

Rabobank Animal Protein Outlook

Managing expectations through disruption



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Disruption remains key theme in 2H20 and 2021 protein outlook

COVID-19 disruption will pressure margins

Creating inefficiencies up and down the supply chain

Innovation needs to drive change along animal supply chains

Automation, packaging and data dominate industry investments

Consumer trends are a moving target

New distribution channels, health concerns and weaker economic outlook to impact demand

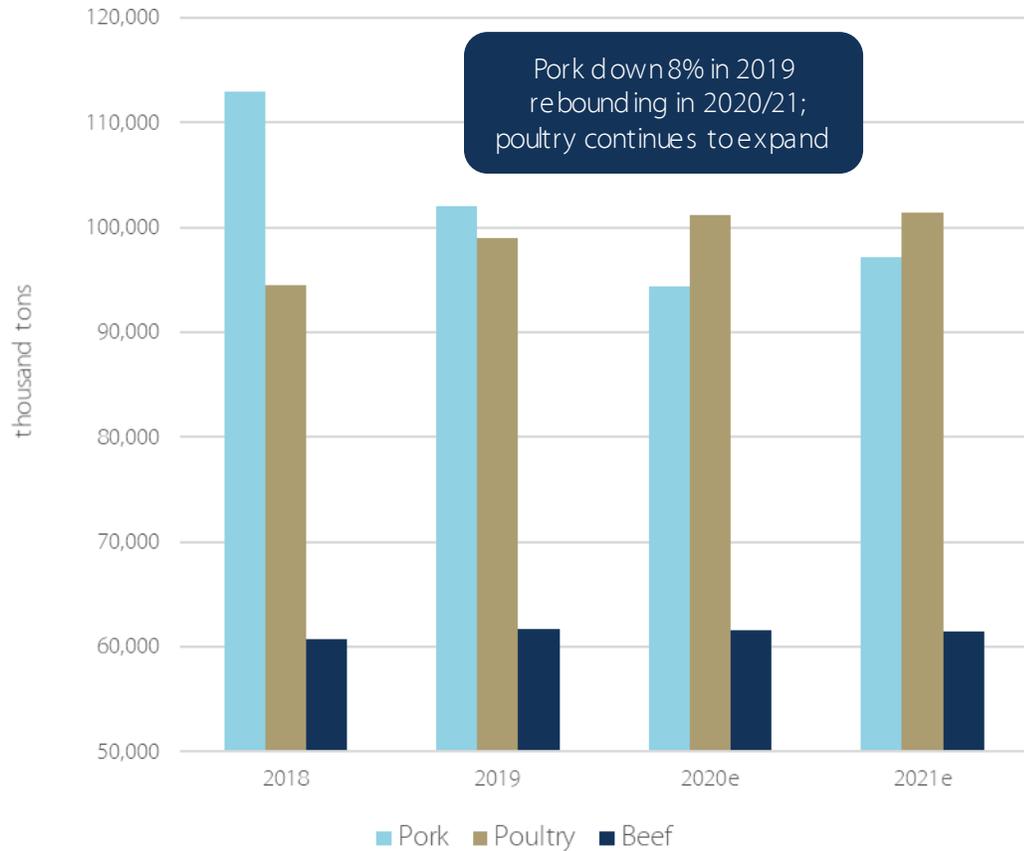
Growing reliance on China creates added risk

Adds volatility given politically-charged environment

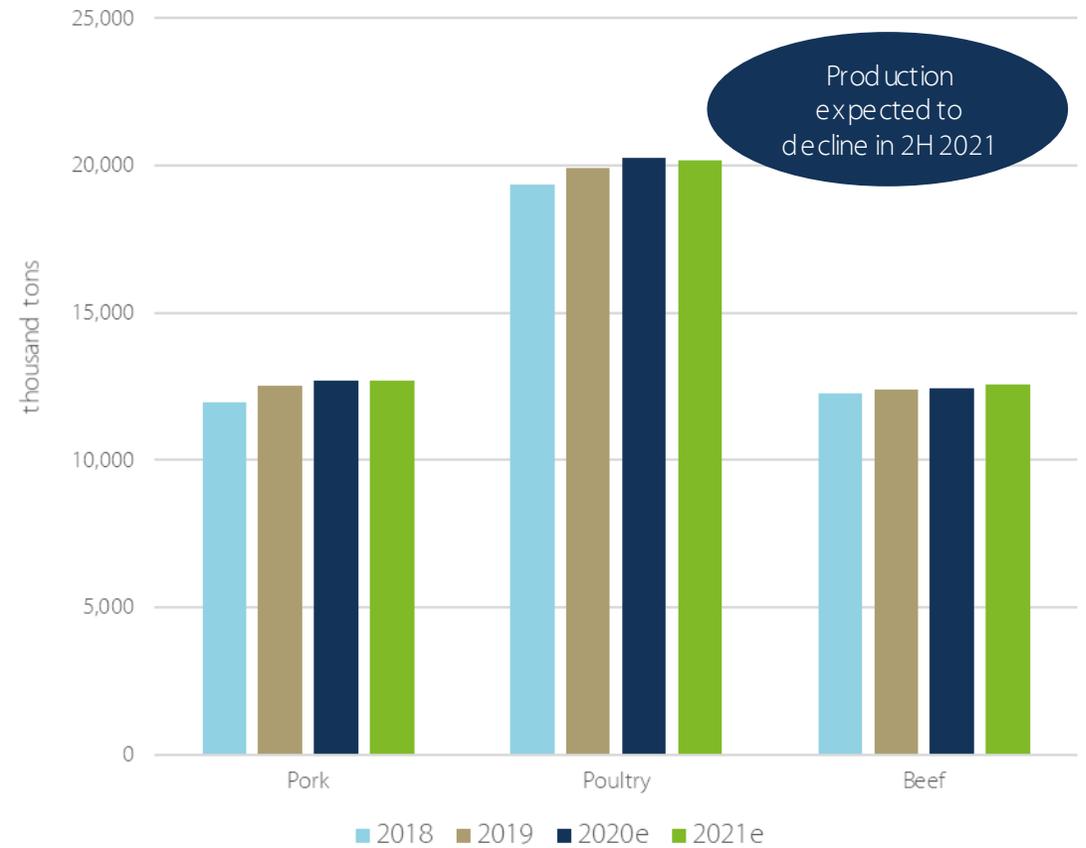
Global protein supplies set to rebound in 2021

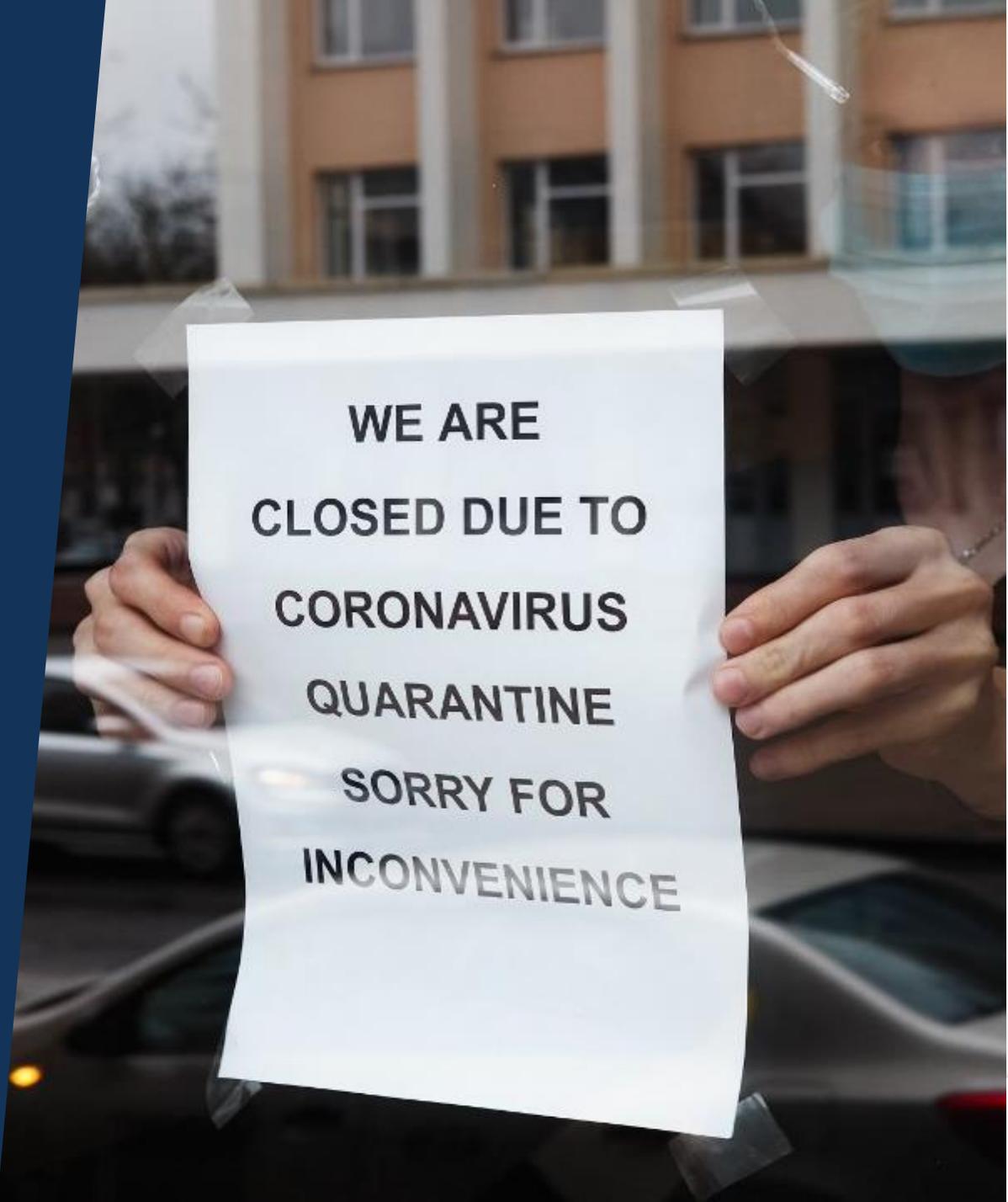
US production will start strong, beef and pork should move lower by 2H

Global Animal Protein Production



US Animal Protein Production





**WE ARE
CLOSED DUE TO
CORONAVIRUS
QUARANTINE
SORRY FOR
INCONVENIENCE**

COVID-19 impacts felt up and down the global protein supply chain



Supply chain disruptions

- Worker absences
- Production backlog
- Breeding companies
- Feed & ingredients; ethanol
- Cold storage
- Packaging/cartons

Channel shifting

- Foodservice to retail
- Rise in digital
- Wet markets shuttered
- Deli interrupted
- Packaging & distribution
- Industry flexibility key

Economic weakness

- Unemployment
- Foodservice mixed
- Hotel/tourism industries
- Political instability
- Trade down to poultry
- Industry overcapacity?

Economic recovery

- **The “New” normal**
- Increased regulation
- Rethink supply chain
- Alternative proteins

Q1-Q3 2020

2H2020 & 2021

Post 2021



Covid-19 is disrupting markets and accelerating change

Expect ongoing uncertainty, anticipate opportunities

Local suppliers
and products

Processing
automation

End of cheap
freight

Digital
Transformation

DTC models

Health and
nutrition

Supply chain
resilience

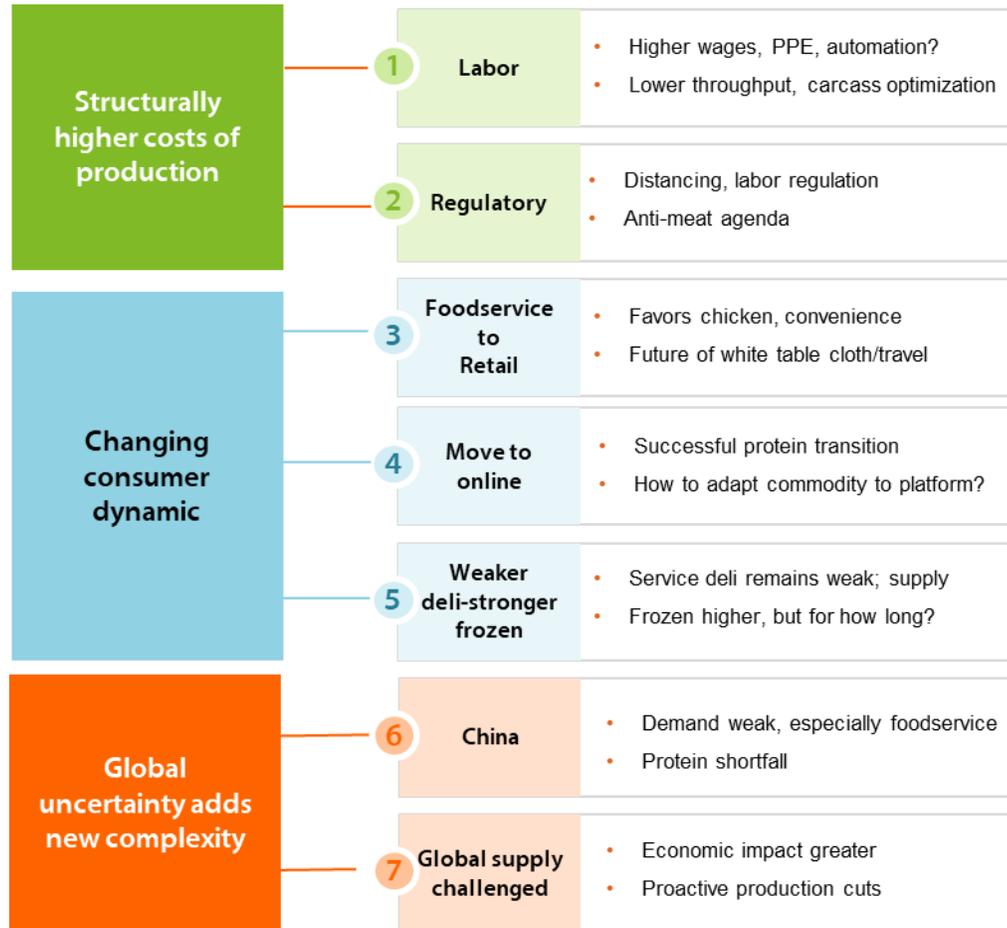
Trading down

Channel
diversification



Protein industry faces challenging outlook

Added costs will pressure margins; will ultimately trickle down to producer



Covid-19: How the meat industry became a global health liability



Supply chain disruption was primarily a labor issue

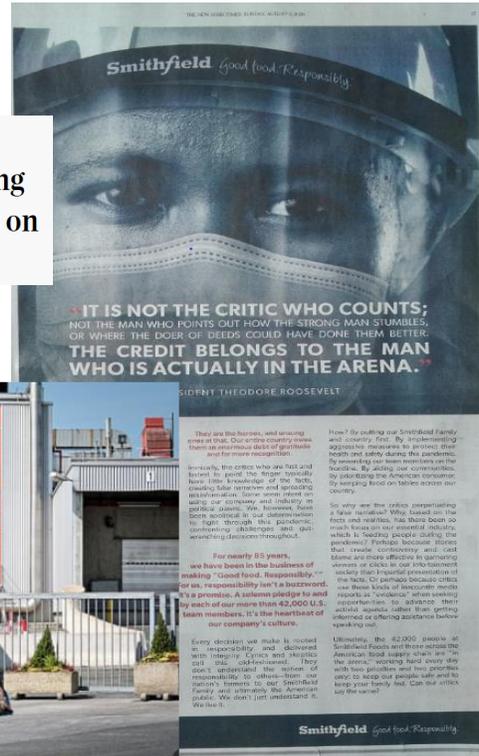
Migrant worker program to undergo federal audit following massive COVID-19 outbreaks on Canadian farms



Animals farmed

This article is more than 2 months old

'Exploitative conditions': Germany to reform meat industry after spate of Covid-19 cases



- ✓ Labor was an issue long before COVID-19
- ✓ Government support exacerbated issue; incentivized workers to stay home
- ✓ A disproportionate number of US plant workers tested positive for COVID
 - Protein industry caught off-guard (policies, access to PPE, communication)
 - Focused attention on realities of US labor supply (good and bad)
 - Housing/transport a challenge – not easily addressed
 - Social practices not easy to influence
 - Highlighted reliance on immigrant labor supply
 - There was a delayed impact globally
- ✓ Media attention/lawsuits support added workplace regulation
- ✓ Seeing increased labor regulation in the EU, audit in Canada
- ✓ Industry relies heavily on immigrant and minority labor
 - 525,000 total workers in processing industry
 - 9.1% of all workers tested positive (through May) ~48,000
 - 87% of positives were racial/ethnic minorities* (through May)



Meat shortages will have lasting impact on consumer perception

Could result in added regulatory burden

COVID-19 Meat Shortages Could Last for Months. Here's What to Know Before Your Next Grocery Shopping Trip **TIME**



Trump Declares Meat Supply 'Critical,' Aiming to Reopen Plants *The New York Times*

Animal Rights Billboards Go Up Across L.A. Connecting Pandemic to Meat Eating

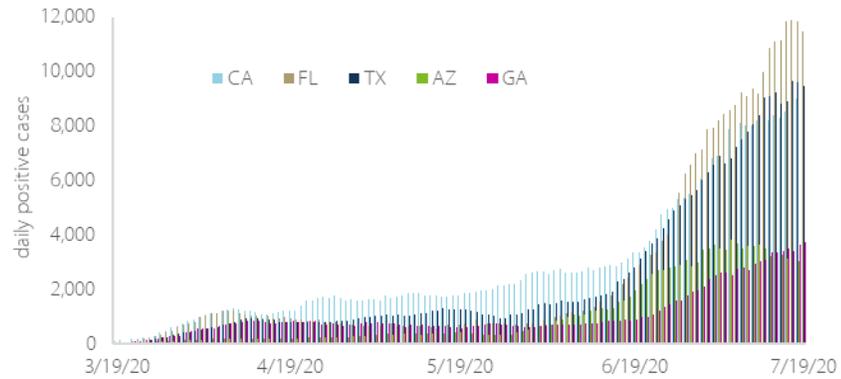


Elizabeth Warren and Cory Booker Join Forces on Bill to Ban Most Factory Farming by 2040 **Newsweek**

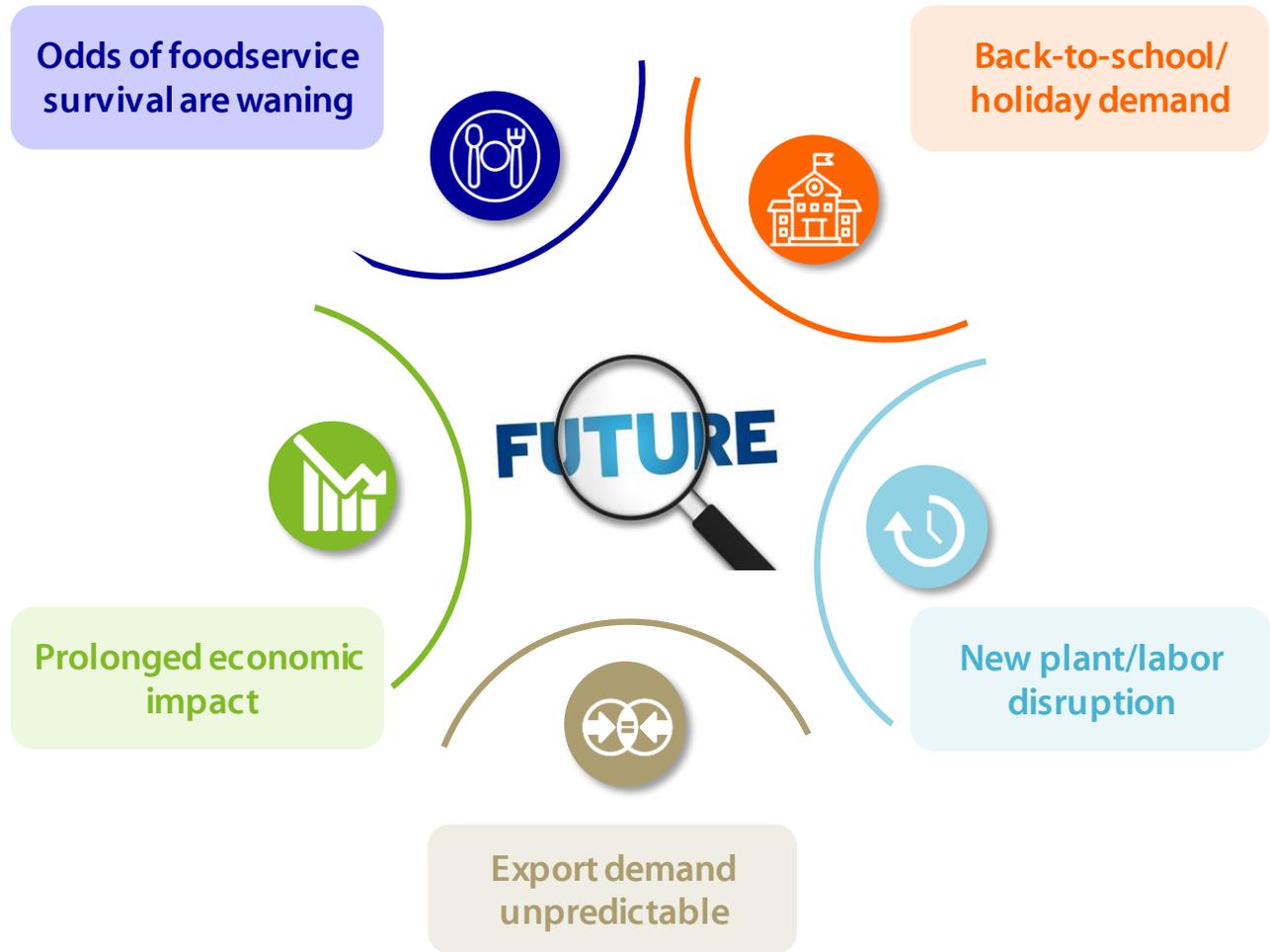
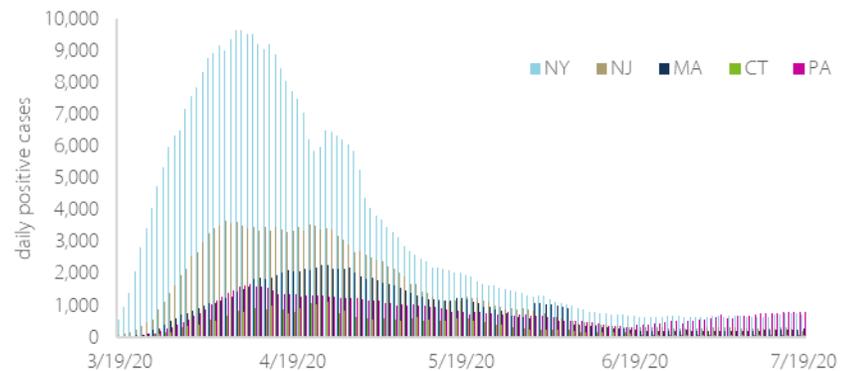
Near-term uncertainty adds to ongoing disruption in animal protein

Covid-19 resurgence, second wave and elections make planning difficult

Cases are rising cases in new hotspots...



...but no resurgence in states hit initially



Back to School plans on hold as administrators scramble

Bullish easy to prepare meals and snacks; challenging outlook for economically disadvantaged

\$15 billion annual spend on National School Lunch program

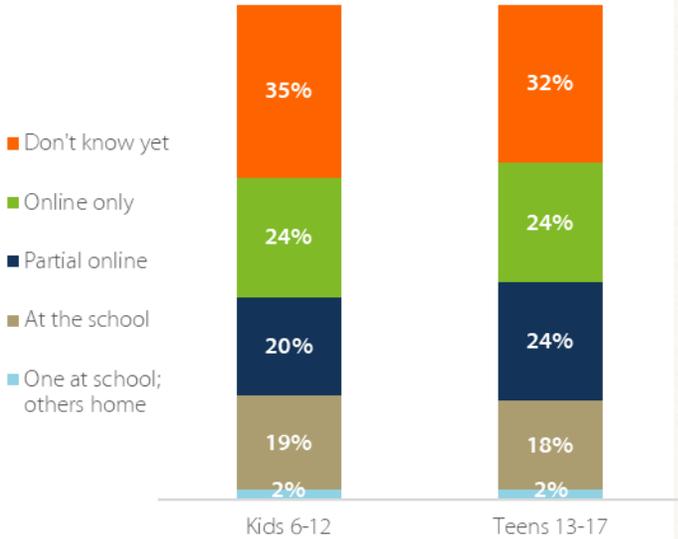
4.8 billion lunches served per year, 100,000+ schools

30 million students fed annually

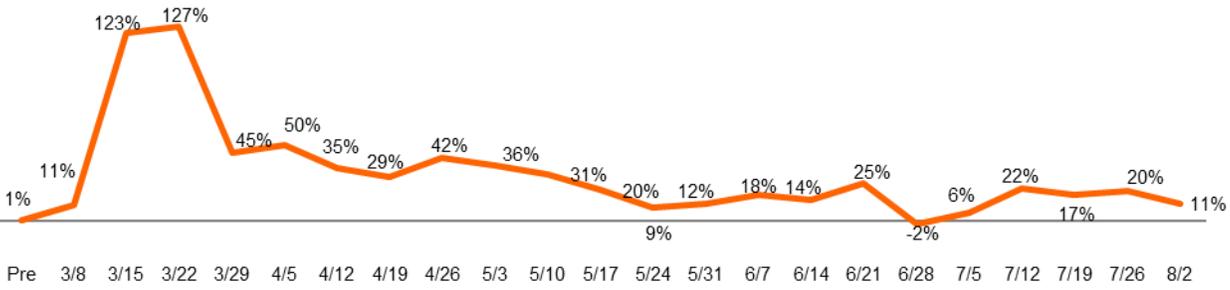
15 million kids participate in school breakfast program



One-Third of Parents Uncertain on K-12 Back to School Plans



Hot dog sales higher on at-home meal trends/storms



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Should retailers rethink the deli?

Impact on processed meats sales likely to be net positive

\$36 billion
category
in US

13.7% of
store
sales

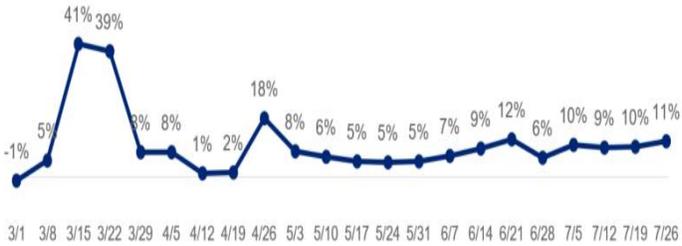
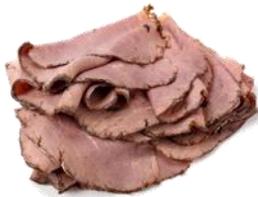
Deli meat
sales top
\$10 billion

63% of HH
consume
deli meat

Grab and Go now makes up 32% of total deli meat sales
10% of all households
Grab n Go sales +53% YTD

Random weight growth is outpacing packaged meat in dollars and vol (5.4% vs. 1.4%)

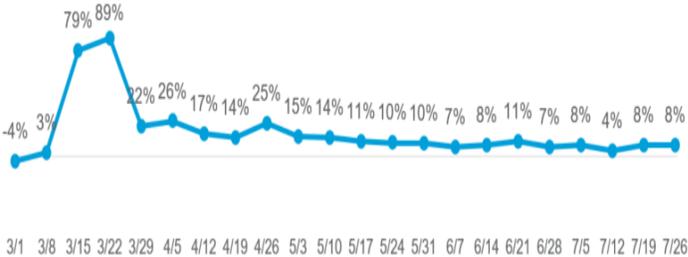
Random Weight Deli Meat



Sales w/e
7/26

\$133M
+11.2%

Pre-Packaged UPC Lunchmeat



\$121M
+8.4%

Sources: IRI, 210 Analytics and Rabobank, 2020



Retail shifts will force suppliers to make changes

Shift to online will require industry to adapt

65%

Eating at home more often instead of at restaurants



33%

Creating more meals from scratch



27%

Making coffee at home more often instead of going to coffee shops



After Stay-at-Home Restrictions End, Those Who Made Changes Plan to...

43% Wait a **FEW EXTRA WEEKS** after restrictions end before returning to restaurants

38% Wait a **MONTH OR MORE** after restrictions end before returning to restaurants

55% Continue to create meals from scratch more than before

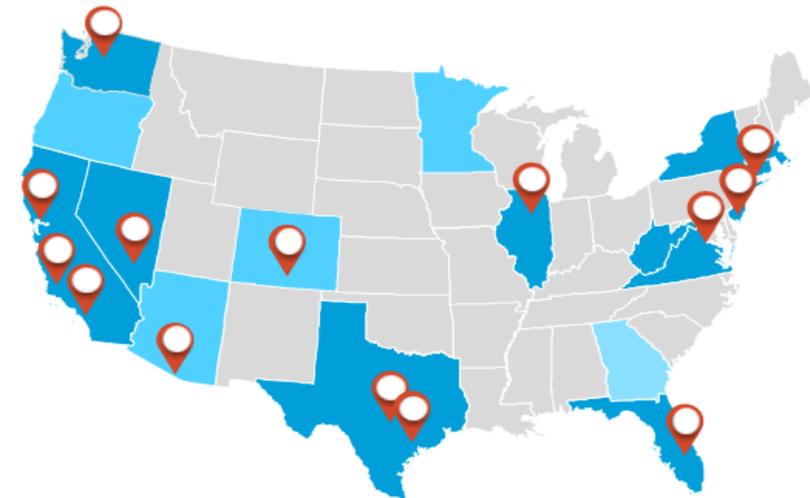
66% Continue to make coffee at home more than before

New retail strategies affect meat

- Reduce number of products (SKUs) to limit labor/inventory
- Offer solutions for families cooking at home; accommodate budgets
- Unusual pack types/sizes, relabeling foodservice product
- Rethinking the deli, processed meats remain scarce

Meat shopping moved on-line

- ✓ Meat sales lagged general grocery in online sales pre-COVID;
- ✓ Online sales strongest along the coasts, urban areas
- ✓ Boomers see largest increase in online sales as in-store viewed as risky
- ✓ Meat often not available when consumers order



Rabobank

How would shift to online change retail meat sales

Who is the online shopper?

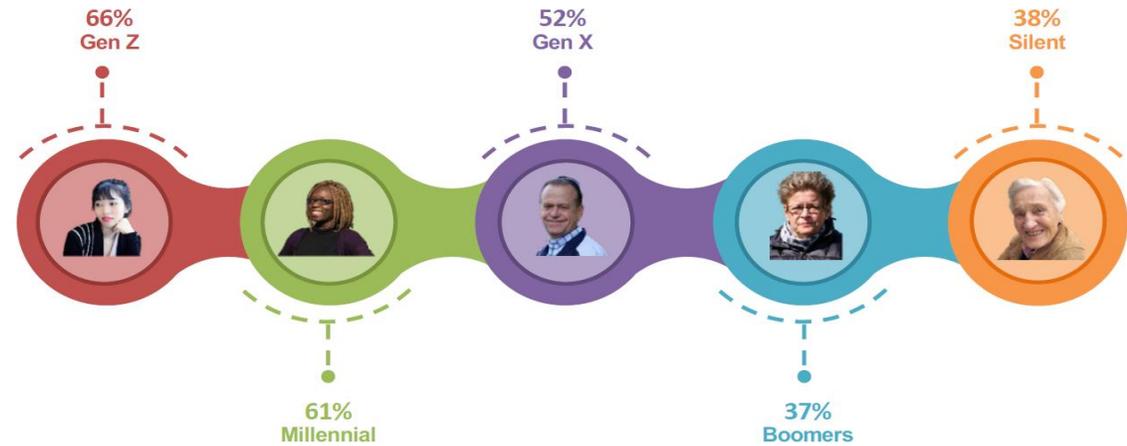
- ✓ Online sales peaked in Q2 2020; appears to be stabilizing
- ✓ **One-third shopped online for first time** during COVID
- ✓ Wide variation in online experience – winners/losers
- ✓ 2/3 of consumers used 2-3 providers-**less store loyalty**
- ✓ Delivery (46%) larger than click and collect (36%)
- ✓ Hispanics and households with kids skew higher, GenZ/Millennials double the average user
- ✓ Direct-to-consumer remains a small, but premium niche
- ✓ **Brands necessary** to establish trust? Consistency?
- ✓ Boomer/Silent generations – smaller households/different packaging
- ✓ **Case ready** shift continues; new packaging needs
- ✓ Will require changes in the supply chain to respond



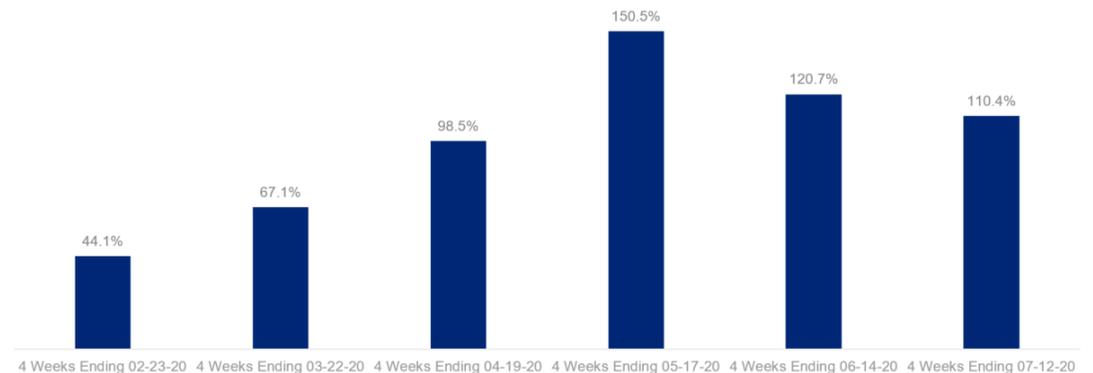
Porter Road



50% of in-store shoppers ordered groceries online in last 30 days



E-Commerce Channel Perishables Sales Growth

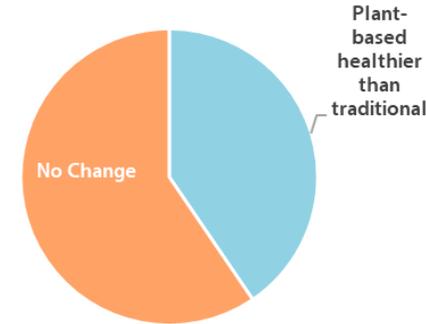


Will consumers gravitate toward better-for-you?

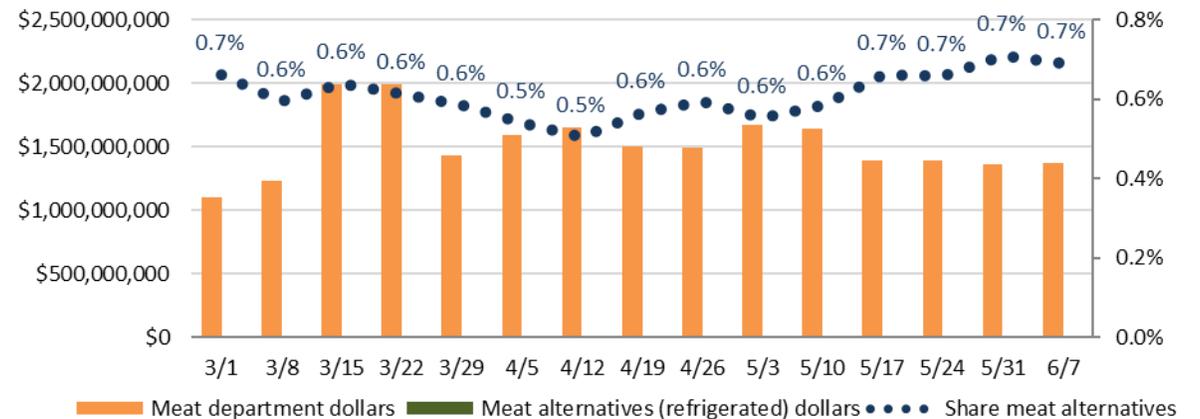
Will plant-based proteins gain share, still a small contributor to fresh meat case

- ✓ **Nearly half of all consumers** suggest they will seek out healthier foods
- ✓ Plant-based continues to have a **health halo**; supported by mainstream press/celebrities
- ✓ Initial surge due to destocking, lack of available meat in case
- ✓ **Sales nearly double year-ago**, still less than 2% of refrigerated dollar sales
- ✓ Refrigerated and frozen benefitted during quarantine
 - Refrigerated making biggest gains (+258% at peak)
 - Frozen growth relatively flat
- ✓ Frozen remains largest driver (60% of sales), industry pushing for refrigerated case
- ✓ **SKUs increasing** during the pandemic, Beyond launch of multi-packs at lower per unit price
- ✓ International introductions also driving growth

Plant-based or animal-based burgers healthier?



Plant-based contributes less than 1% of dollar sales in refrigerated case



What next for plant-based proteins?

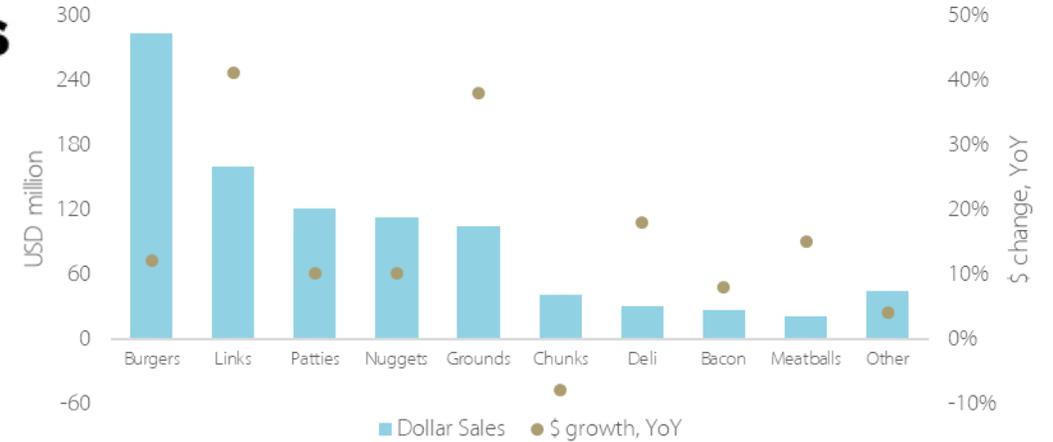
New entrants may help separate winners/losers

Alternative meat to become \$140 billion industry in a decade, Barclays predicts

Plant-based ingredients: The 'New' New Thing

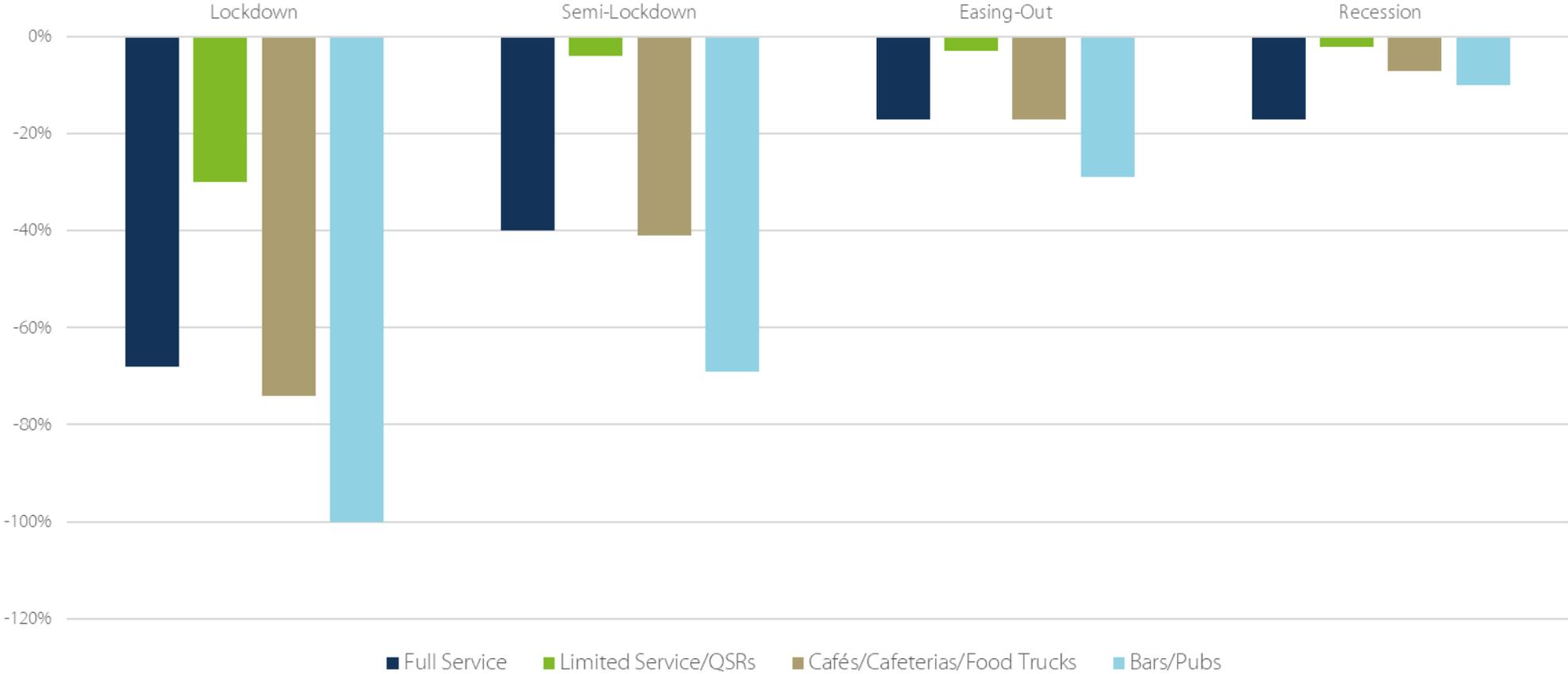


Fastest growth in plant-based coming in new forms



Foodservice recovery could take months

Fast food and limited service restaurants make steady progress, while full service, dine-in options lag



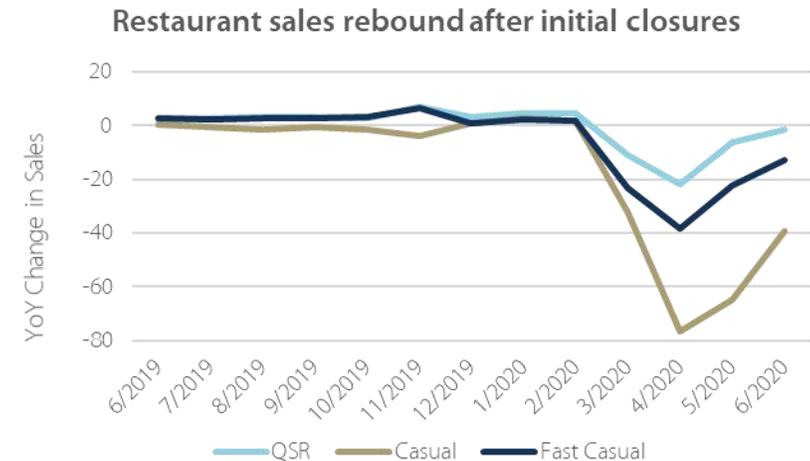
*Lockdown=all non-essential shutdown; semi-lockdown=open with restrictions, easing out=nearly all restrictions removed



Changes at foodservice offer mixed impact

- ✓ QSR near year-ago levels (drive-through benefit), casual slower to recovery (adapting to take out); white table cloth
- ✓ Unemployment went from 3-4% at year-end to 8-9% today; could be higher unless businesses reopen
- ✓ Foodservice traffic recovering slowly, higher tickets (\$\$)
- ✓ Canada and Mexico seeing similar slowdowns; lower unemployment
- ✓ **Limited menu hurting chicken; pork**
- ✓ Outdoor seating helping over the summer; likely to hurt traffic in Fall/Winter

McDonald's is pulling its all-day breakfast menu as it limits options amid pandemic



The image is a collage of four panels. The top-left panel shows two white turkeys with red heads. The top-right panel shows a white cow. The bottom-left panel shows a close-up of a turkey's head and neck. The bottom-right panel shows a group of white chickens with red combs. The text "Global Protein Outlook" is overlaid in the center in a blue font.

Global Protein Outlook

Weaker global demand expected to slow production growth

ASF still more significant driver of supply

US

- Overhang on supply; esp. beef & pork
- Demand sluggish at foodservice
- Production cutbacks are slow

China

- Still recovering from ASF herd losses
- Demand slow to recover, 2nd wave
- Production set to recover, poultry +10%
- Strong government incentives

Europe

- Overproduction remains an issue
- Less foodservice exposure
- Production to slow, esp. in CEEC
- Brexit raises questions

Brazil

- Rising feed costs
- Soft local and export demand
- Production slower than expected

Southeast Asia

- ASF complicates the picture
- Tourism impact will hurt demand
- Production up, but below earlier forecast



African Swine Fever (ASF) in Germany could boost near-term pork exports

US, Canada and Mexico should see a boost to 2H 2020 pork exports, limited impact on poultry expected

- ✓ 1 wild boar (2-4 weeks old) confirmed with African Swine Fever (ASF) in Germany last week
- ✓ There were six additional cases discovered this week, one in a live animal

Why this is important?

- Germany is #1 pork producer in Europe (23% share)
- Germany is #5 exporter of pork in the world, #3 exporter to China (14% of total)

Immediate trade impact:

- **South Korea, Japan and China have banned imports from Germany (31% of total annual)**
- Most other countries will accept OIE protocols of regionalization (including the U.S.)
- Exports to rest of Europe, U.S., Singapore, Vietnam, New Zealand are unaffected

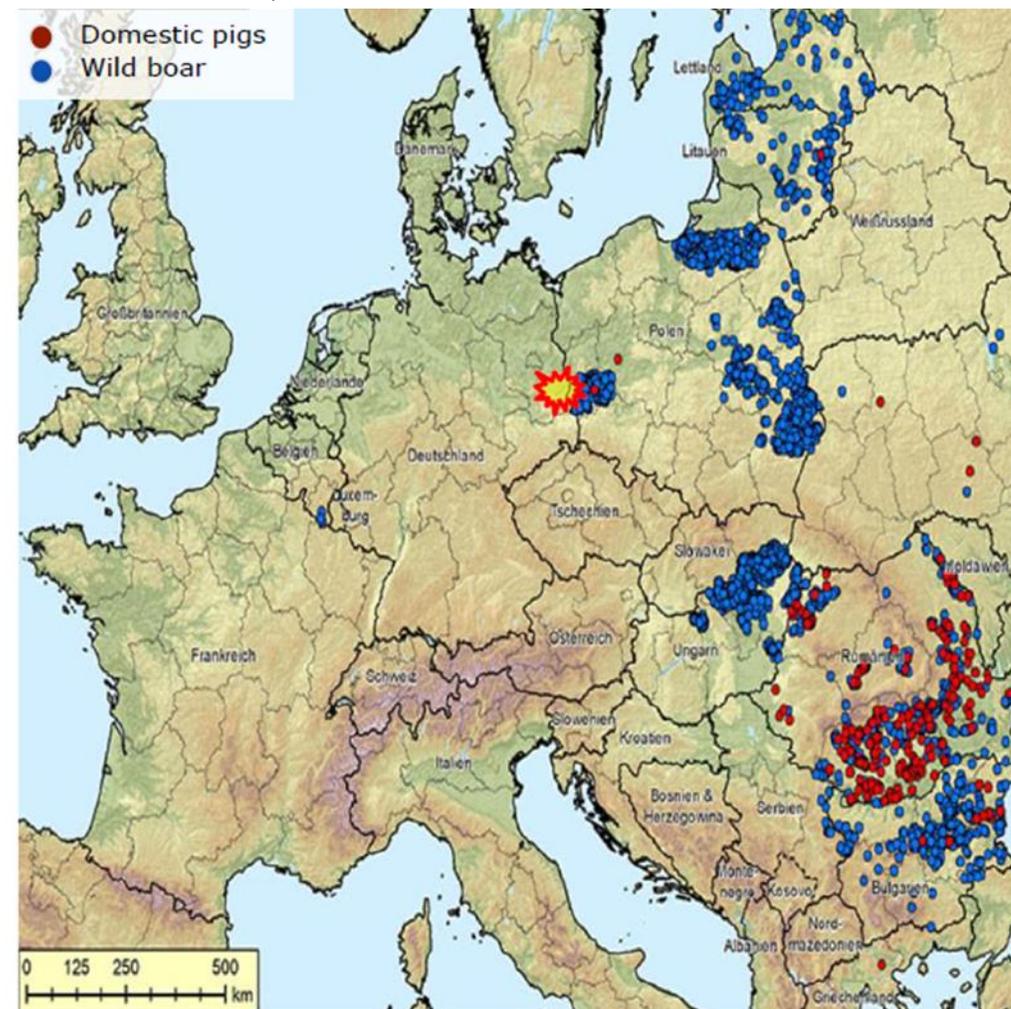
What does this mean near-term?

- German pork will be re-distributed throughout Europe thereby pressuring EU prices
 - Lower German (and EU) pork prices, pressure on input sectors, competing proteins
 - Few alternative markets for low value (offal) product, will pressure margins
 - Likely to slow German production, piglet imports from Netherlands & Denmark
- Positive for US, Brazilian, Canadian, and Mexican pork exporters
 - Impact on competing proteins and input sectors modestly positive
 - Favorable timing in front of Chinese New Year
 - Sends the wrong signal to producers at a critical decision point

What we do not know

- How extensive the issues are in Germany/will there be more cases
- How long China and others will maintain trade ban given supply constraints

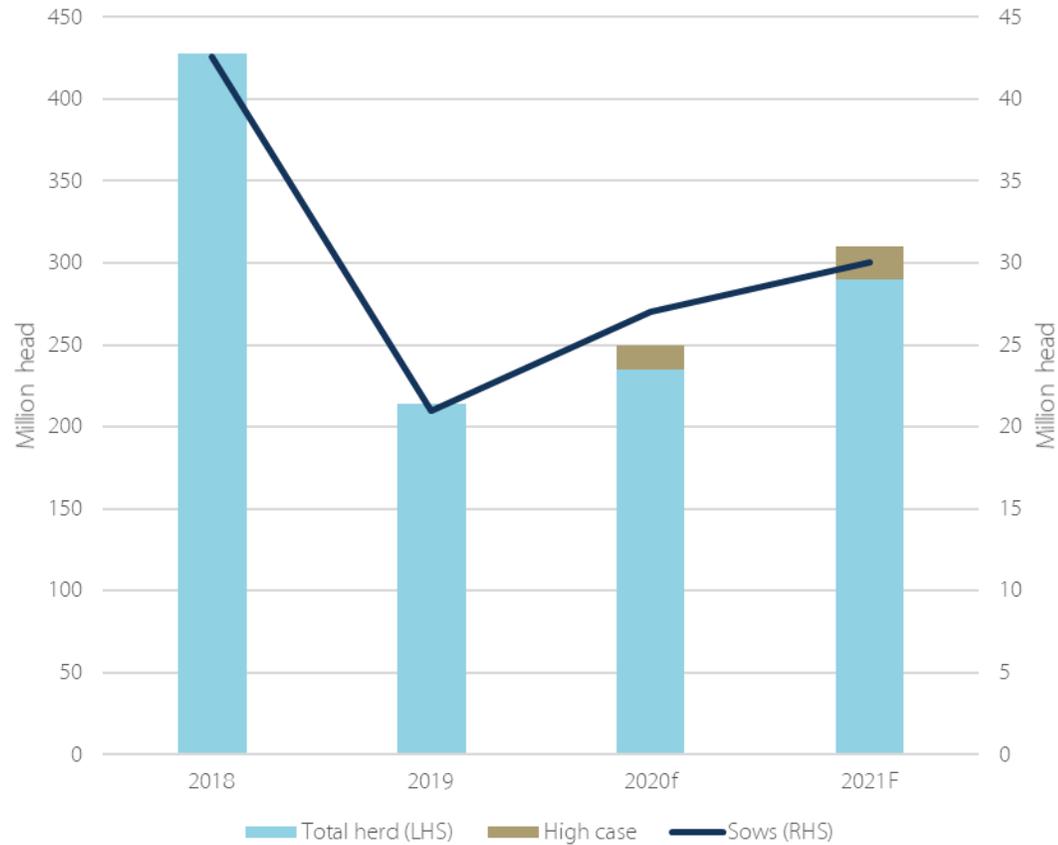
ASF found close to previous cases on Polish side of border



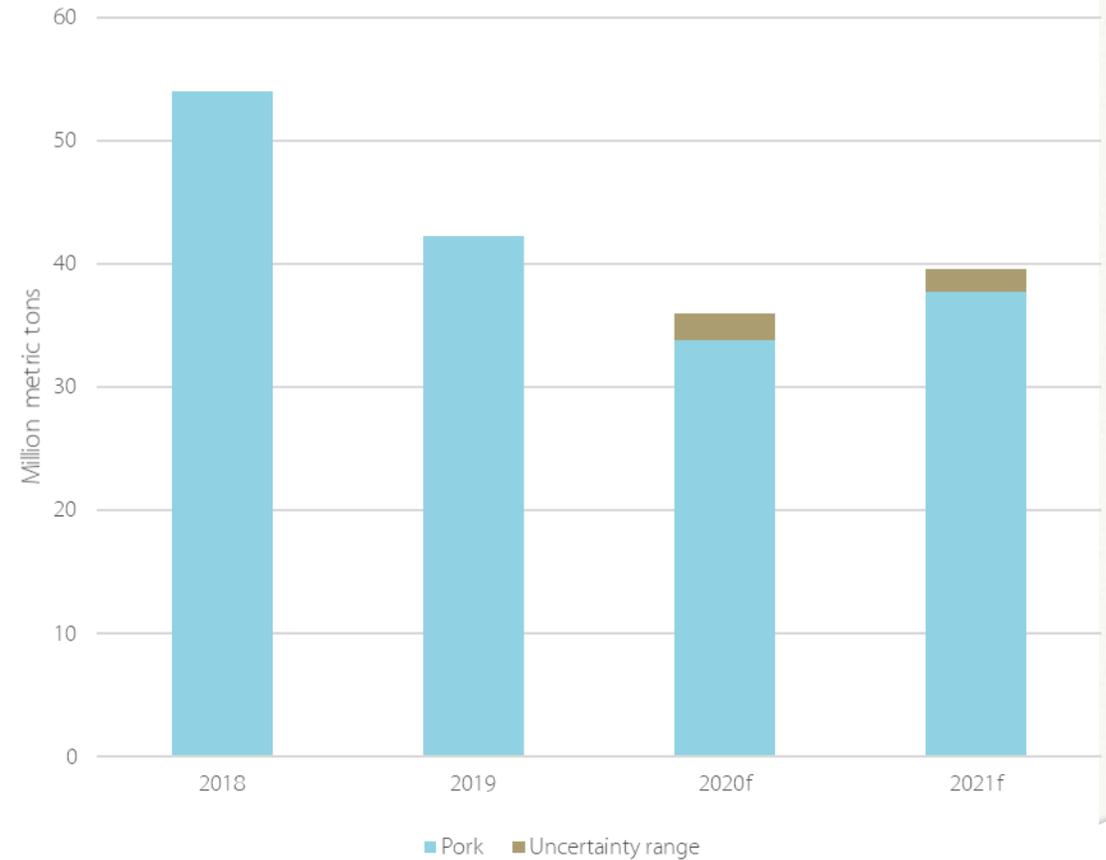
We expect China's pork production to rise by 10% in 2021

Lack of transparency continue to plague the market

Herd is starting to recover



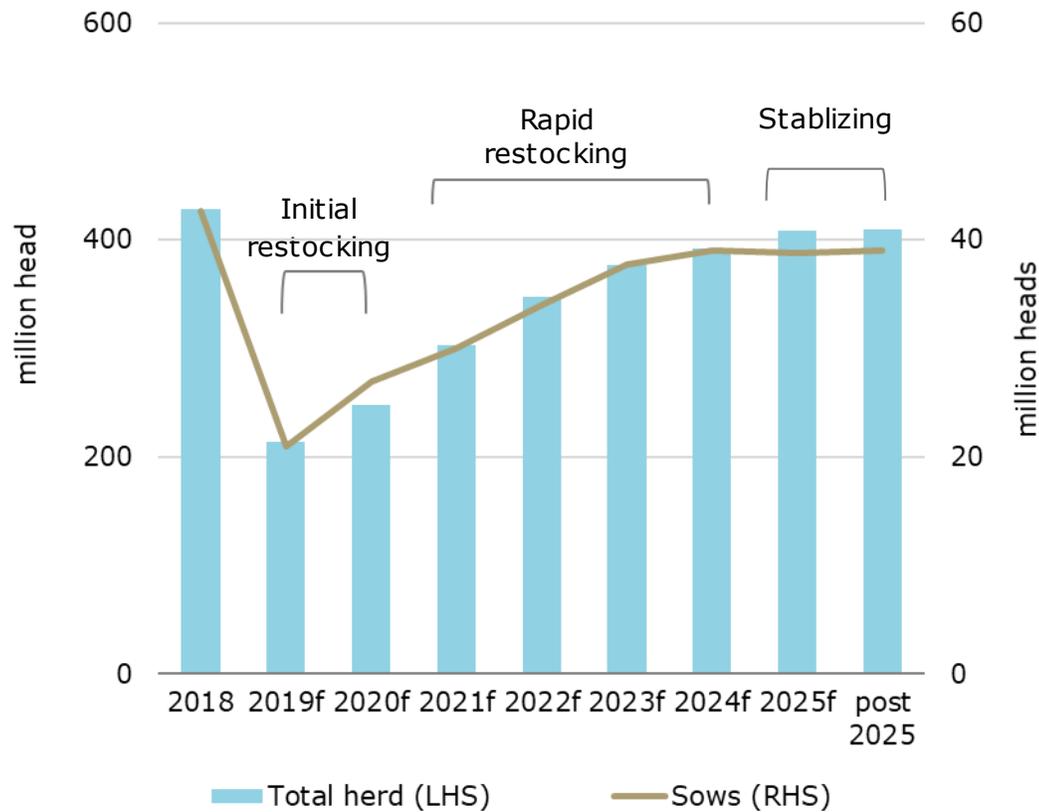
Production will also recover, but slowly



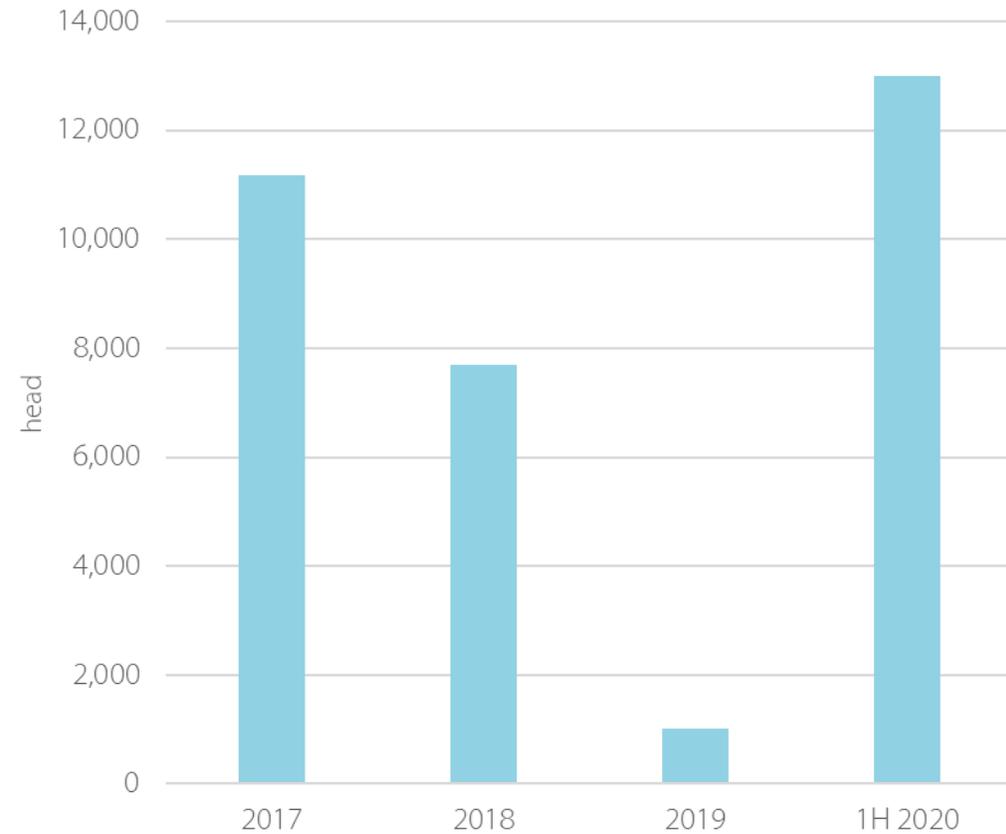
Restocking might accelerate in the next few years

Risks of additional ASF cases, other FAD remains

It will take years to see full recovery

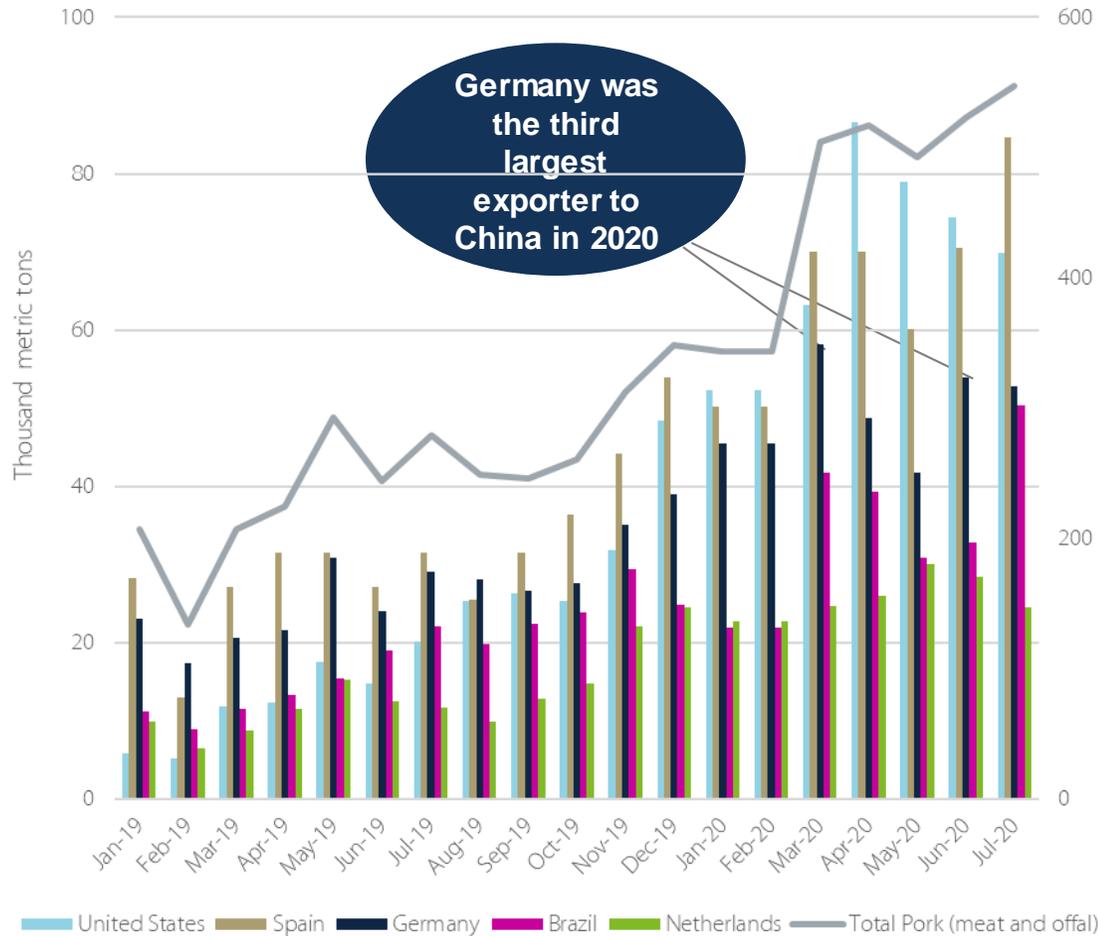


Breeder imports increase dramatically

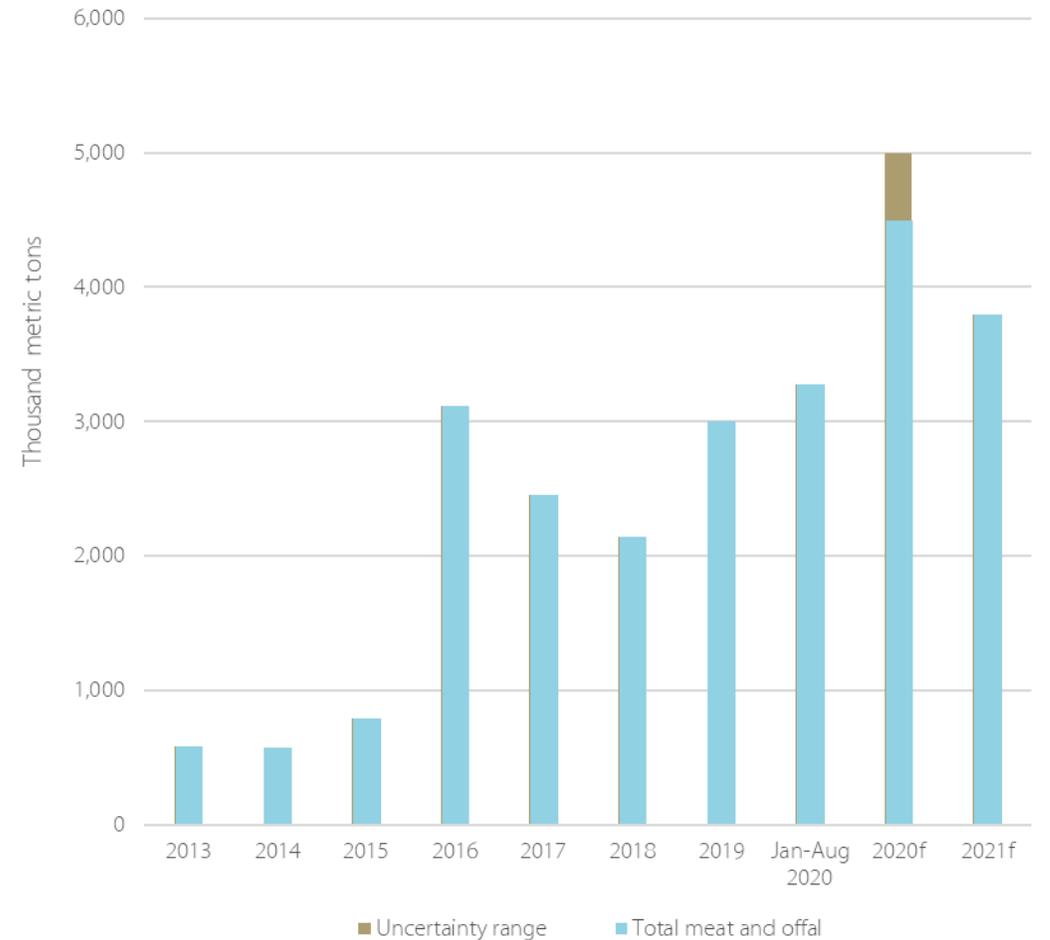


China is the king-maker in global animal protein trade

2020 on track for record pork imports



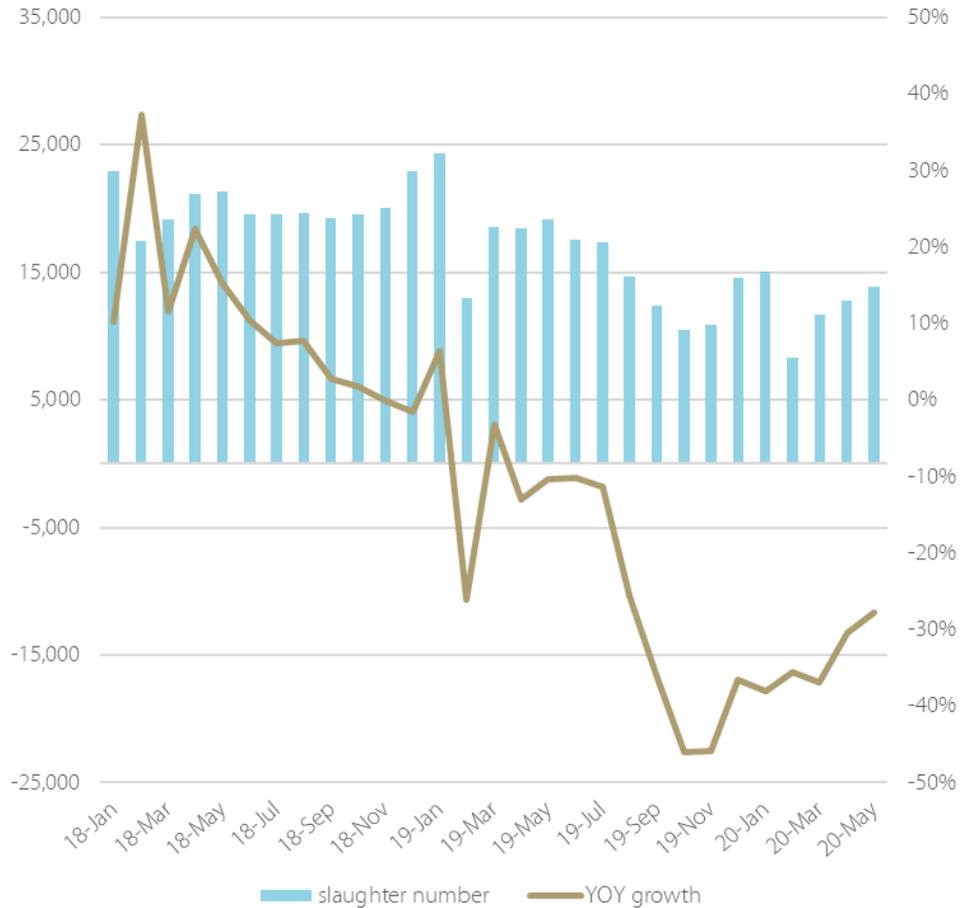
2021 imports forecast to drop



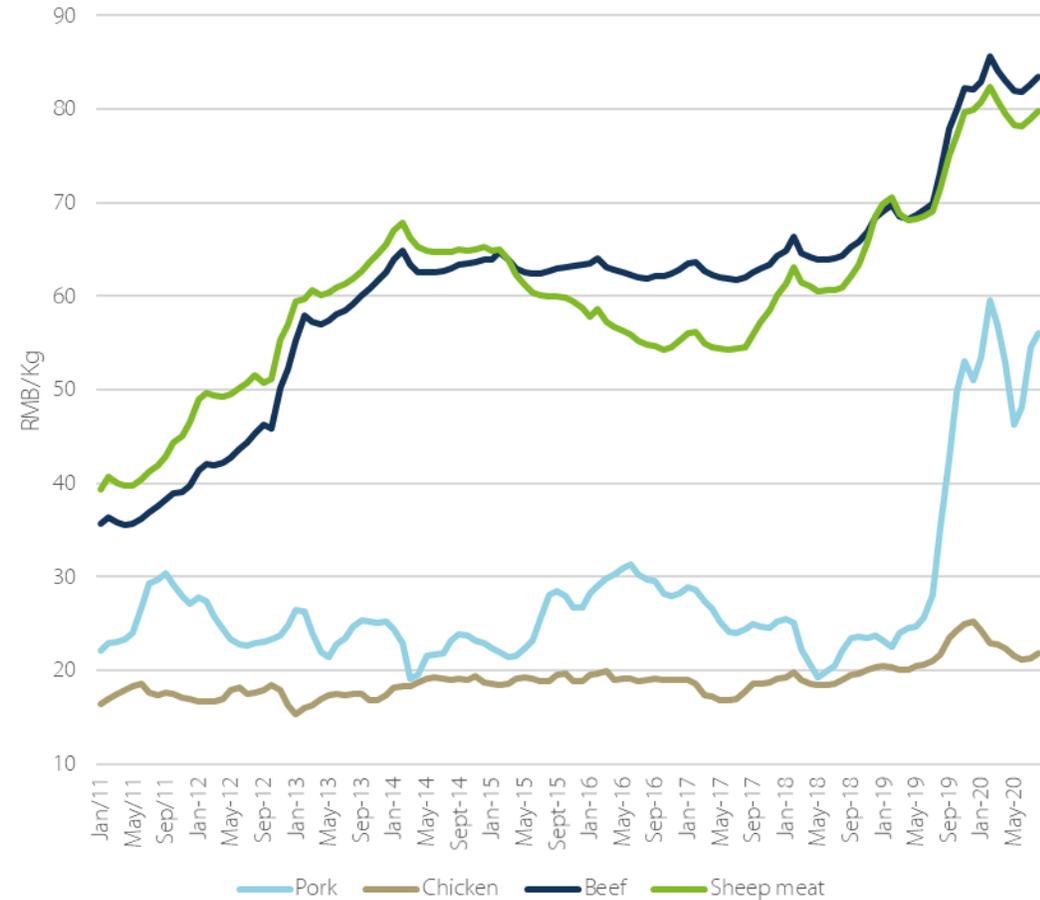
Pork consumption in China has dropped on availability and COVID

High prices and availability impacting volumes

Pork market supply has declined, yet beginning to rebound



Retail prices of other proteins follow pork



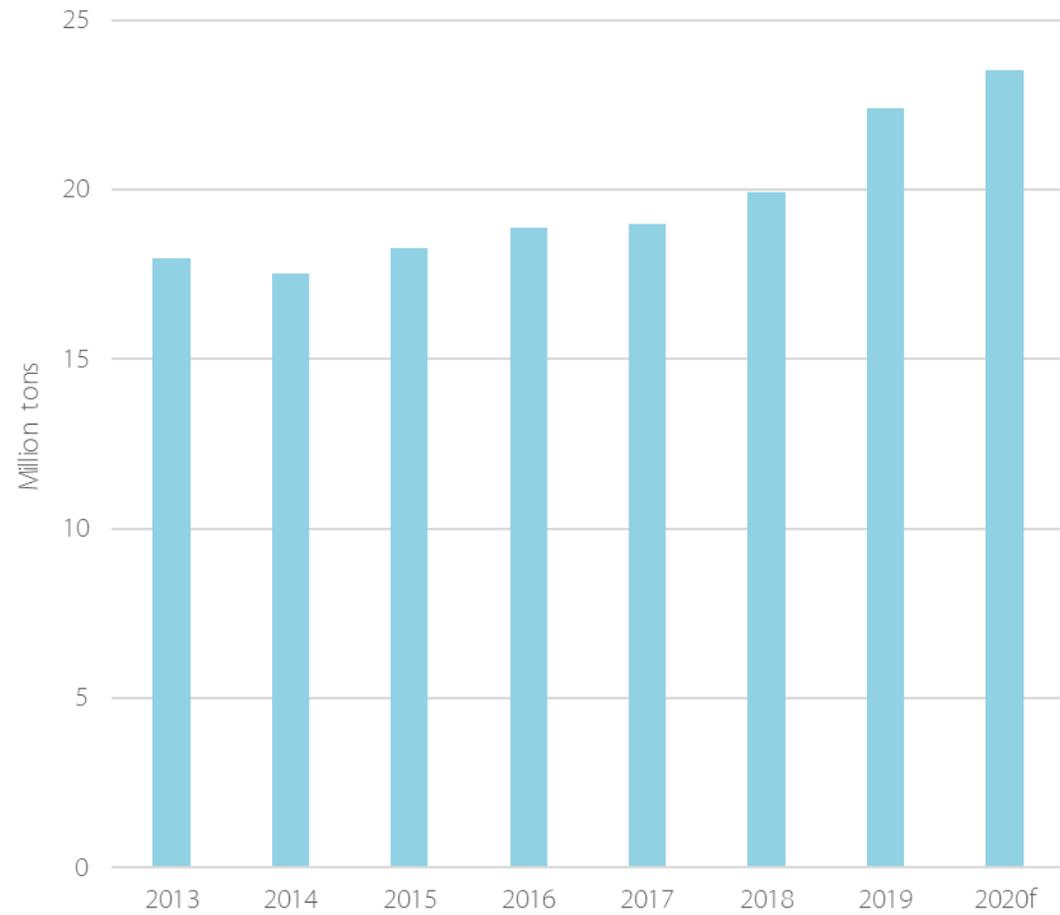
Source: Ministry of Agriculture, Rabobank, 2020



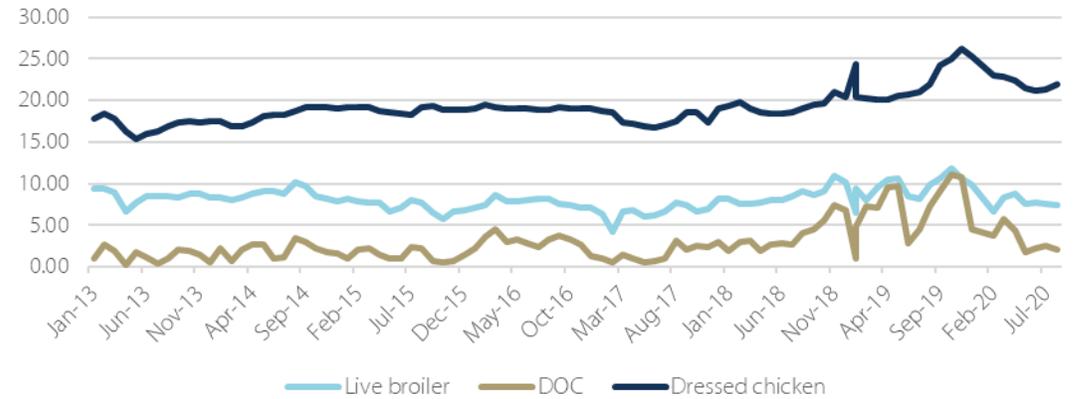
Asian poultry markets benefit from ASF disruption

Chicken demand hit harder by COVID-19

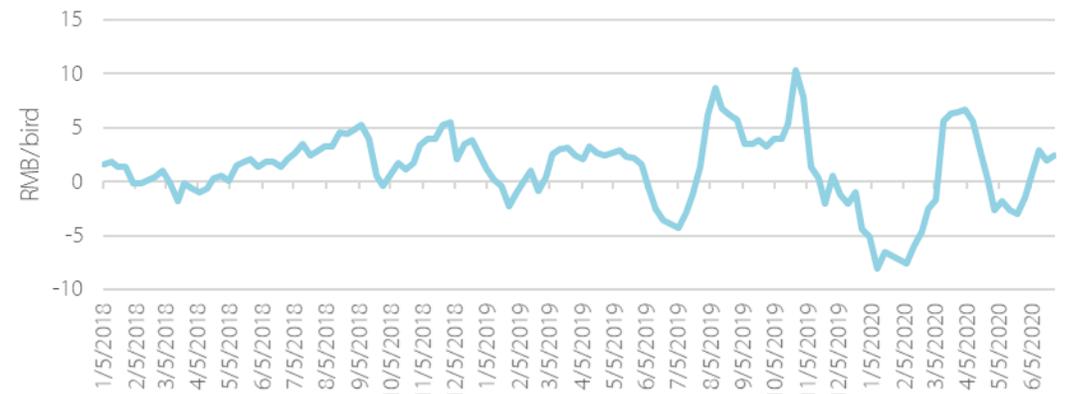
Chinese poultry production expected to increase in 2020, despite Q1 disruption



China's poultry prices have been volatile

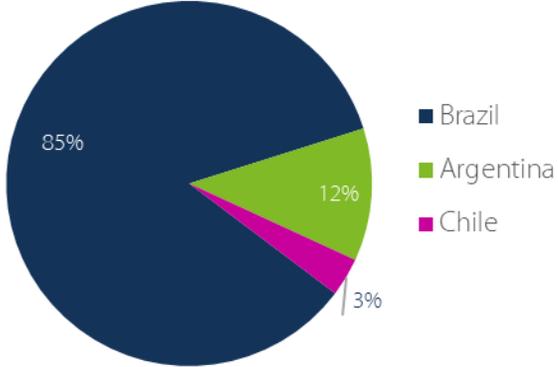


Poultry profitability impacted by COVID-19 and rapid expansion

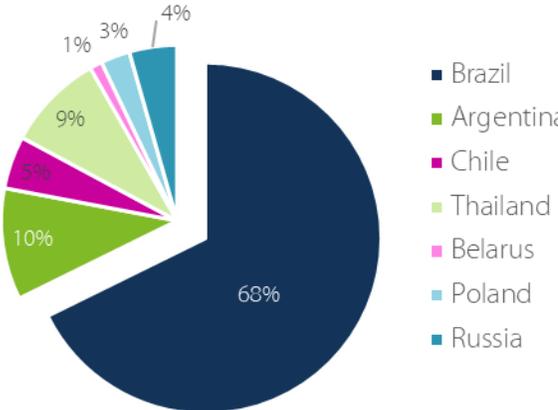


China poultry imports up sharply and suppliers more diversified

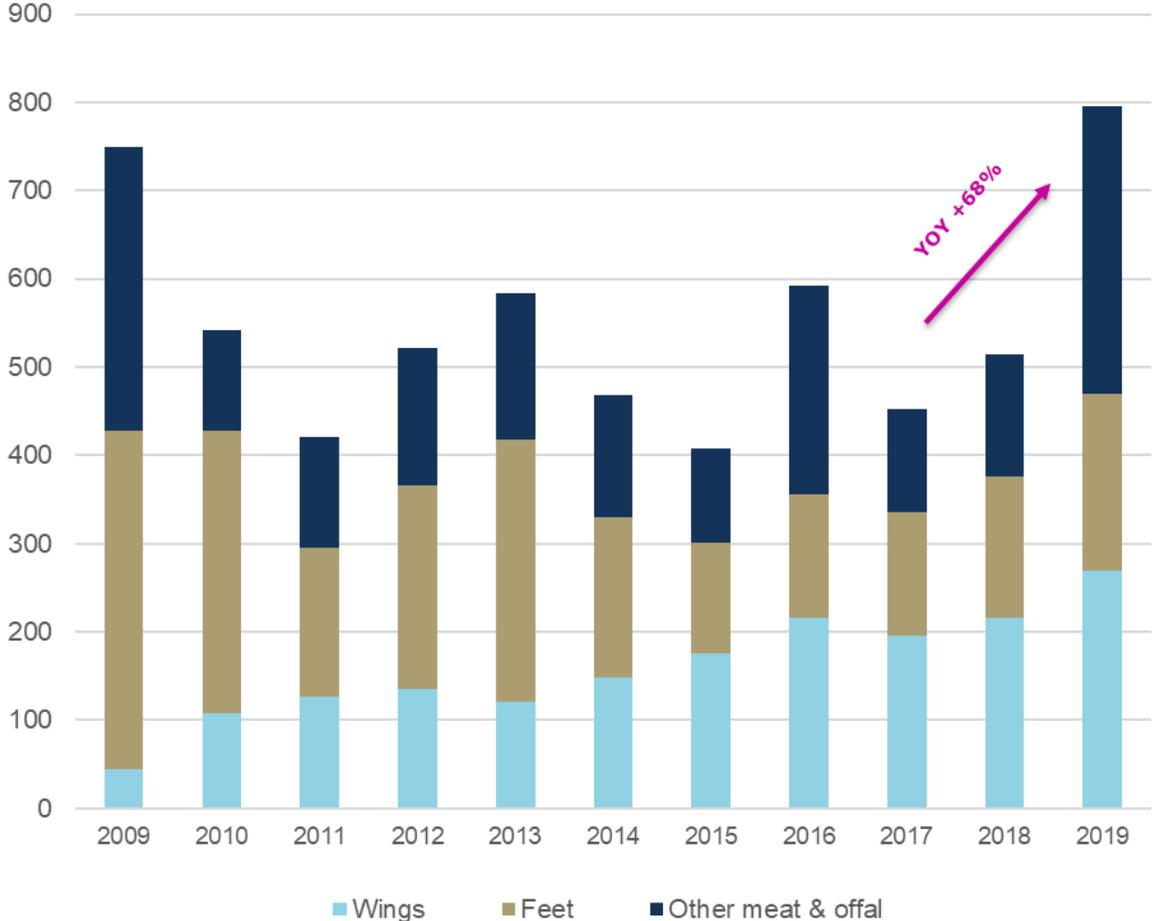
Key importing countries in 2017



Key importing countries in 2019

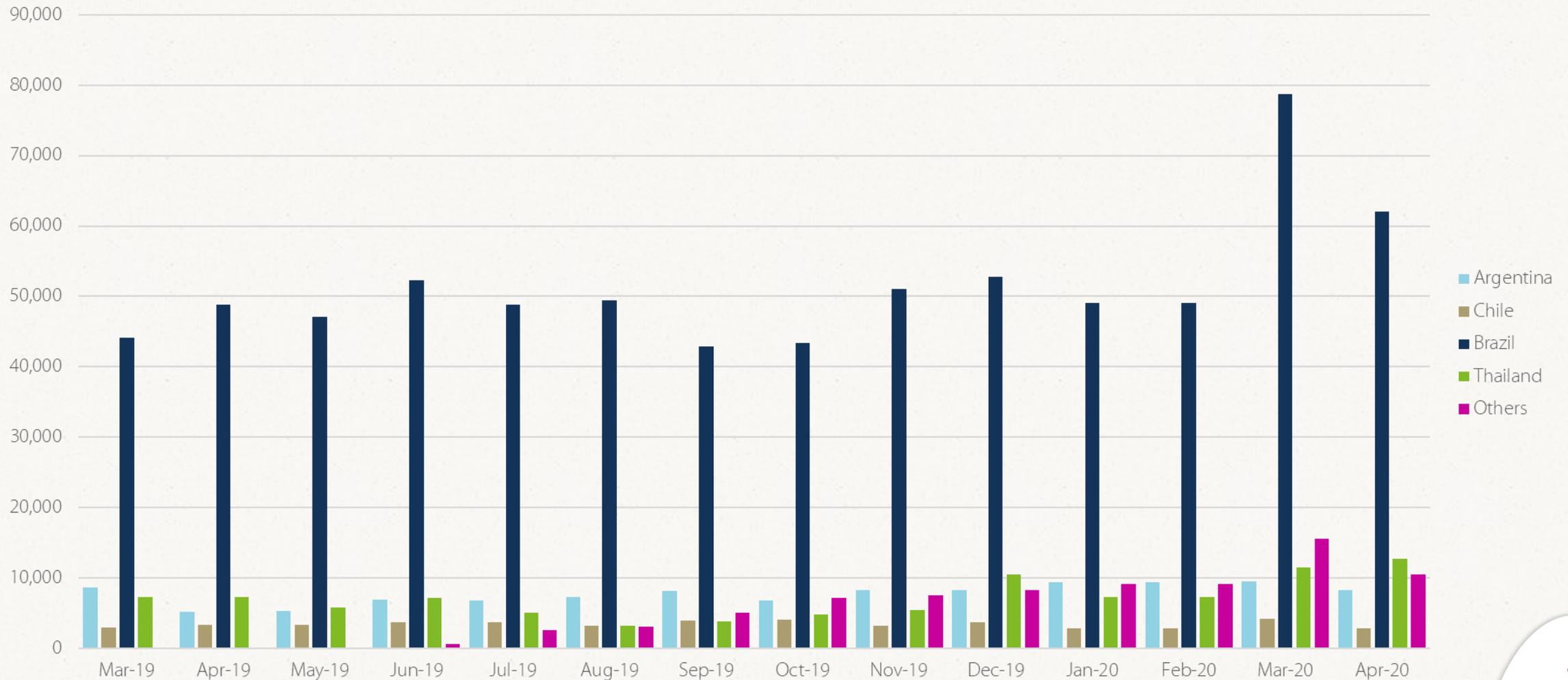


Poultry imports up 68% reflecting ASF losses and strong demand



Brazil still dominates Chinese poultry imports

U.S. and Thailand gaining share in April



Source: China Customs, Rabobank 2020

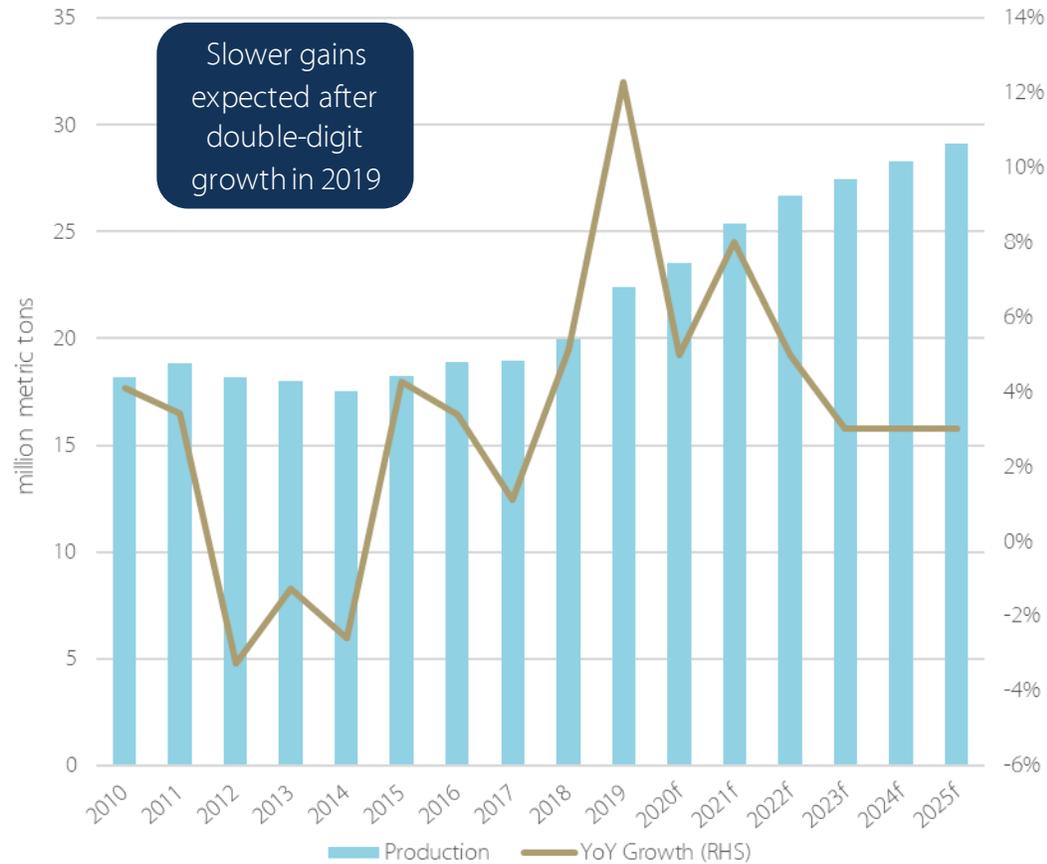


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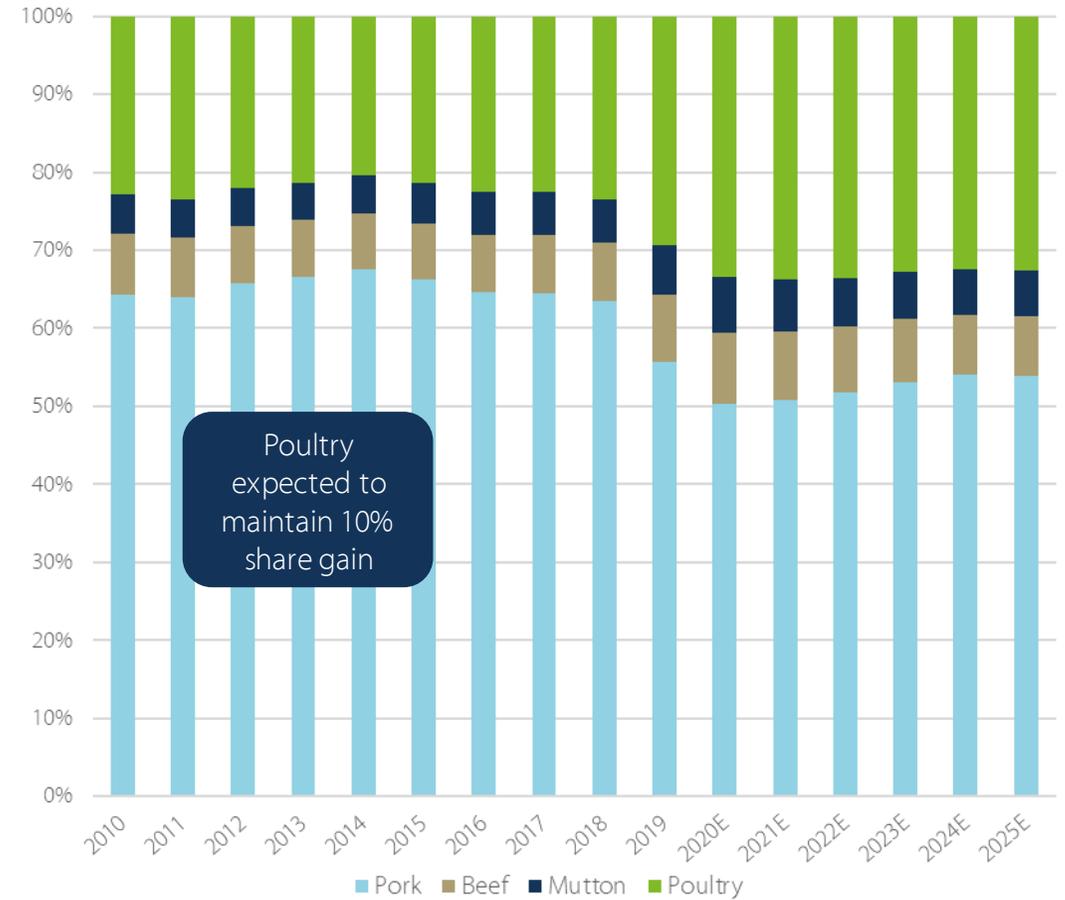
Chinese poultry production in growth mode

Poultry now one-third of protein consumption

Poultry production expected to increase 60% from 2010 levels



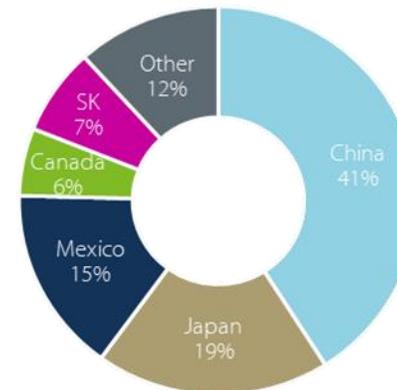
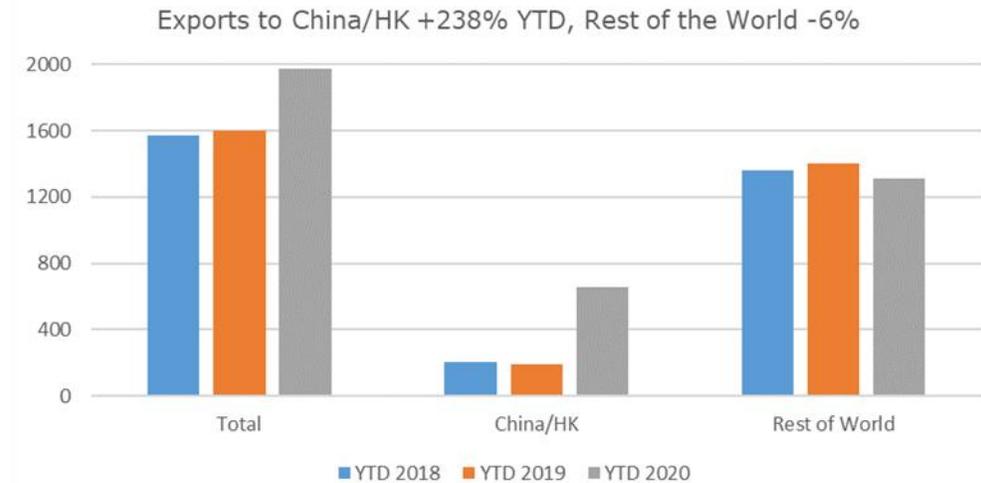
Drop in pork supplies due to ASF to leave room for chicken



US pork exports are strong to China; ROW struggles

Current political tension and flooding works against exports

- Exports weaker on slowing global growth
- Phase 1 Agreement supportive to U.S. exports; tariff waivers granted (boost since March '20) – delayed trade meeting
- Plant “delisting” by China should benefit U.S. exporters in near-term
- Inspections taking longer due at ports; ongoing issues
- China took advantage of global decline in protein prices to build inventory
- Some Chinese markets much stronger, high unemployment and flooding issues
- USMCA still an issue; antidumping challenge possible
- Strong dollar hurts exports to some traditional markets
- Additional FTA agreements on hold for now (U.K. most encouraging)

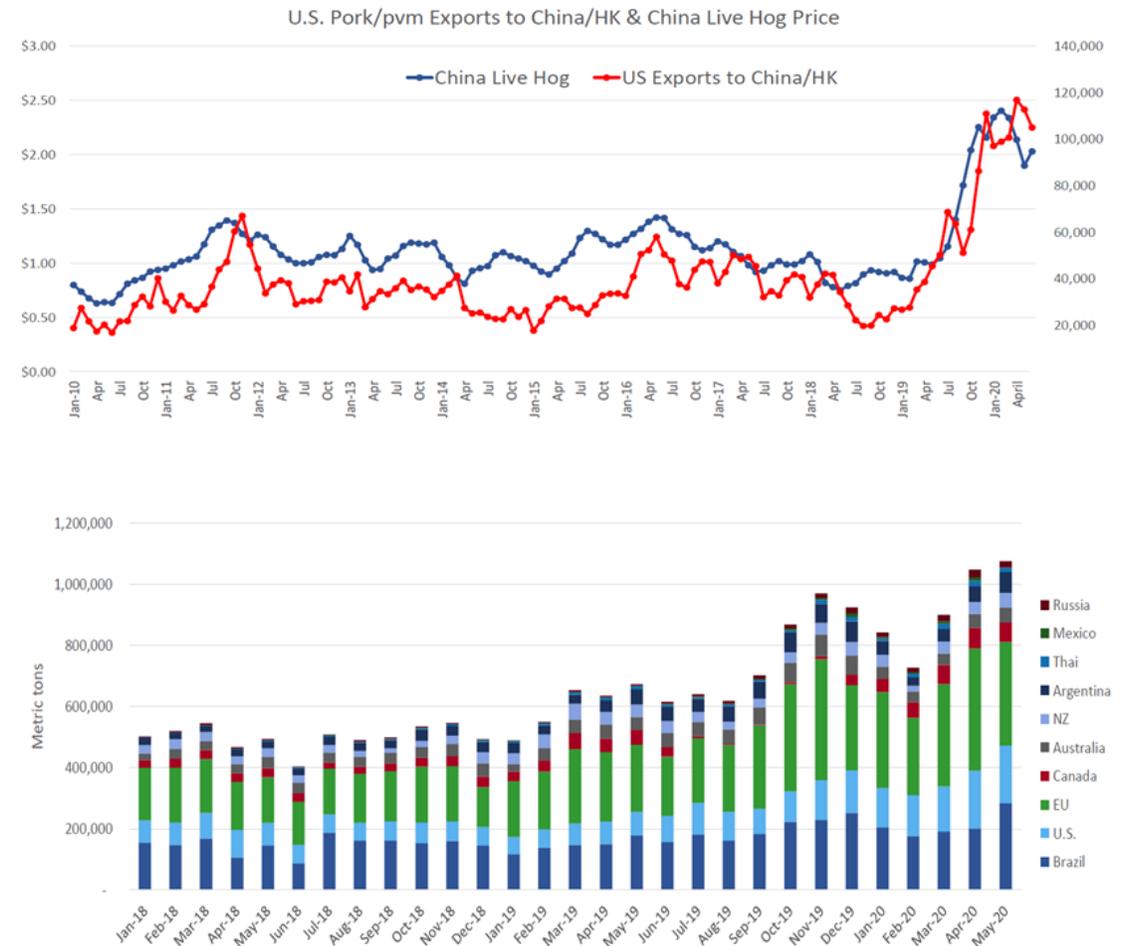


- 41% of US pork volume in May; 33% in June
- 46% in Canada; largest market in MX
- US largest exporter of meat to China in 2020
- Strong increase in US poultry exports (paws)



Reliance on Chinese market: a blessing and a curse

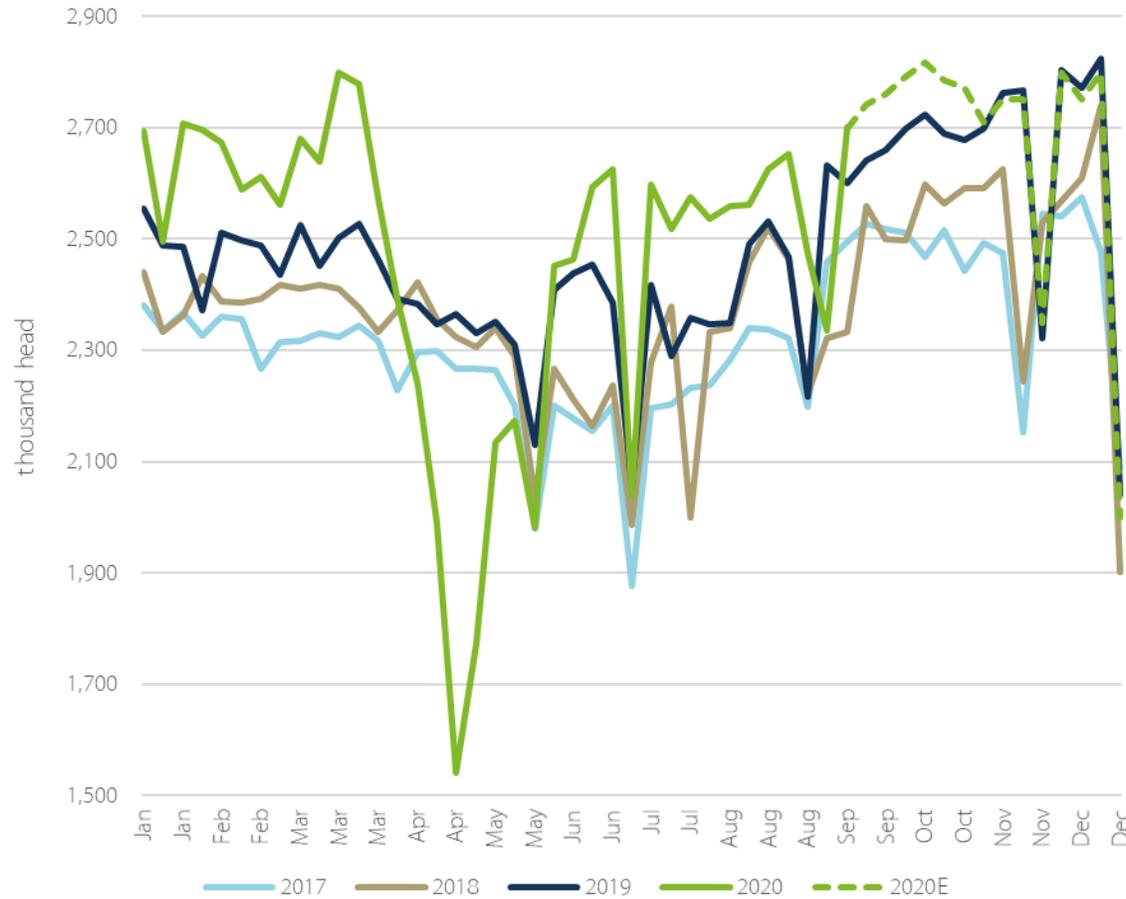
- ✓ China the only game in town; up again in June
 - **73%** of all EU pork/pvm exports in May, 72% YTD
 - **46%** of US pork/pvm exports in May, 39% YTD
 - **45%** of Canadian pork/pvm exports in May, 44% YTD
- ✓ Took advantage of commodity collapse to build inventory
- ✓ Suspended 40 plants due to COVID-19, no US pork plants
- ✓ Moving away from carcasses to primals
- ✓ Pork prices have rebounded, most other proteins lower
- ✓ Retail trends stronger in many urban centers; Foodservice mixed
- ✓ ASF remains an issue, flooding also a concern



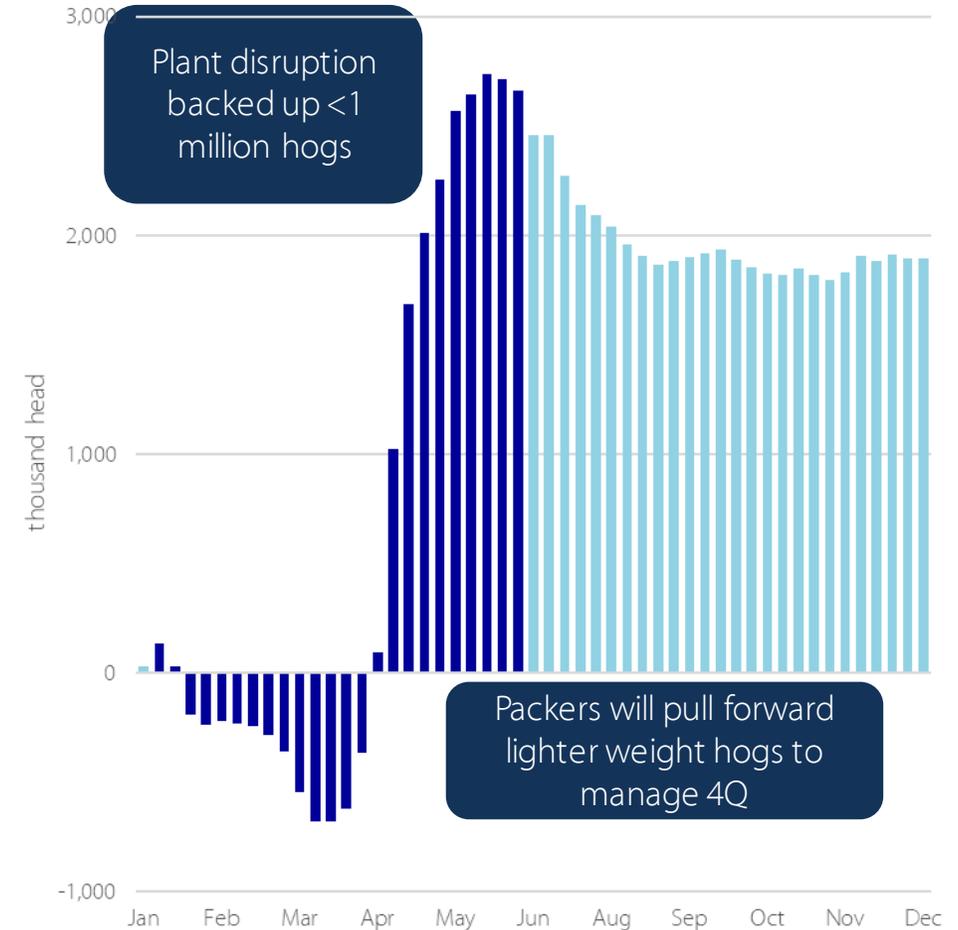
US hog harvest back on track, working through backlog

Non-traditional outlets play a larger-than-expected role

US hog slaughter ahead of year-ago, 4Q shackles space a concern



Packers work through backlog



Pork production trends higher as packers recoup lost slaughter

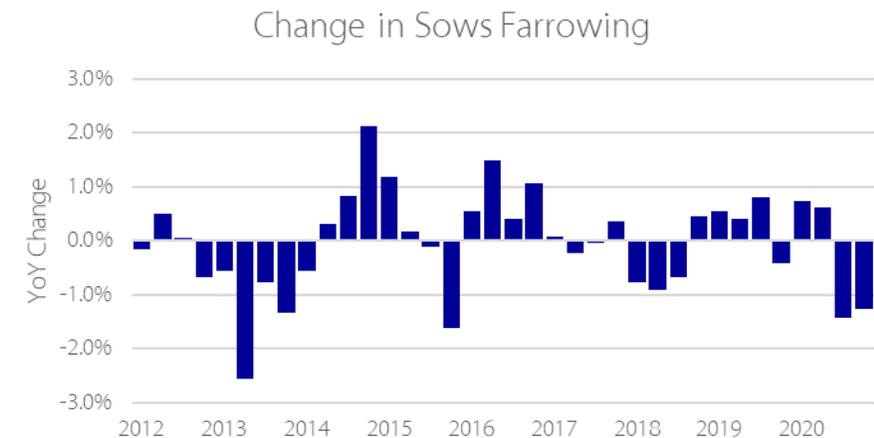
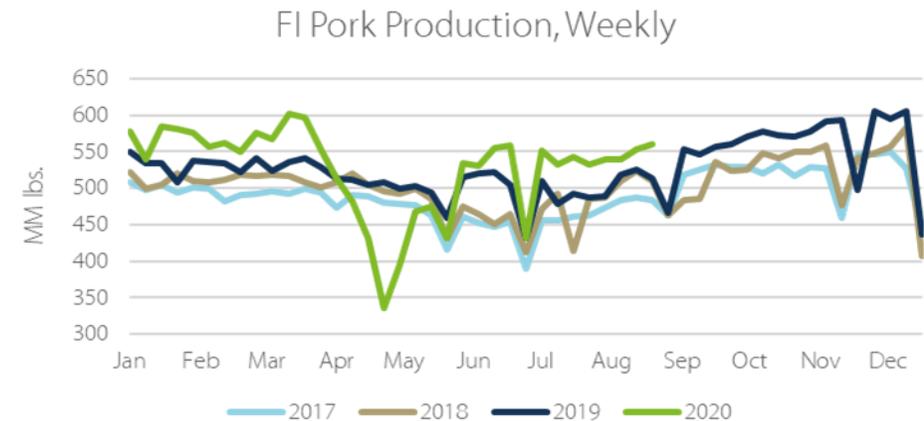
Disappointing returns should drive herd contraction in 2021/22

Pork production was up 7.2% in July to 2.4B lbs. as packers worked to recoup missed slaughter. Expect 3Q pork production to be up 4.9%; full year up 1.8%

- Slaughter averaged well over 5% through August, Labor Day shortened weeks distort September
- Average weights flat for producer sold hogs in August, moved higher for packer owned; big differences reflect regional labor challenges
- Expect weights to increase in cooler weather, new crop corn
- Expect a modest (0-1%YoY) contraction in pork production in 2021, back-half weighted

Backlog of unharvested animals cleaned up; expect gradual herd reduction in 2021/22

- Backlog of nearly 2M hogs at beginning of June, next inventory report likely to show 500,000 – 1 million (September 24)
- Inventory issues remain regional due to labor constraints – more in the eastern corn belt
- Lower weights, higher feeder pig prices, improved packer demand reflect lower surplus
- Third party slaughter, euthanizations and change in feeding regimes used to balance supply
- Expect hole in hog supplies in late October, early November (COVID-19 litter disruption)



Packing industry gross margins off their highs, costs up

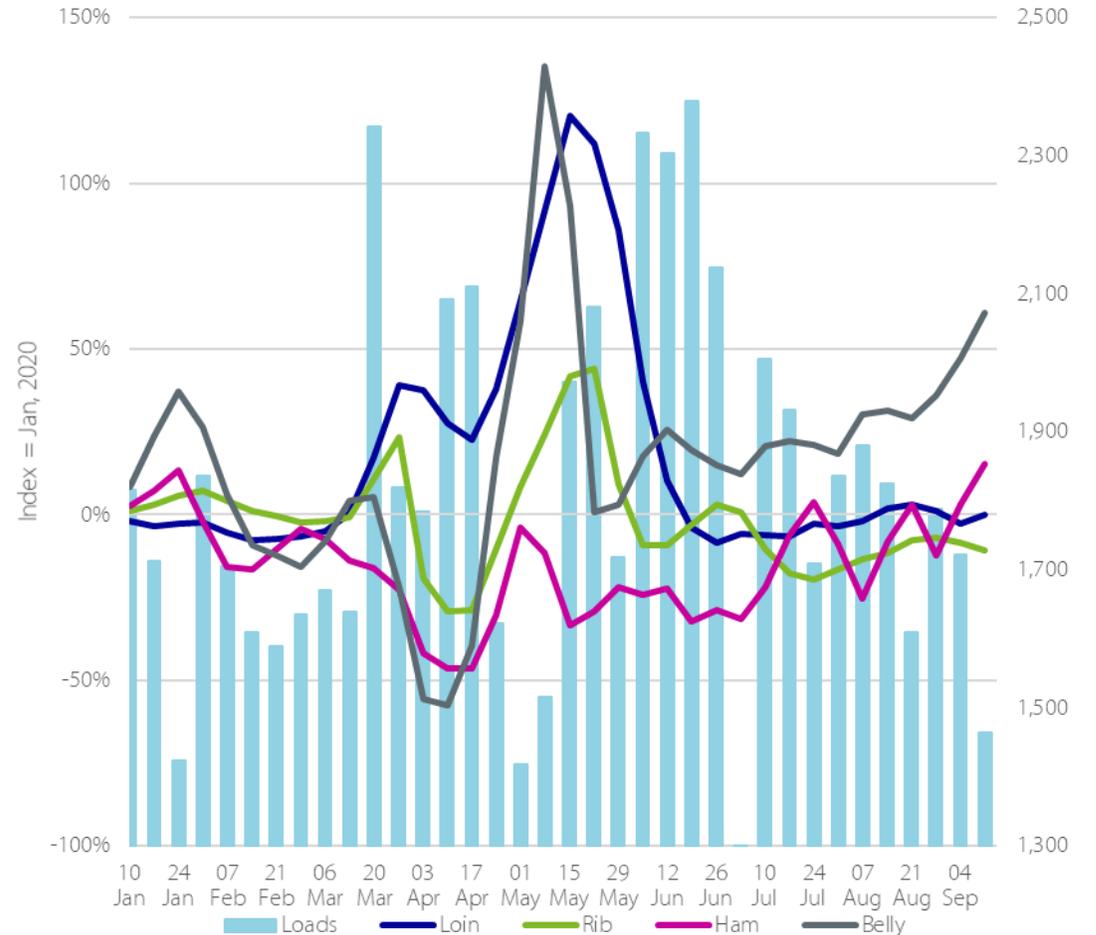
Higher costs/labor continue to limit packer returns

Pork packing margin peaked at height of shortage

Packing Margin (\$/hd), Rabobank



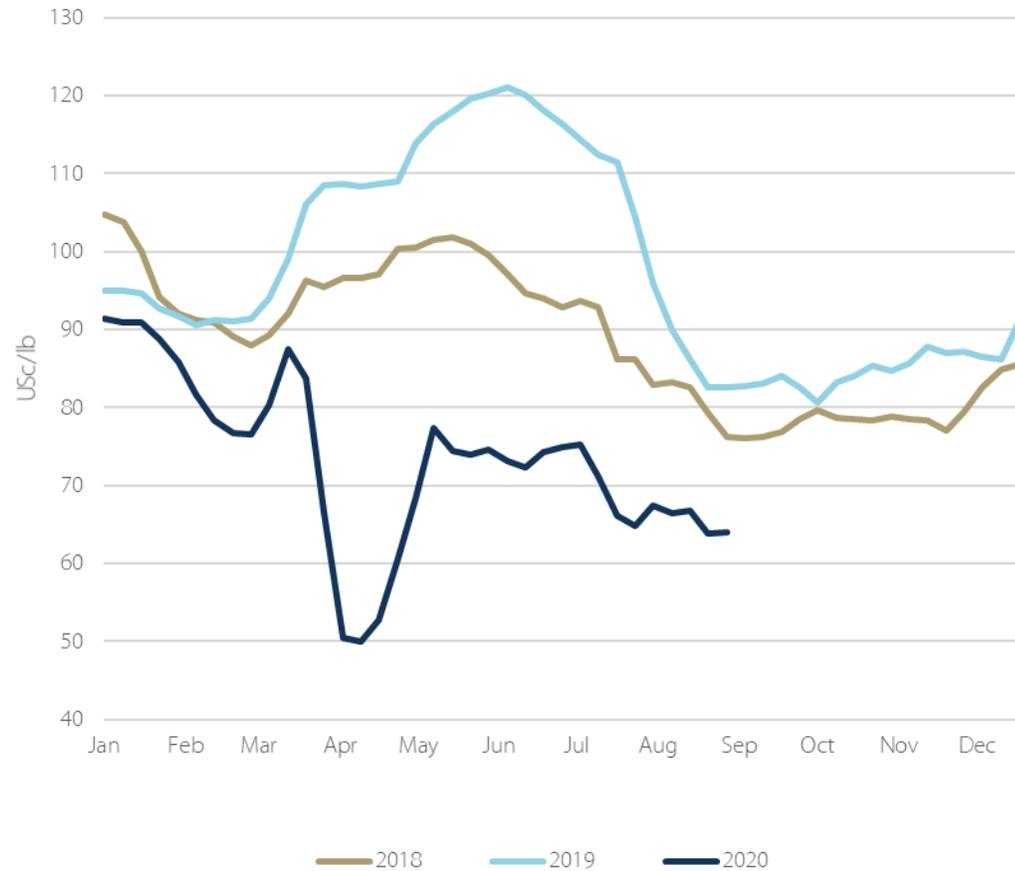
Ham and belly prices rebound on stronger export interest, holidays



Chicken markets struggle on loss of foodservice

Exports and boneless breast meat markets remain soft

Chicken composite lower on weakness in dark meat, soft breast meat values



Jumbo breast meat moves to historic lows on loss of foodservice



Wing prices soar to new highs on take-away business



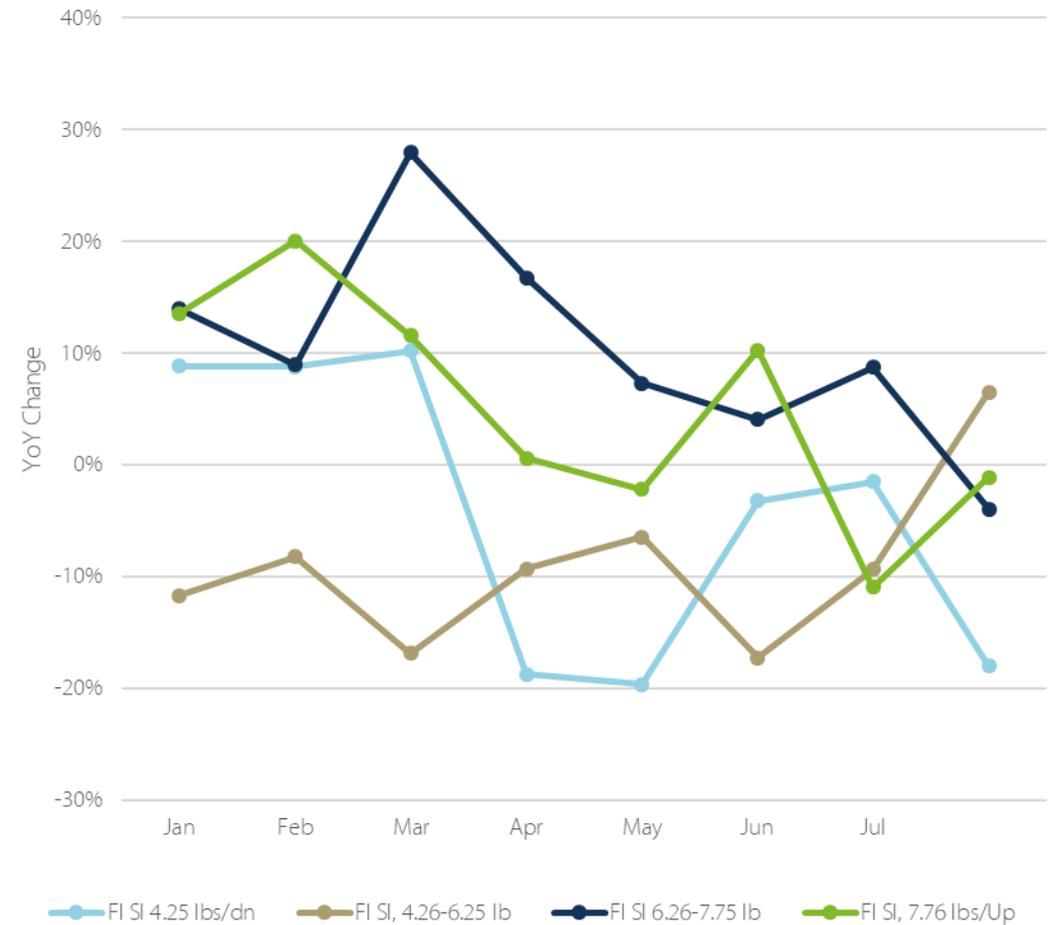
US broiler industry responds to weaker demand

Lower placements and shift to lower bird weights should help stabilize markets

US chick placements back to year-ago levels



Producers shift production to retail, lower weights



US broiler exports down on COVID-related demand weakness

China and Vietnam buck the trend given near-term protein deficit

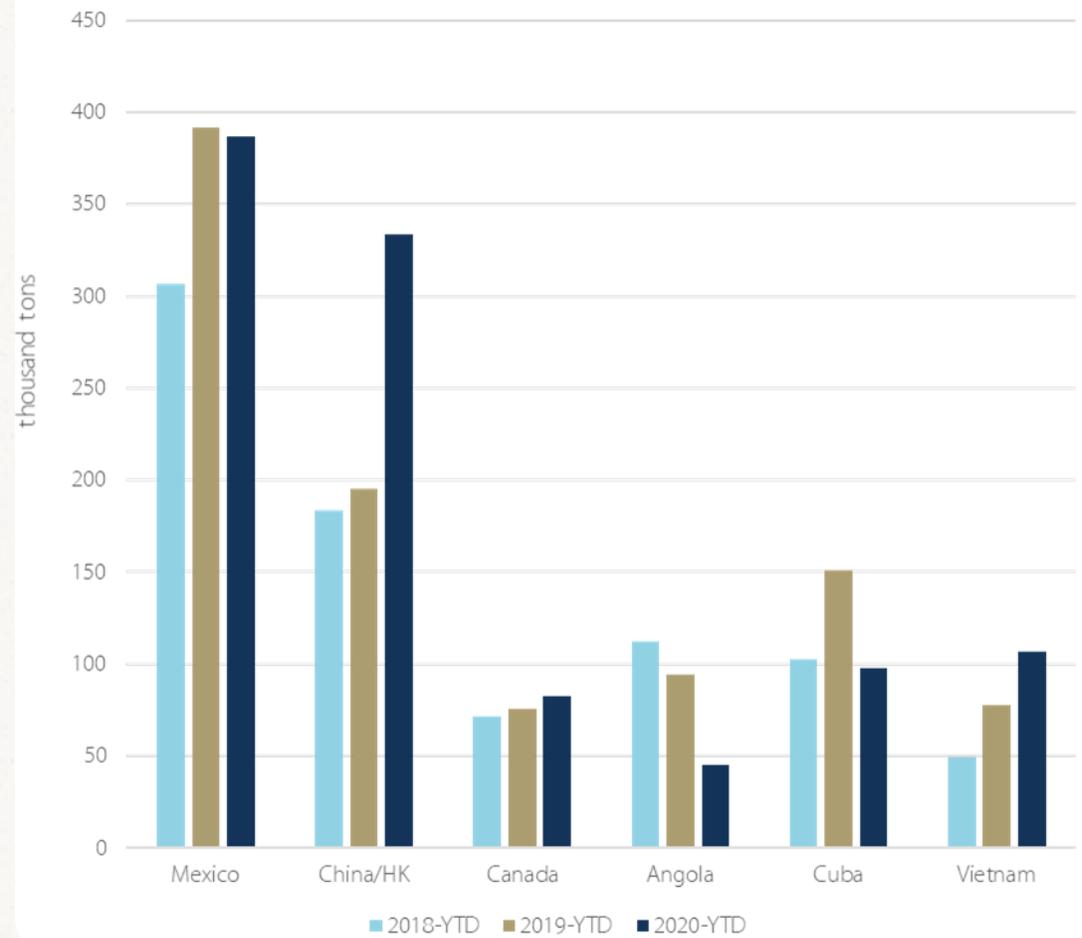
US Exports Trend Higher in July, Still Below Year-Ago



Bulk leg quarters hit bottom, turn higher on export optimism



Exports to China/HK and Vietnam higher on ASF-related shortfalls



Trends driving post-Covid19 markets

Four main areas of opportunity and risk along poultry supply chains

Rethink the Supply Chain

- Ongoing digitization offers opportunities
- Increase responsiveness to customers
- Remain low cost
- Market Niche

Consumer engagement

- Consumer preferences have just changed (again)
- Products and production should respond
- Social concerns

Global Trade Opportunities

- How will China use its market power?
- Partnerships needed to support trade
- Costs to rise, making competitiveness critical

Trust

We need to restore trust in the food system





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