 58% |
| **Pork** | 736.15 | 1000.93 | 36% |
| **Sheep & Goat** | 203.70 | 242.95 | 19% |
| **Poultry** | 282.22 | 423.98 | 50% |
| **Total** | 1761.71 | 2517.90 | 43% |

China's pork sector is a diverse industry, comprising more than 26 million producers. These range from small scale backyard producers to large corporate farms with modern, state of the art technology. It is estimated that 85% of the losses related to ASF occurred on small farms, classified as selling less than 3000 pigs per year. These smaller farms are more susceptible to the disease, due to weaker biosecurity compared to large corporate farms.

While the impact of the current AFS outbreak will undoubtedly leave China with a substantial production shortfall and a sharp increase in import levels, the duration of this impact will depend on how long it takes to contain the disease. In the longer term, the concentration of culls amongst smaller producers will likely accelerate the restructuring of China's pork sector that already started in 2015 with the introduction of stringent environmental regulations. Many smaller producers are unlikely to survive and hence large corporate farms will account for a larger share of total production over time. These tend to be most productive, given use of modern technology. Smaller producers that do restock will also have access to improved genetics. As such, longer term productivity gains could be substantial, reducing the need for imports once the disease is contained.

The current shortages of pork in China have already led to the Chinese government announcing subsidies for the expansion of pork production capacity, including establishment of new pork production units. The extent of the production shortfall (**Figure 4**) however implies that the impact will stretch well beyond pork markets in China.

**Other meat markets:**

- The FAO meat price indices, as measure of global meat prices, has increased by 12% over the course of 2019.
- Individual meat price movements (**Figure 6**) from Jan 2019 to August 2019:
  - Pork + 21%
  - Poultry +15%
  - Bovine (Beef) + 6%
  - Ovine (Sheep & Goat) +9%
- Poultry production is actively supported in China, as its short production cycle enables it to replace pork fairly quickly

**Other commodity markets:**

- The contraction in China's pig herd sharply reduced its import demand for soybeans (**Figure 7**), softening world soybean prices.
- From May 2018 to August 2019, China's projected soybean import demand has declined by 20 million tonnes, which amounts to 19%.
- The decline in soybean imports is less than that of the pig herd for a number of reasons:
  - Increasing poultry production
  - Increased feed use intensity by remaining pork producers in response to higher prices

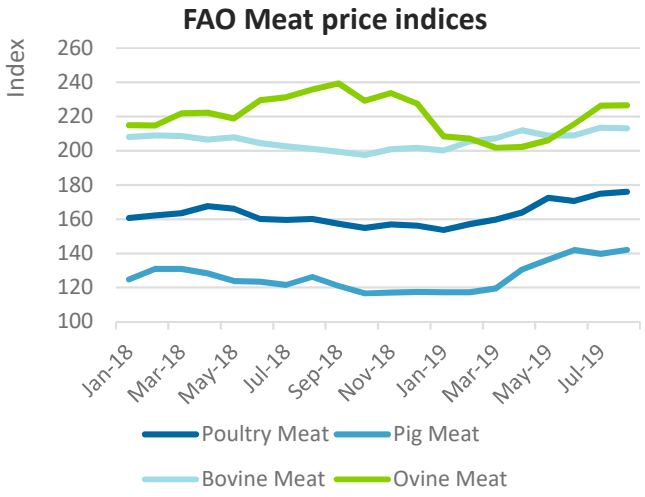



**Figure 6: Other meat prices – FAO meat price index**
Source: FAO, 2019

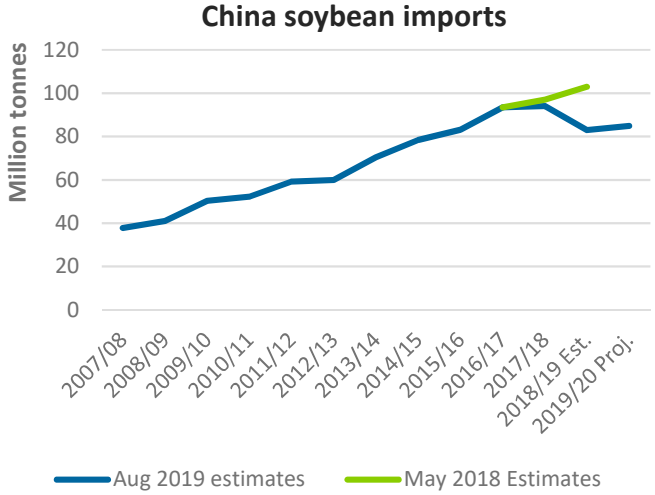



**Figure 7: China's soybean import projections**
Source: USDA WASDE, 2018 & 2019

# History of African Swine Fever in South Africa

- African Swine Fever is a viral disease, endemic in Africa south of the equator.
- The virus is carried by warthogs and bush pigs, but with them the infection do not cause any clinical disease.
- ASF was first described in Kenya in 1921, and soon afterwards in South Africa and Angola, as a disease that killed settlers' pigs.
- ASF can cause up to 100% mortality in domestic pigs. The highly virulent form of the virus causes fever, haemorrhages in the skin and internal organs, anorexia, depression and death within 2-10 days.
- Today, there is still no effective vaccine for ASF.
- In order to limit the spread of the disease, South Africa gazetted and implemented a ASF Controlled Area in 1935 (Magadla Vosloo, Heath and Gummow, 2016).
- This area encompasses almost the whole Limpopo Province, the northern parts of North West and KwaZulu-Natal provinces and the north-eastern parts of Mpumalanga. The designation of the area was based on the presence of epidemiologically significant factors (i.e. Host, Environmental and Agent factors) and the presence of outbreaks (Penrith, Thomson & Bastos 2004).

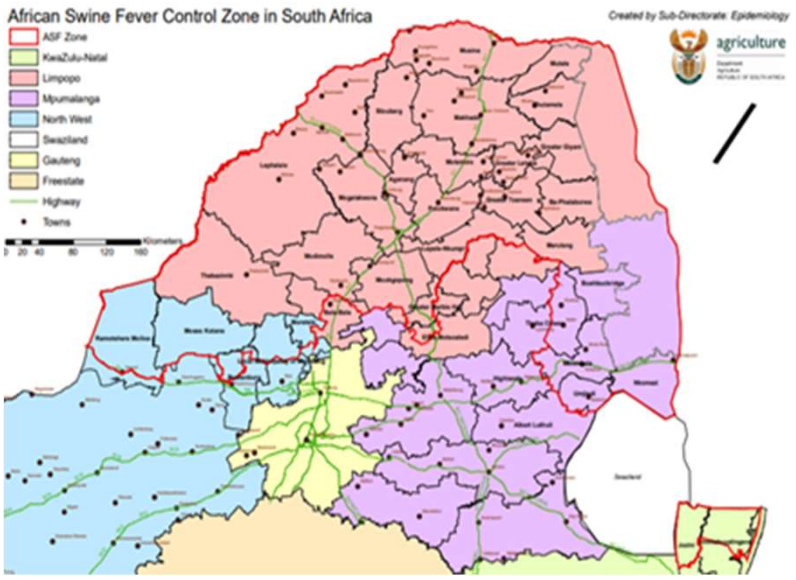
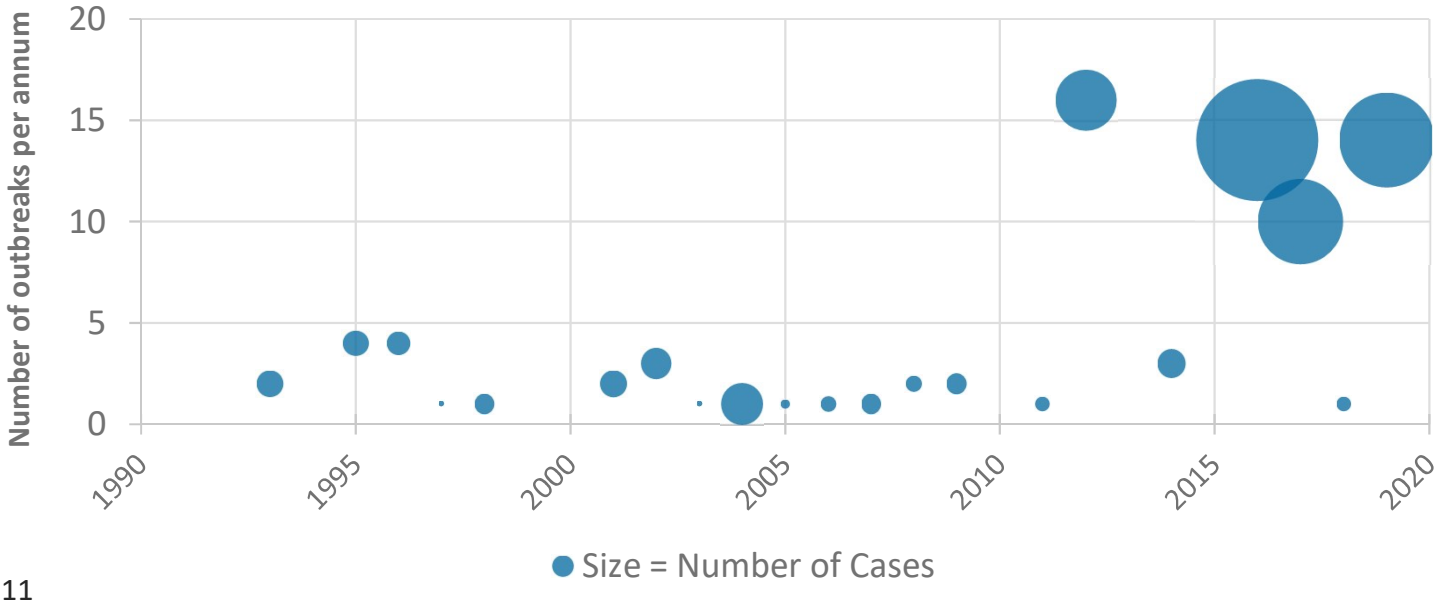



**Figure 8**: African Swine Fever Control Zone in RSA
**Source:** DAFF, 2019

- With strict control measures and movement restrictions north of the line, the disease has been well contained for many years with only a breakout outside the control area in Mpumalanga in 1951 and just outside the area in Bela-Bela, Limpopo, in 1996.
- In the 15 years 1997 to 2011, Limpopo saw at least another 18 outbreaks inside the control area.

**Figure 9:** Number of outbreaks and number of cases per annum
**Source:** OIE, 2019



However from 2012, more and more outbreaks occurred outside the control area (see **Figure 10**):

- In 2012, 10 cases of ASF were confirmed in Mpumalanga, and 7 in Gauteng.
- 3 Cases was confirmed in the North West in 2014
- In 2016, 11 cases were confirmed in Gauteng and another 2 in North West.
- 2017 and 2018 saw outbreaks in the Northern Cape, and
- Between April and August 2019, a total of 14 outbreaks were reported in the Free State, Gauteng, Mpumalanga and the North West.

To date SA has not seen an ASF outbreak at a commercial pork production unit, and outbreaks have been limited to small-scale and communal pig farmers.

- Commercial pork farmers have been able to prevent ASF outbreaks through strict access control and biosecurity measures.

According to DAFF, the spate of outbreaks in 2019 can be contributed to four factors:

- Contact between warthogs and domestic pigs
- Selling and buying of infected pigs at auctions
- Movement of pigs from infected herds
- Feeding of swill

The average number of recorded ASF outbreaks per annum increased from less than 5 before 2010 to more than 10 after 2010 (more than a 100% increase – see **Figure 9**). In addition, **Figure 10** and **Figure 8** show that the outbreaks in more recent years, have increasingly occurred outside the ASF control zone.

The South African Pork Producers' Organisation (SAPPO) has been involved in containing recent outbreaks outside the control zone. Their primary strategic objectives include protecting the health status of the industry, maintaining biosecurity and ensuring food safety. To that end, SAPPO plays a leading role together with DAFF to facilitate and inform the ASF outbreak management protocol.

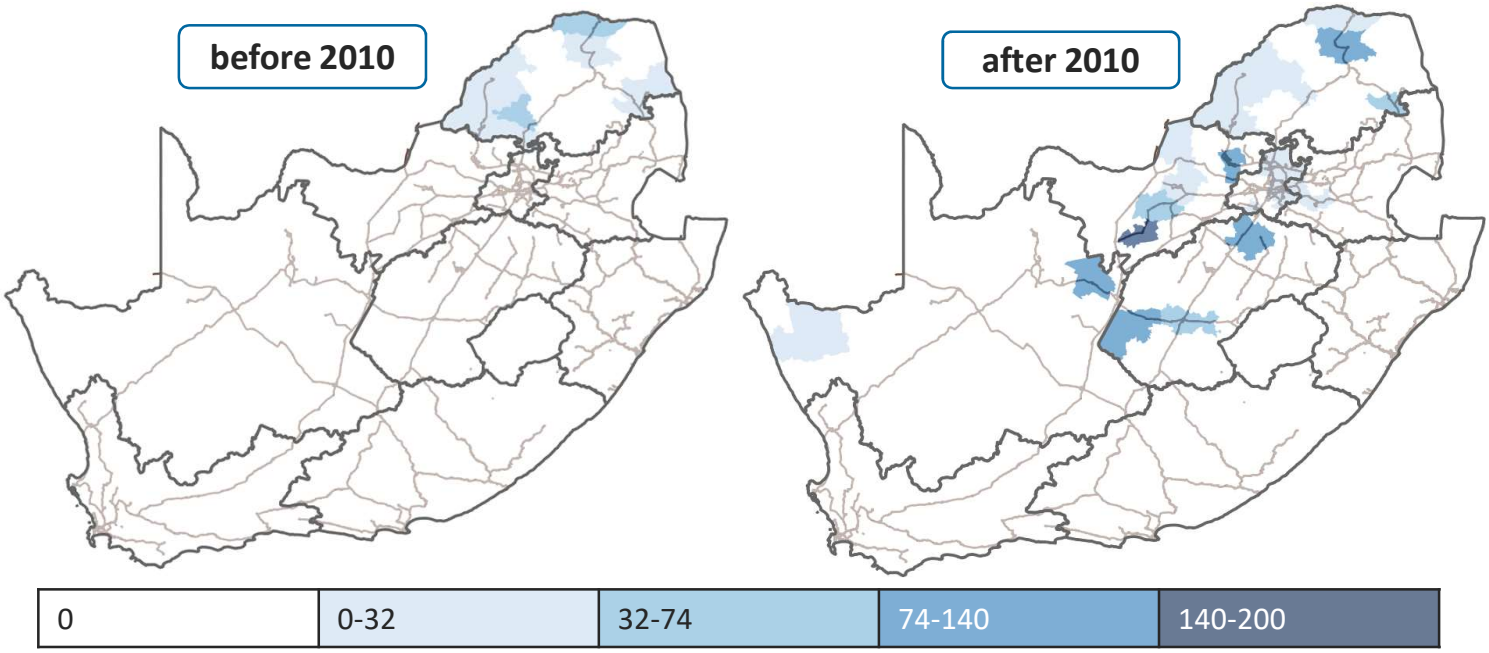



**Figure 10:** Average number of ASF cases per Local Municipality
**Source:** OIE, 2019

## What is done when an outbreak occurs?

Based on DAFF Veterinary Procedural Notice (VPN) for African Swine Fever Control in South Africa (2018):

- Any owner, manager, veterinarian or any other person is obliged to immediately report to the local State Veterinary Official any incidence of the following clinical signs, which characterises ASF: high fever, reddish discolouration of the skin of the abdomen and hind quarters, incoordination, somnolence, high mortality and haemorrhage in all internal organs, especially in lymph nodes (DAFF, 2018 and Act 35 of 1984).
- Any item that originates or was in contact with animals (including any kitchen refuse of animal or vegetable origin originating from any dwelling, hotel, motel, restaurant, eating-house, airport, harbour or any place where food is prepared for human use) has to be cooked (boiled) for at least 60 minutes or sterilised before it may be fed to pigs (Regulation 24 of the Act).
- Any haemorrhagic carcass found at the abattoir needs to be investigated and reported to the local State Veterinary Official, together with the details of the farm of origin (Section 11 of the Act).

Within the ASF Controlled Areas:

- Any pig that is owned (excluding warthogs and bush pigs that are not tamed) within the ASF Controlled Areas shall be confined in a pig-proof enclosure in order to prevent direct and indirect contact with other pigs (Section 9 of the Act, Table 2 of the Regulations). Pigs in the ASF Controlled Areas that are not confined may be destroyed for disease control purposes without compensation (Section 19(4) of the Act).
- Each responsible person in the ASF Controlled Areas shall keep updated registers with full particulars of all pigs on his land (excluding warthogs and bush pigs that are not tamed), as well as the reasons for the increase or decrease in the number of such domestic pigs (Regulation 17).

**For recent outbreaks outside the ASF Controlled areas:**

- Every single case was visited by Provincial veterinary services with support from the South African Pork Producers Organisation (SAPPO)
- Representatives from the SPCA also oversee the visit.
- All sites where ASF was confirmed were immediately put under quarantine and a course of action proposed.
- In most cases the owners of affected and direct in-contact pigs involved agreed to culling of the pigs to prevent further suffering and to reduce risk of further spread. Pig carcasses were disposed of mainly through lime treatment and burial.
- A robust backward and forward tracing exercise using auction records was immediately implemented and all piggeries in a 3 km radius were surveyed and pigs assessed.
- Pigs within the 3 km zone that did not present any symptoms were put under quarantine and observed for any signs of infection.
- Once 3km radius sites had been visited, a wider surveillance area around the infected location occurred.
- Provincial authorities increased surveillance of regional auction sites, and made all abattoirs aware that any pigs delivered must be accompanied by health declarations and that all vehicles need to be properly decontaminated /disinfected between loads of pigs.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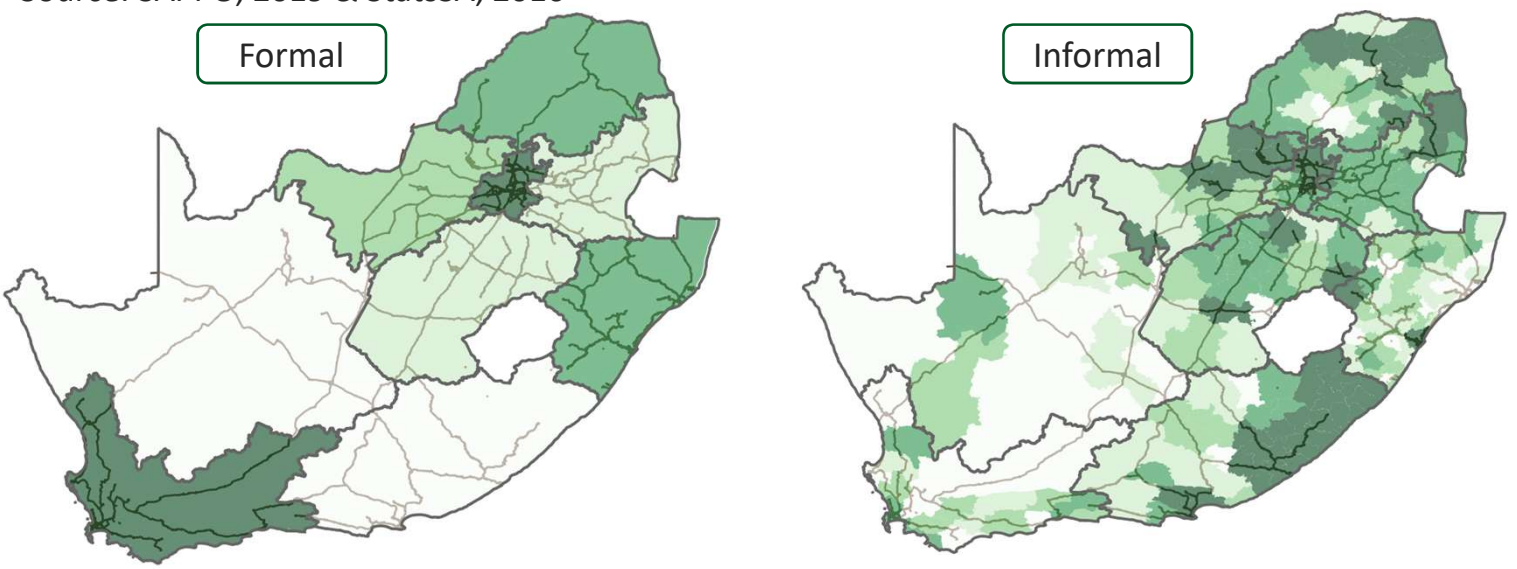
## The South African Pig herd

For the purpose of this study, the informal pork sector is defined as households who are responsible for 50 or fewer pigs in total, while all households or producers owning more than 50 pigs are classified as formal producers. The informal pig herd is quantified using the StatsSA Community Survey 2016.

SAPPO has reported 114 530 sows among their members in 2018 (constituting the bulk of the formal pig herd breeding stock). Assumptions regarding average litter size, litters per year, lactating, weaning and finishing periods were used to estimate the number of pigs per province at any given point in time(defined as Pig Standing Stock – see **Table 2** and **Table 3**).

StatsSA's Community survey recorded a total of 691 610 pigs for households responsible for 50 or more pigs (Formal pig herd). This number likely includes all pigs (not just sows). On the other hand, SAPPO's recorded 114 thousand sows in the Formal pig herd in 2018, resulted in an estimated 1.45 million pigs standing stock (**Table 2**). We therefore conclude (since 691 610 < 1.45 million) that the community survey is likely underreporting on the commercial pig numbers and therefore might also be underreporting for the informal sector. Therefore, these numbers can be interpreted as *minimum pig herd numbers*.

**Figure 11: Distribution of the South African pig herd**
Source: SAPPO, 2019 & StatsSA, 2016




| Province | Pig Standing Stock | % of Total |
|---|---|---|
| Gauteng | 246 481 | 19% |
| Western Cape | 263 150 | 18% |
| KwaZulu-Natal | 246 481 | 17% |
| Limpopo | 200 640 | 14% |
| North West | 159 283 | 11% |
| Mpumalanga | 138 231 | 10% |
| Free State | 79 167 | 5% |
| Eastern Cape | 73 910 | 5% |
| Northern Cape | 14 883 | 1% |
| **Total** | **1 450 713** | |

| Province | Pig Standing Stock | % of Total |
|---|---|---|
| Gauteng | 50 471 | 6% |
| Western Cape | 26 241 | 3% |
| KwaZulu-Natal | 61 703 | 7% |
| Limpopo | 118 385 | 13% |
| North West | 68 743 | 8% |
| Mpumalanga | 78 704 | 9% |
| Free State | 62 045 | 7% |
| Eastern Cape | 412 800 | 46% |
| Northern Cape | 14 170 | 2% |
| **Total** | **893 262** | |

**Table 2 & Table 3**: Estimated pig standing stock

## Formal Market

The pork industry in SA is small, but dynamic. The South African Pork Producers Organisation (SAPPO) reports 132 commercial producer members, managing 211 production units and approximately 114 530 commercial sows.

- Since 2008, pork production in South Africa has increased by an average of 3.8% per year.
- Production gains reflect significant improvements in productivity, given that the pig inventory in South Africa declined by an annual average of 1.1% per year over the same period.
- Pork production growth has marginally outpaced that of consumption since 2008, resulting in a modest improvement in South Africa's net trade position.

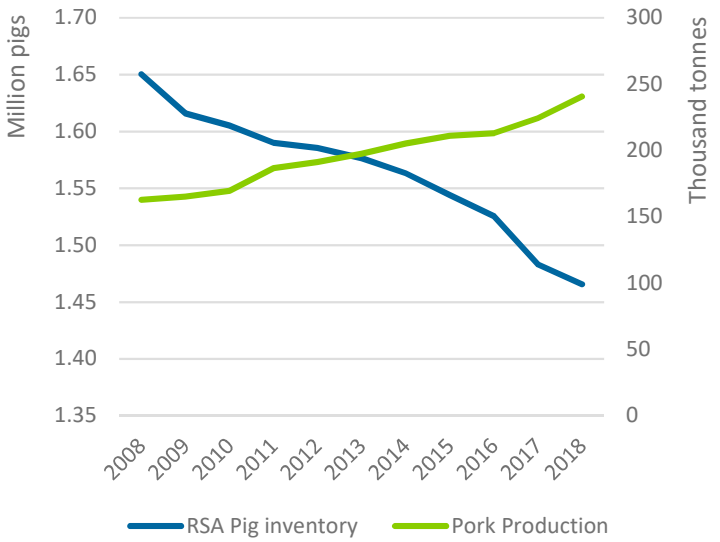



**Figure 14: Pork production growth: 2018-2028**
Source: DAFF & BFAP, 2019

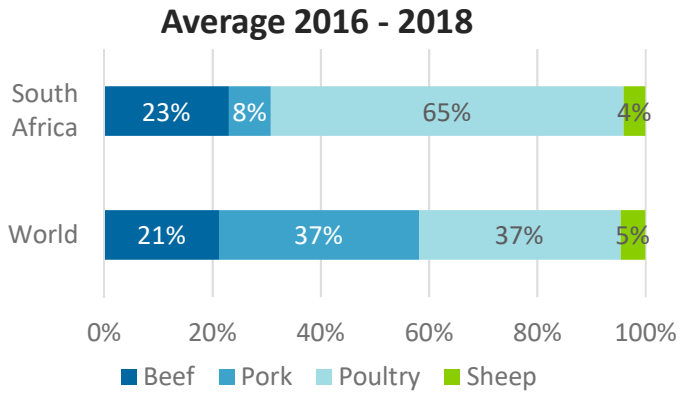



**Figure 12: Meat consumption mix in South Africa vs. Rest of the world: 2016 - 2018**
Source: OECD-FAO & BFAP, 2019

**Figure 12** compares the meat consumption mix in SA to the global average from 2016-2018:

- Globally, pork and poultry represent the most consumed meat types, each accounting for 37% of the meat consumption mix between 2016 and 2018.
- In South Africa, poultry is dominant at 65% of meat consumption, with only 8% of meat consumption attributed to pork.

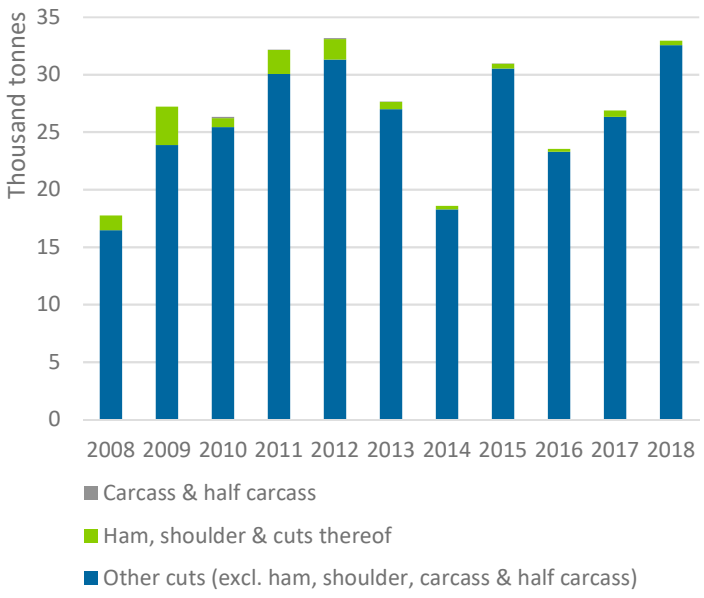



**Figure 13: South African pork import: 2008 - 2028**
Source: BFAP, 2019

South Africa remains a net importer of pork meat – **Figure 13** presents the import composition from 2008 – 2018:

- Over the past decade, imports have accounted for approximately 12% of domestic consumption.
- The bulk of imports are categorised as other cuts – excluding ham, shoulder, carcass and half carcass.
- South African pork imports comprise mainly ribs, suggesting that imports have a role to play in terms of market balance.
- Despite the small share and specific composition, BFAP (2015) found that import prices are an important and significant factor influencing domestic pork prices in South Africa.

## Outlook for the South African pork market

Following a number of difficult years in terms of high and volatile feed prices, livestock production in South Africa turned profitable in 2017 as an all time record summer crop harvest sent feed prices plummeting during a period where poor profitability and drought induced herd liquidation resulted in constrained supply and higher meat prices. For most meat types, this remained the case through most of 2018, but pork was the exception, as the Listeria outbreak and the associated stoppages at a large pork processing facility reduced demand sharply at a time when pork supply was expanding following a profitable 2017. With the affects of Listeria having abated, the industry was challenged again in 2019 by an outbreak of Foot and Mouth Disease (FMD).

- Pork consumption is projected to expand by an average of 1.6% per year – a growth rate second only to beef, but from a smaller base.
- Pork production is projected to expand by 2.1% per year, with pork to maize price ratios, on average and under stable weather conditions, improving slightly relative to the past decade
- The share of imports in total consumption declines over the outlook, as production growth outpaces consumption.

In light of its small size, pork markets take important price signals from the beef industry and when beef exports were halted as a result of FMD, the diversion of additional products into a domestic market with poor spending power caused a substantial price decline. Based on the assumption that FMD is contained and beef exports resume normally from 2020 onwards, **Figure 16** presents the baseline outlook for the SA pork market. Projections for the coming decade are summarised below, but it is important to note that further disease outbreaks can result in a significantly different path.

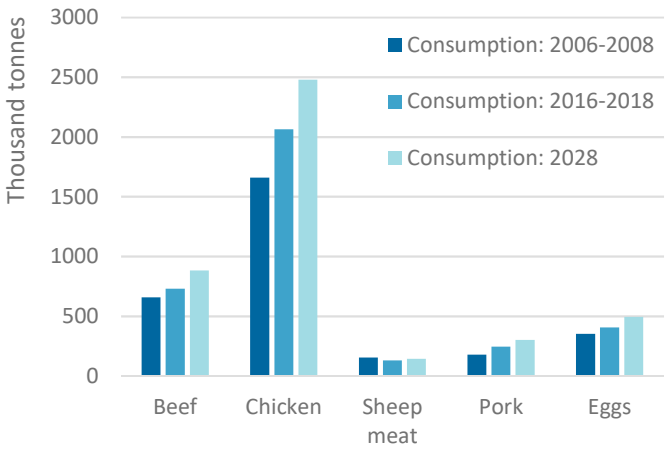



**Figure 15: Meat consumption growth in SA**
Source: BFAP, 2019

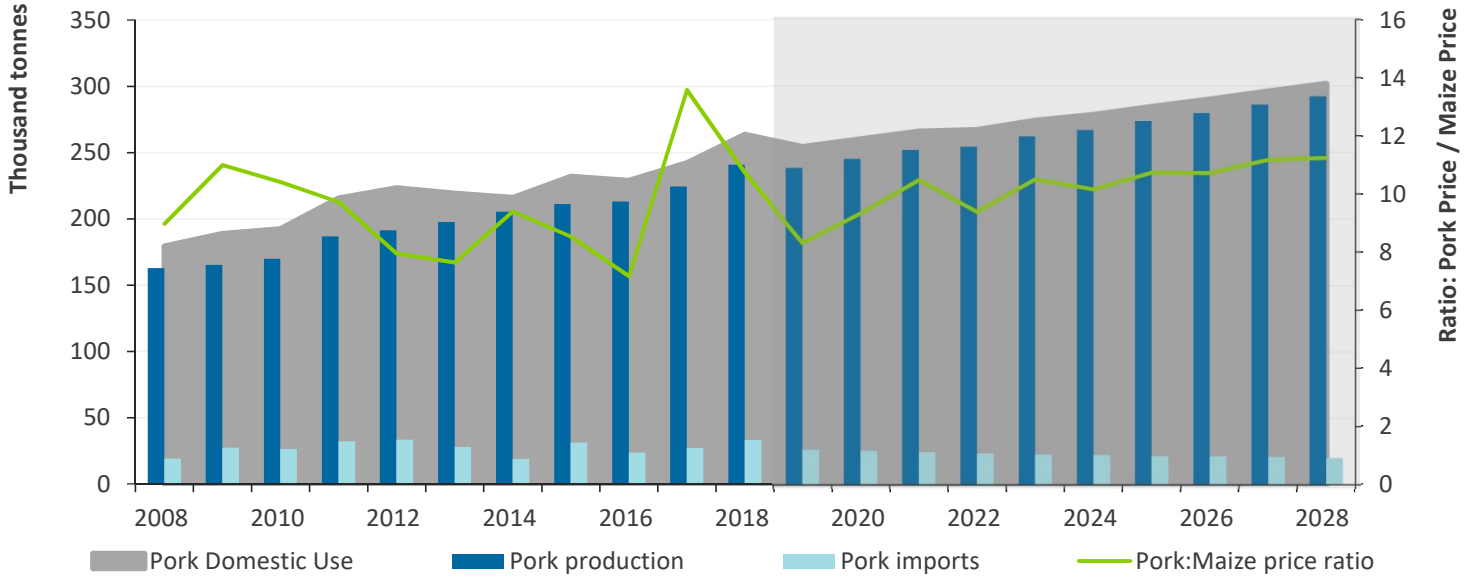



**Figure 16: South African pork market balance: 2008 - 2028**
Source: BFAP, 2019

## Perspectives on pork consumption

Comparatively low pork consumption levels in South Africa relative to the global average warrants a more detailed analysis and improved understanding of pork consumption. **Figure 17** presents the share of households purchasing and consuming pork within marginalised, middle income and affluent consumer groups.

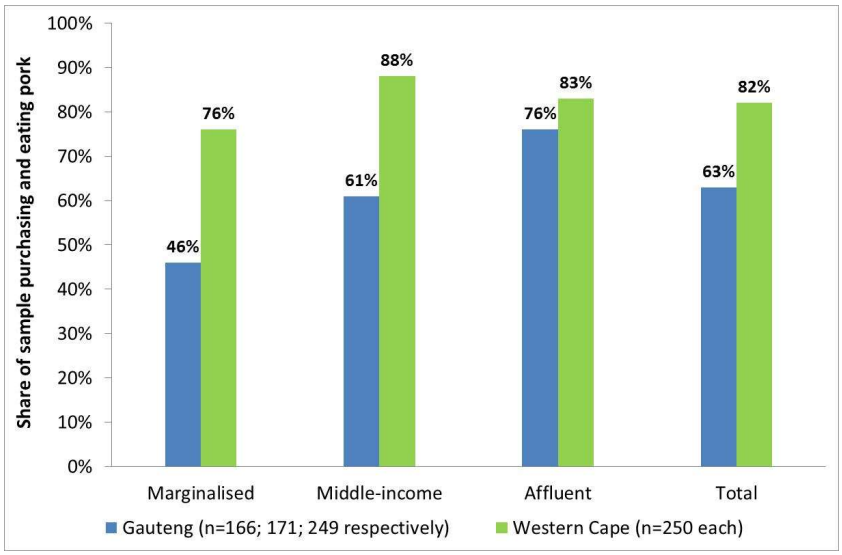



**Figure 17: Share of households purchasing pork in SA**
Source: RMRD SA Research, 2013 & 2018

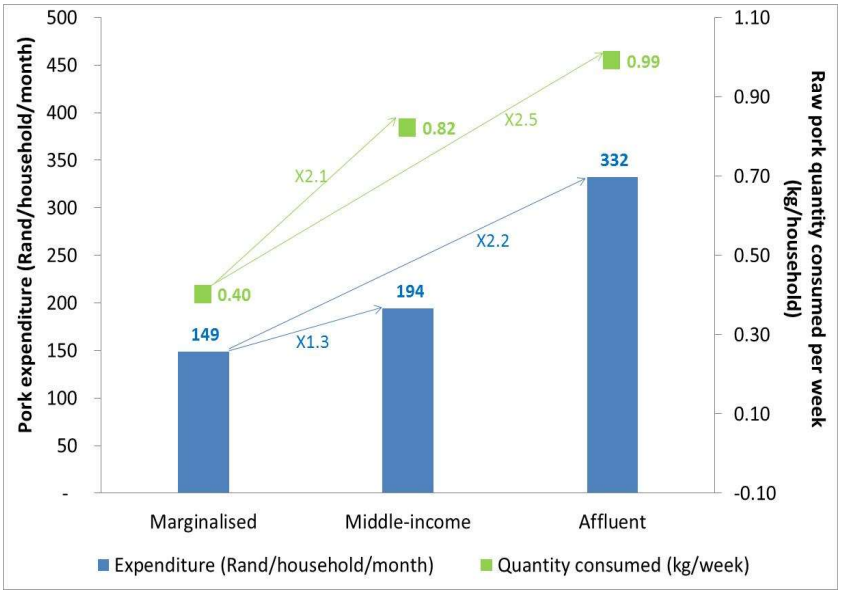
- **Figure 17** is based on surveys conducted for the RMRD in Gauteng in 2012/13 and the Western Cape in 2017/18.
- A significantly higher share of households in the Western Cape (82%) consume pork relative to Gauteng (63%).
- The share of households purchasing pork increases consistently as income levels increase, particularly in Gauteng.
- **Table 4** summarises the frequency of pork consumption in the Western Cape and Gauteng

**Table 4: Frequency of pork consumption**

| | Monthly | Weekly | Occasionally |
|---|---|---|---|
| **Western Cape** | 69% | 25% | 5% |
| **Gauteng** | 42% | 25% | 32% |

Source: RMRD SA Research, 2013 & 2018

**Figure 18** presents expenditure levels on pork, as well as the quantity of pork consumed per week amongst marginalised, middle income and affluent consumers. Some key points:




- Increasing pork expenditure and quantities consumed with rising income.
- Estimated (weighted) group contributions to total pork expenditure and total quantities consumed:
  - Marginalised: 27% / 21%
  - Middle-income: 40% / 50%
  - Affluent: 33% / 29%

**Figure 18: Typical pork expenditure and intake quantities in the Western Cape**
Source: RMRD SA research, 2018

**Figure 19** presents reported changes in pork consumption over time in the Western Cape, from the surveys conducted for the RMRD. It presents the share of marginalised, middle income and affluent consumers that reported declining, constant or increasing pork consumption over time.

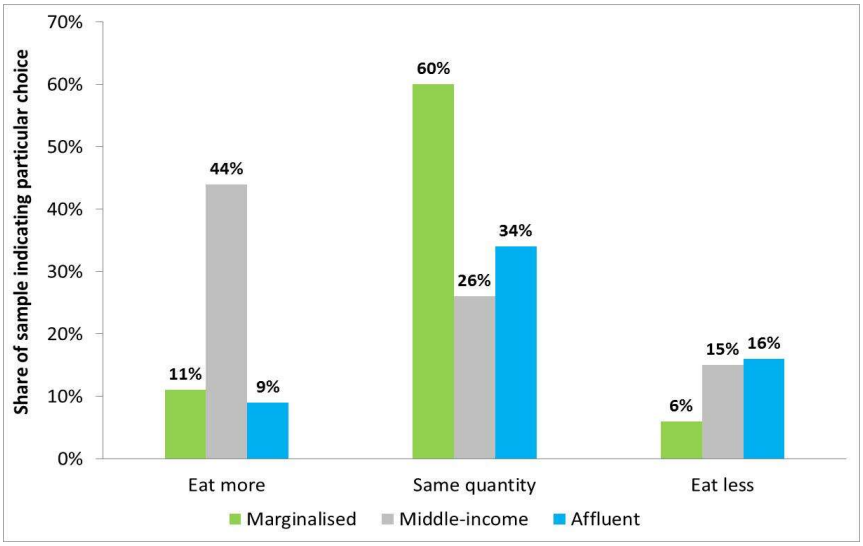



**Figure 19: Perceived changes in pork intake over time - Western Cape**
Source: RMRD SA research, 2018

- Amongst marginalised consumers, the majority (60%) reported eating similar levels of pork over time.
- Amongst middle income consumers, pork consumption seems to be increasing over time, with 44% reporting increasing consumption.
- Amongst affluent consumers, the largest share (34%) reported consistent consumption over time
- **Table 5** summarises the most popular pork cuts consumed in the Western Cape. Similar data was not collected in Gauteng.

**Table 5: Popular pork consumed in the Western Cape**

| **Marginalised :** | **Middle-income :** | **Affluent:** |
|---|---|---|
| *(Share of sample listing pork cut among top 3 cuts consumed in largest quantities)* | | |
| Stew with bone (75%)<br>Offal (54%)<br>Chops (29%) | Chops (81%)<br>Stew with bone (58%)<br>Roast (44%) | Chops (76%)<br>Roast (41%)<br>Stew with bone (34%) |

Consumers identified a number of important considerations regarding purchasing decisions:
Dominant pork purchase factors:

- Price and affordability
- Value for money
- Visual appeal
- Fat content
- Food safety
- Freshness
- General quality and sensory acceptability

**Food Safety & Pork Consumption**
Product safety concerns due to animal diseases was an important factor for consumers, though most prominent among middle-income and affluent households

Negative perceptions associated with pork

- Fatty*
- Expensive#
- Health concerns*
- Quality concerns*

*(* More prominent with rising income; # Less prominent with rising income)*

# Informal pork in South Africa – a lesser known story?

In rural livelihoods literature, livestock focus tend to fall on poultry and cattle, and to a lesser degree goats and sheep.

But, due to pigs' superior ability to convert food to meat (poor food to pork), compared to ruminants, they are a valuable contributor to food security.

According to the StatsSA 2016 Community Survey, 210 504 households in SA were involved in pig farming in 2015. An 87% increase from the 112 678 reported in 2011.

91% of these households had less than 10 pigs and 66% of these households were in the Eastern Cape. (see **Figure 20** for national comparison)

A 2013 study by Gcumisa surveyed 533 small pig farmers in the uThukela (Lady Smith) district in KwaZulu-Natal. It was found that:

- Pigs are preferred for meat in KZN instead of goats and cattle because it is easier to kill, and Zulu people have no cultural attachments to them, as is the case with goats and cattle. This is likely also the case in the Eastern Cape and Limpopo, (Rumosa Gwaze et al., 2009 and Van Averbeke and Khosa, 2007).
- 90% of the surveyed pig farmers also had chickens, 53% had cattle and 49% had goats.
- Of the surveyed sample, 60% of farmers where female and females owned 65% of the 2629 pigs. There was an average of 5 pigs per household.
- Madzimure et al. (2013) found that most informal pigs are owned by women farmers.,
- "The women who were employed as road works labourers also emphasised how pigs were easier for them to keep because pigs were reared intensively. This allowed women to take care of their pigs while also being employed elsewhere. They were able to feed pigs and clean the pens before they went to work. People who were employed had more pigs to the unemployed group and pensioners. This could be due to the fact that employed people could support themselves and their families from their salaries and therefore they did not consume as many pigs as the unemployed who depended on pigs for food for their families."

**Table 6:** All households with pigs
Source: StatsSA, 2016

| Households with pigs | 2011 | 2016 |
|---|---|---|
| Western Cape | 3 351 | 3 989 |
| Eastern Cape | 59 578 | 138 648 |
| Northern Cape | 1 570 | 1 893 |
| Free State | 5 744 | 8 198 |
| KwaZulu-Natal | 9 773 | 12 561 |
| North West | 7 643 | 9 572 |
| Gauteng | 2 991 | 4 329 |
| Mpumalanga | 6 733 | 10 733 |
| Limpopo | 15 292 | 20 581 |
| South Africa | 112 678 | 210 504 |

- Study respondents kept pigs for different reasons such as: home consumption (63%), source of income (33%), manure (3%) and other (e.g. fat) (1%). More employed people sold pigs for income and more unemployed people used pigs for home consumption. The few who sent their pigs to abattoirs (10%) were those had many pigs, which could not be sold within the community alone.
- 76% of households / farmers who sold live pigs, sold them to neighbours and in the community and 24% sold pigs at pension pay points.
- Households indicated that they prefer to sell and slaughter pigs in winter time as the meat kept longer in the colder weather.
- Of the total 2629 pigs in the sample, 34% were boars and fattening animals, 36% were sows and gilts, 12% weaners and 18% piglets. Boars are grouped together with fattening animals because most respondents only kept one pig, which was always a male and was not used for breeding.

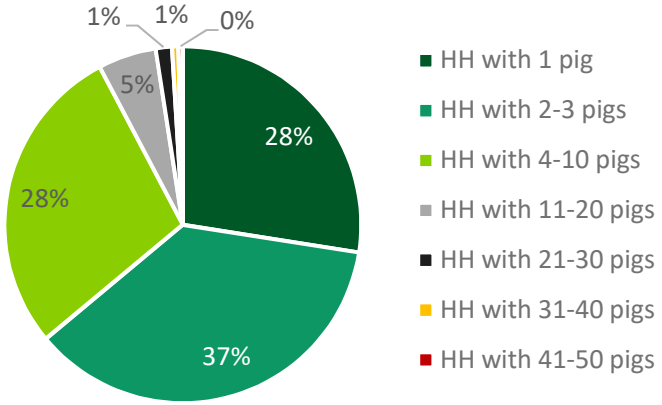



**Figure 20:** Number of pigs kept among HH's
Source: StatsSA, 2016

## Informal pork in South Africa

- Gcumisa (2013) found that 80% of pig farmers used swill to feed their pigs, while 16% of them also made use of commercial (formulated) feeds and 2% fed pigs on maize and vegetables.
- Swill is any kind of household food waste but according to the Animal Disease Act (Act 35 of 1984), it is against the law for farmers to feed such waste, whether from their own kitchens or other, unless the scraps have been boiled for at least an hour to destroy the pathogens. This also means that pigs should be kept away from garbage and dead animals, i.e. be prevented from foraging as many communal pigs do.
- The impracticality and high energy cost of having to boil food rests and waste, contributes to the likelihood that farmers and households do not adhere to the boiling requirement of the Animal Disease Act.
- In Gcumisa's (2013) study, swill came from different sources such as own household, schools with government feeding schemes, hospitals, hotels and game reserves. "Some respondents got swill from the nearest townships or from neighbours who had no pigs. Farmers who needed swill left empty containers at particular households and collected the swill on particular days when the containers were full. For this gesture the farmers gave away one piglet to each household in return for the swill."
- Veary and Manoto (2008) also found that the majority of small pig farmers in the North West feed swill.
- Madzimure *et al.* (2013) reported that feed scarcity observed in rural areas was one of the reasons behind small-scale pig farmers not growing their production.

For the purpose of this study BFAP surveyed a few informal pig farmers in the North-West Province to obtain a high-level indication of the basic economics around these operations. The average size comes to 3 sows and 1 boar. Sows typically have 10 piglets per litter and 2 litters per year. Piglets are raised to gilts and boars and sold around 5 months into the informal market for approximately R550 per animal. The sows are sold for slaughter at 2.5 - 3 years with the current price for these sows around R3000 per sow. This equates to a total gross revenue value of R11 000 per sow (excluding the slaughter value of the sow).

Where farmers have access to swill as the main source of feed, costs are kept to a minimum. Most of these operations have a very good network of collecting swill at hospitals, old age homes and schools. Some of the farmers reported that they kept some maize chop in storage just in case they ran out of swill, but their lack of access to cash normally implies that purchased feed is unaffordable. Therefore, farmers normally do not extend their number of animals beyond what can be sustained by feeding swill. Very little to no vaccinations or any other form of treatment is normally applied to keep the costs at a minimum.

## Estimating the value of the South African Pork industry

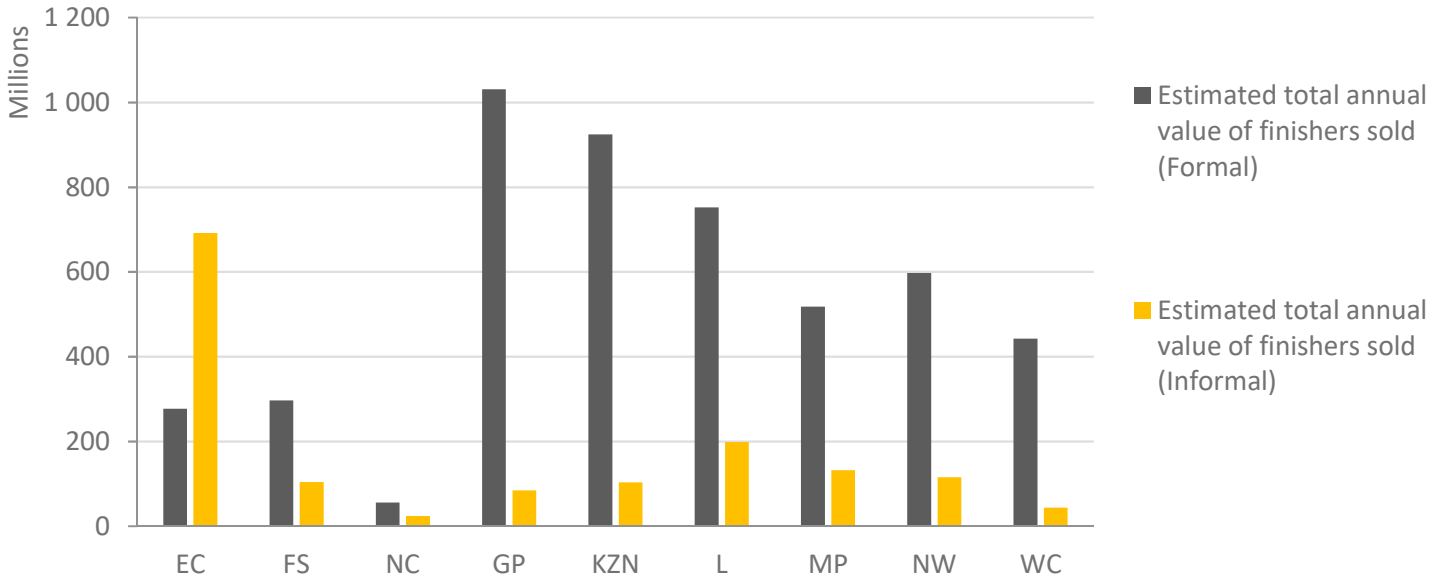



**Figure 21:** Total annual value added per province in terms of Finishers Sold
Source: BFAP & SAPPO calculations

The value-added by the formal and informal pork industries was estimated by adding the meat-value of sows and finishing pigs sold within a calendar year period. The total value of the formal pork industry was estimated at R2.44 billion (see **Figure 21**) and the formal sector employs and estimated 1 490 highly skilled labourers (SAPPO & BFAP, own calculation).

The annual value-added by the informal pork industry was estimated at R1.24 billion (see **Figure 21**). As discussed earlier, the informal pork industry contributes significantly to the livelihoods of thousands of households even though very few informal production units are large enough to formally employ people. In order to quantify the job-impact of the informal industry, the annual value added was expressed in minimum wage job equivalents (i.e. industry value add divided by annual value of a minimum wage job – R41 600). By this metric, the informal pork industry represents 29 550 minimum wage jobs.

In a worst-case scenario, which would necessitate culling the entire South African pig herd, the direct cost of culling the standing stock would amount to R1.33 billion and R822.9 million for the formal and informal herds respectively (see **Figure 22** for a break-down of the average cost of culling a pig). This cost reflects the average direct costs undergone by SAPPO in previous outbreaks. .

The resulting loss of income for a typical formal and informal pig producer was estimated by looking at the loss in revenue from selling finishing pigs.

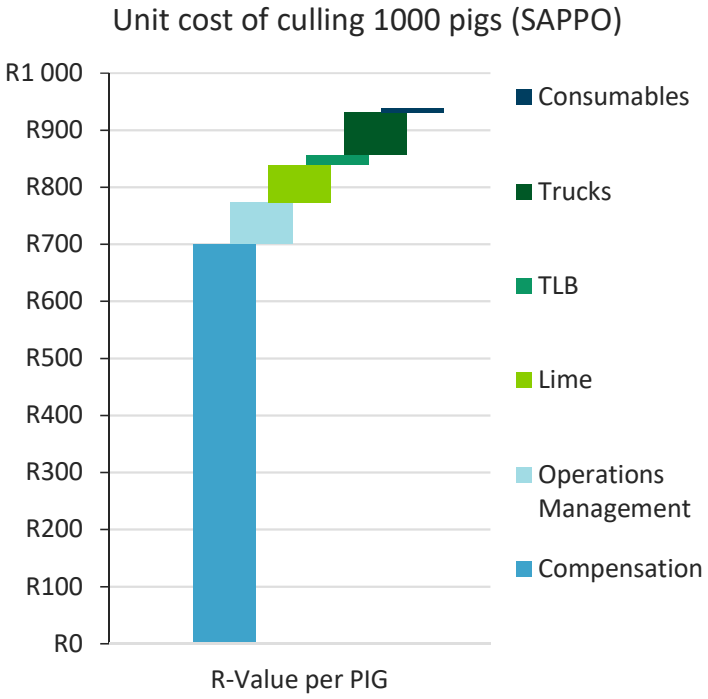



**Figure 22**: Unit Cost of Culling 1000 pigs
Source: SAPPO, 2019

A formal production unit with 100 sows would stand to lose R4.75 million per annum in revenue (value of annual sales of finishing pigs). A typical informal producer with 3 sows would lose R45 300 per annum if that household no longer had the resources to produce and sell pigs to the local market/community.

**Figure 23** and **Figure 24** illustrates the areas of greatest risk for widespread ASF outbreaks: the density of pigs in South Africa's local municipalities as well as the total number of pigs are shown respectively. The vast majority of the pigs recorded by StatsSA are concentrated in former-homeland areas.

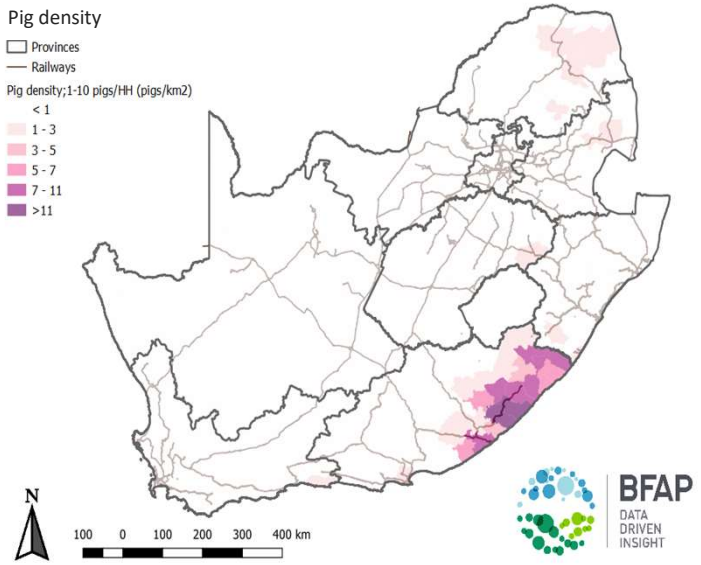



**Figure 23**: Pig density 1-10 pigs per household (pigs/km^2)
**Source**: StatsSA Community Survey 2016

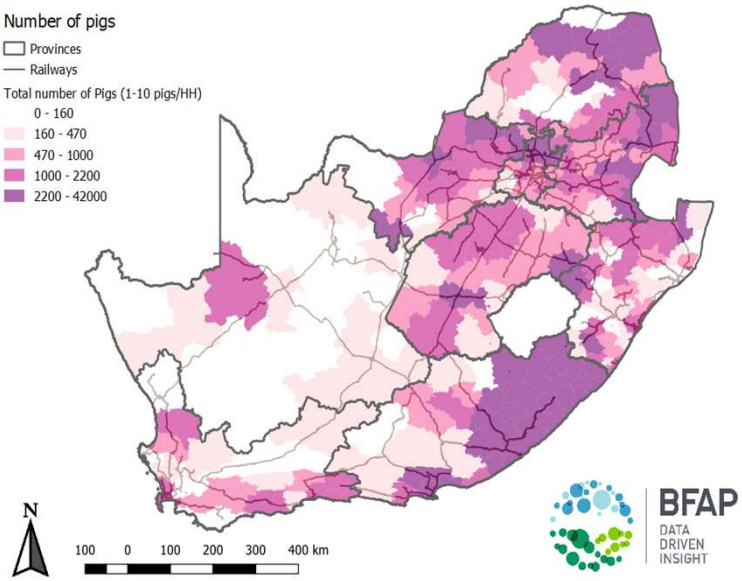



**Figure 24**: Total number of pigs
**Source**: StatsSA Community Survey 2016

## Concluding Remarks

- In Asia, millions of pigs have died, or been culled due to African Swine Fever, predominantly on smaller production units.
- Estimates vary widely, but Bloomberg (2019) suggests that China will raise 135 million pigs less in 2019 relative to 2018. Rabobank estimates are even higher.
- In South Africa ASF is not a new disease and through restrictive measures in the ASF Controlled Area, and strict biosecurity measures, commercial production units have been able to prevent infections.
- Since 2012 there has however been a considerable increase in outbreaks outside the Controlled Area, with small-scale informal farmers suffering losses.
- Though data is limited, it would seem as if the number of households farming with / raising pigs have increased substantially and pigs are viewed as a key contributor to household food security (pigs turn bad food into good pork)
- Small scale and communal pig production practises (feeding of swill and free roaming) as well as close proximity to wild pigs increases informal pigs' susceptibility / likelihood of contamination.
- Increased informal outbreaks increases the likelihood of a commercial outbreak.
- The informal pork industry contributes to the livelihoods of thousands of households and the value thereof is representative of 29 550 minimum wage jobs. The formal pork industry employs an estimated 1 490 highly skilled labourers.
- The potential cost of culling the South African pig herd amounts to R1.3billion and R800.6 million for the formal and informal herds respectively.