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North American Hog and Pork Market Dynamics

Dr. Rob Murphy

A Number of Issues Are Currently Influencing North American Pork Markets

1. Insufficient Labor Supply in Processing Plants
2. Very Strong Domestic Demand
3. Proposition 12 in California
4. China's ASF Recovery
5. ASF Outbreak in the Dominican Republic
6. Food Price Inflation
7. Low Cold Storage Stocks

Labor Problems in Processing Plants

The Covid pandemic created a number of challenges for labor in processing plants:

1. Very tight distancing in plants promoted virus spread
2. School closures forced employees to stay home with children
3. Government pandemic relief measures encouraged workers to remain unemployed
4. The pandemic created job openings in other areas of the economy, drawing workers out of processing plants

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Labor Problems in Processing Plants

Another major problem that limited processing plant's ability to find workers was the hostile stance toward immigration in the four years of the Trump Administration

- Pork processing facilities have traditionally relied heavily on immigrant labor
- By the end of Trump's term, legal immigration was down 49% from pre-Trump levels
- When the pandemic began, almost all legal immigration was halted out of concerns about covid spread
- This left the immigrant labor pool woefully short when meat plants needed to re-staff

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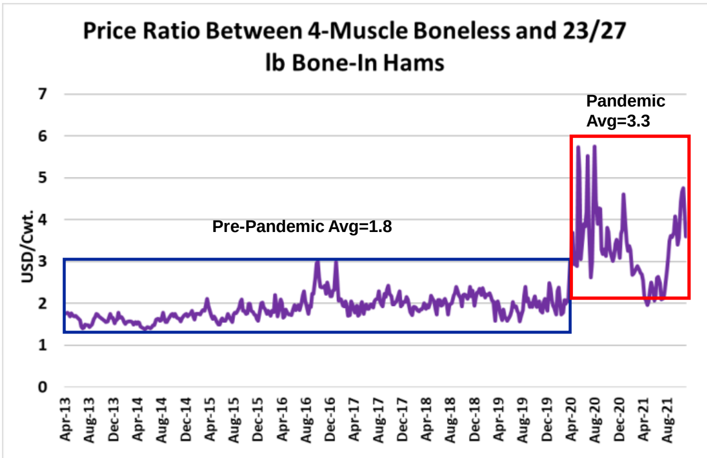
Labor Problems in Processing Plants



- The effect of packing-plant labor shortages caused by the pandemic can be most clearly seen in the ratio between bone-in and boneless ham prices
- Ham deboning is labor intensive
- With less labor, the supply of boneless declined and the price rose relative to bone-in product

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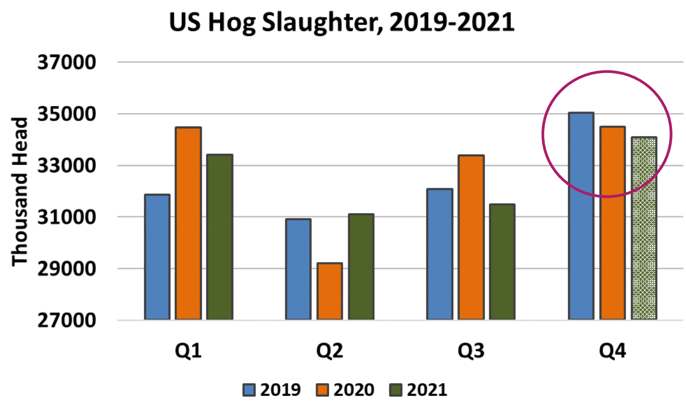
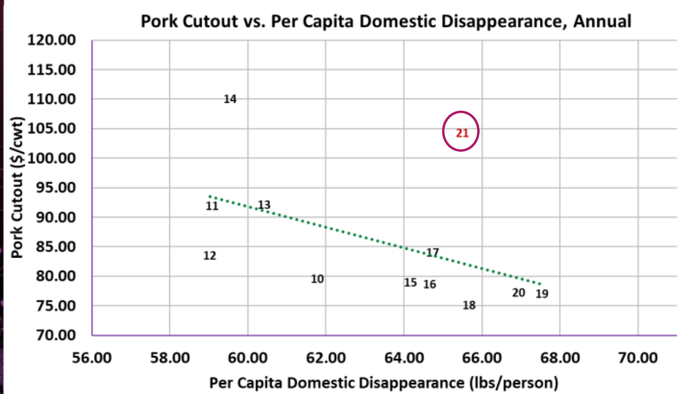
Labor Problems in Processing Plants

- Labor supply is most critical during the fourth quarter when pork production peaks
- This year, Q4 hog supplies are well below last year, however
- If labor reduces processing capacity, it will manifest very strong packer margins and excessive carcass weights



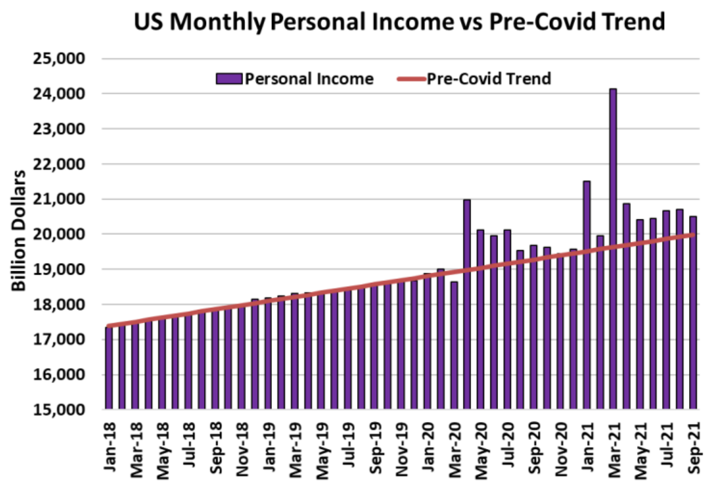
Domestic Demand Strength



- 2021 has seen the strongest domestic pork demand on record
- Only 2014 came close and that was the year that PEDv generated strong demand from panicked buyers
- This demand surge was worth about $23/cwt on the US pork cutout

Domestic Demand Strength

- The 2021 demand surge had a number of causes, but one of the largest was government transfers to consumers
- Personal income in the US has been well above trend in 2020-21 due to gov't programs
- Benefits to the US food stamp program were boosted 21% in October



Domestic Demand Strength

Some other factors that contributed to strong demand in late 2020 and 2021:

- The shift away from foodservice consumption toward more consumption through retail channels boosted demand because the cost per unit is far lower when pork is prepared and consumed at home.
- The inability to travel and attend events due to Covid-19 boosted interest in home cooking and that benefited pork demand
- Weight gain was common among consumers during the pandemic and by 2021 they were turning to high protein diets in and effort to shed that weight
- High prices for competing proteins boosted pork demand as well

California's Proposition 12

Proposition 12 was approved by California voters in 2018 and requires all "whole" pork sold in the state to have been produced in a system that allows at least 24 square feet per sow.

- California consumes between 14% and 17% of all pork consumed in the US, but it has minimal in-state hog production. Thus, nearly all of the pork sold in California is imported from other states
- It is estimated that only about 4% of US pork production currently complies with Prop 12 requirements
- University economists have estimated that compliance with Prop 12 would raise pork production costs by about 15%.
- The requirement takes effect on Jan 1, 2022, so it is an urgent issue for the North American pork industry

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California's Proposition 12

Some of the potential consequences of Prop 12 that industry participants need to anticipate:

- It affects whole muscle cuts sold through both retail and foodservice channels, but processed pork appears to be exempt (not bacon, however)
- It only applies to product sold on or after Jan 1, so there could be a lot of forward contracting of product into California in December. It could also boost product put into cold storage.
- Prop 12 compliant pork will likely sell for a much higher price than non-compliant pork. This could affect the pork cutout value if USDA allows Prop 12 pork into the calculation. It is unclear whether or not government reporters will treat Prop 12 pork the same as non-compliant pork.
- Pork consumption in California could go way down and the extra product that would normally have gone to California will need to be consumed in the other 49 states. That could depress prices.

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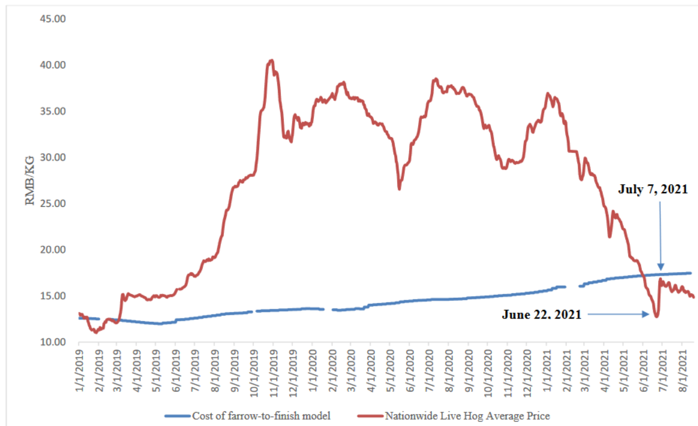
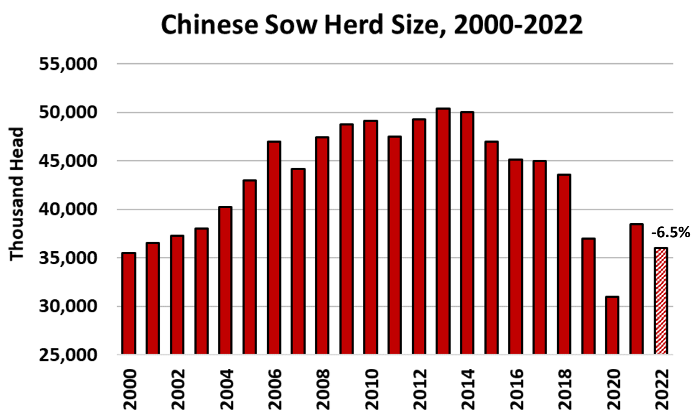
China's ASF Recovery

- After very strong profits in 2019 and 2020, Chinese hog margins went negative in the summer of 2021
- Rising corn and soymeal prices elevated the cost of production (blue line)
- As prices started to retreat, farmers pushed more hogs to market exacerbating the price decline
- Poor profitability in the second half of 2021 is expected to generate herd reduction in 2022



Source: USDA Foreign Ag Service, from industry source

China's ASF Recovery

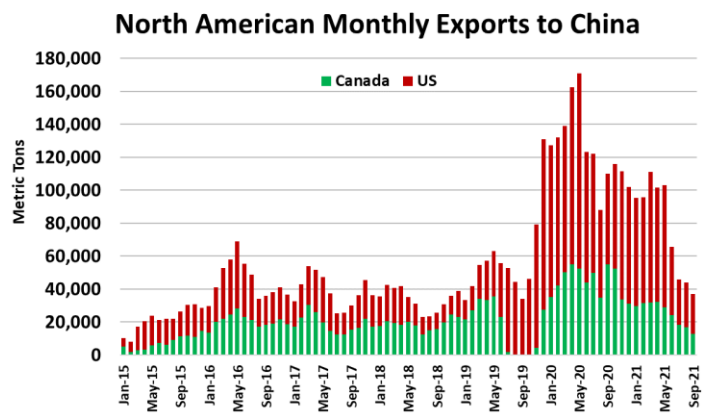


Source: USDA Foreign Ag Service

- The Chinese breeding herd rebounded strongly in 2021 following sharp declines in 2019-20 due to ASF
- Despite the rebuilding, the herd in 2021 was still down 15% from pre-ASF levels around 45 million sows
- For 2022, the Chinese herd will be down 20% from the pre-ASF level and down 6.5% YOY
- This still leaves China with a strong need to import pork

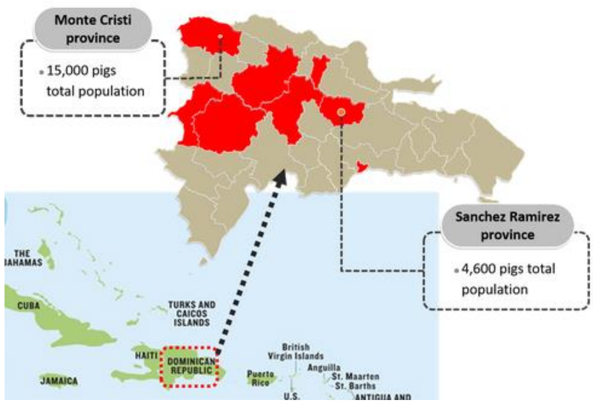
China's ASF Recovery

- Exports to China are very important for both the US and Canada.
- ASF was first detected in China in the fall of 2018
- China began buying much more product from North America in early 2020.
- At its peak, China was taking 15% of the combined US & Canadian production
- Now, that has fallen to only 3% of production in September, 2021



Source: USDA, CanStats

ASF in the Dominican Republic & Haiti



Source: Swine Health Information Center, Univ of Minnesota

- ASF was first reported on July 28 in the Dominican Republic
- Initially 11 provinces had positive test results
- On September 20, Haiti reported ASF to the OIE
- There are around 3 million pigs in both countries combined.

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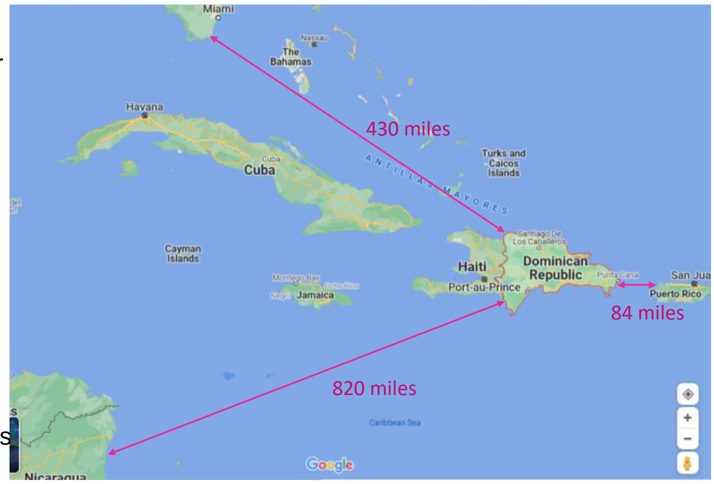
ASF in the Dominican Republic & Haiti

- Producers are very concerned about the potential for ASF to enter the US
- Such an event would result all trade partners banning US pork and drive US hog and pork prices sharply lower
- Recently, large numbers Haitian refugees have gathered on the US Southern border
- Pork products infected with ASF potentially in the waste left by refugees



ASF in the Dominican Republic & Haiti

- If ASF were to be confirmed in the United States, all trading partners would likely cease trade immediately
- Since the US is currently exporting about 23% of its pork production, that would instantaneously increase the amount of pork that would need to clear in the domestic market
- Hog and pork prices in the US would decline rapidly. US hog futures would likely lock limit down for several days in a row
- Demand for Canadian pork would surge as importing countries would look to substitute it in place of US pork. Canadian pork prices would soar
- However, USDA has extensive plans not only to keep ASF out of the US, but for what to do should a case be confirmed here. Hopefully, it could be quickly contained and eradicated
- Even so, in a best-case scenario it would probably take several months for the US to regain access to its traditional export markets

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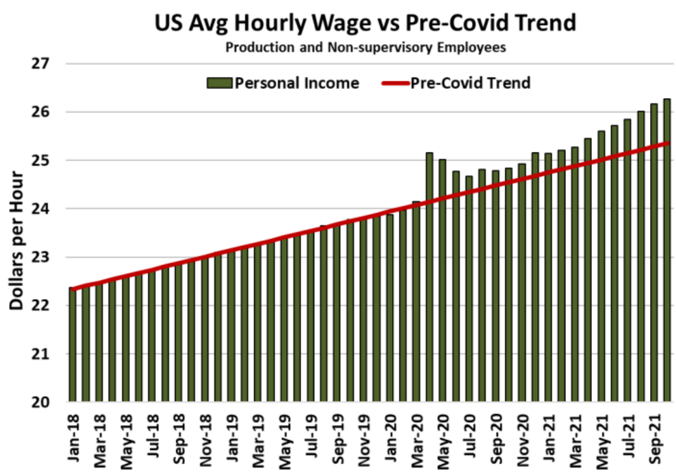
Food Price Inflation

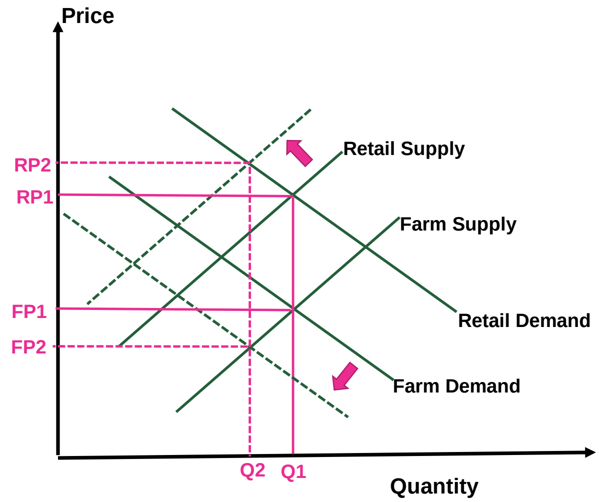


Source: US Bureau of Labor Statistics

- Wages for rank and file workers in the US have increased well above trend since the pandemic began
- Packers and pork processors will need to raise wages further to attract the necessary labor into plants
- Since packers and processors are pure margin players, these costs will be passed on to consumers and hog producers

Food Price Inflation

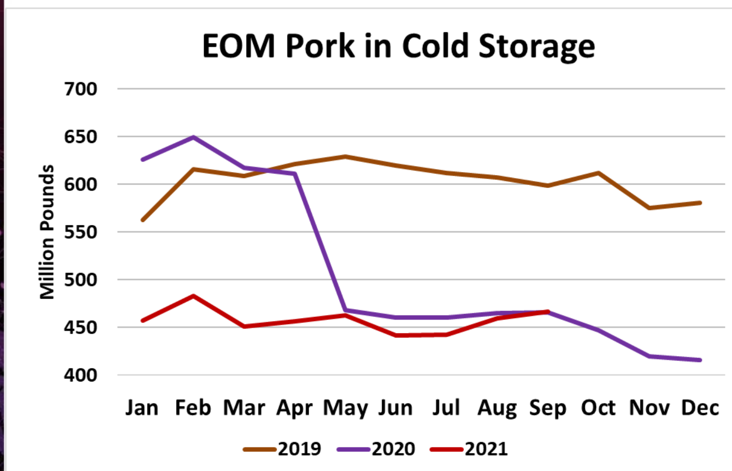
- When labor costs rise, it will cause processors to restrict output, shifting the retail supply curve backward
- Since there is less production, demand at the farm level declines
- Retail prices move higher (RP2>RP1) and farm prices move lower (FP2<FP1)
- This expands the processing margin (RP2-FP2) to account for the increased labor cost



Food Price Inflation

- Of course, labor is not the only cost increase that processors are facing, but anything that increases costs substantially for processors will eventually get passed on
- Note that this usually only happens with costs that processors feel are not transitory. Labor is one such cost. Wages generally only move up, not down.
- Global logistics are tangled currently and that is also raising costs for processors
- Energy costs are on the rise also
- Covid-19 protocols have also raised costs in plants. Health checks, greater distancing and installing barriers have all increased costs for processors
- So, there is reason to expect food prices to rise faster than normal in coming months and years. Buyers need to get used to the idea of pork prices being well above historical norms
- In addition to processing costs pushing retail prices higher, there is also improved demand brought about by stronger incomes that will push the retail demand curve outward and also contribute to rising pork prices

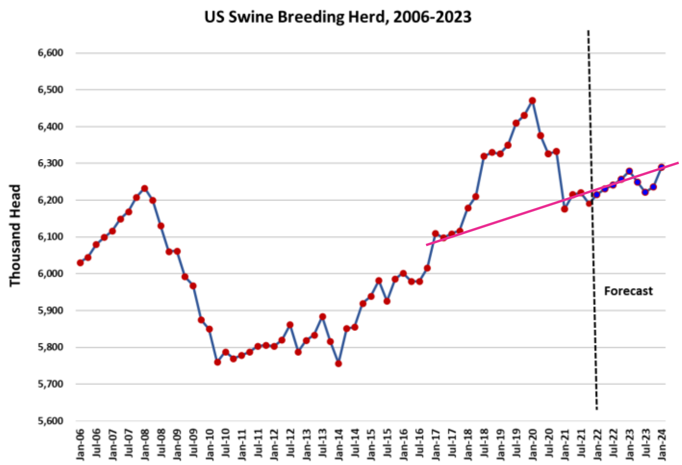
Low Cold Storage Stocks



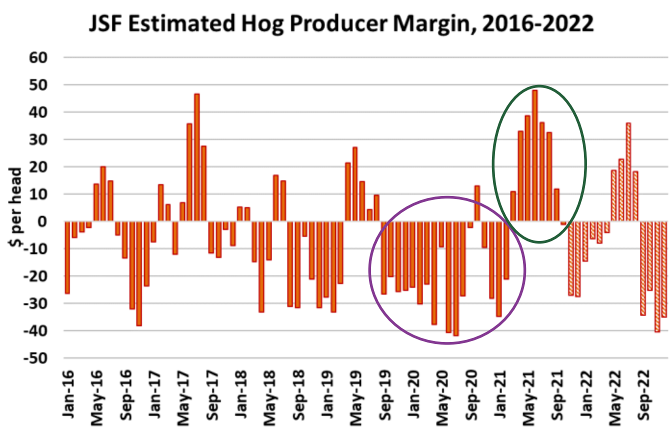
- When the pandemic hit, cold storage stocks were drawn down dramatically and have not recovered
- These stocks act like a buffer, keeping spot prices from getting too high or too low
- With smaller stocks, more users will be forced into the spot market
- Prices likely to be more volatile as long as stocks remain low

US Breeding Herd Expected to Expand Modestly

- The US breeding herd expanded in 2019 as exports to China were swelling.
- However, the pandemic in 2020 led to contraction in the breeding herd
- Strong profitability in 2021 has not yet led to significant expansion
- High corn prices, lower export prospects and labor challenges are all working against expansion

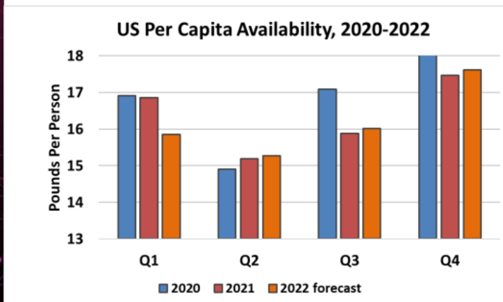


Very Strong 2021 Profits Beginning to Fade



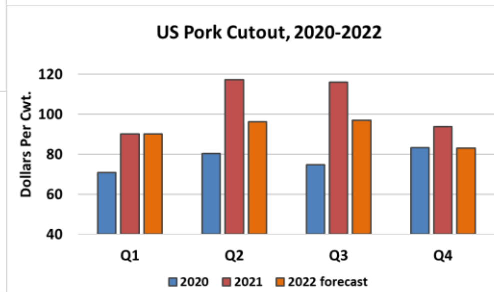
- US hog producers went through a prolonged period of negative margins in 2020 when the pandemic depressed hog and pork prices
- Strong demand in 2021 has led to a period of high prices and positive margins that is just now going negative
- 2022 should show a more typical profit pattern with gains in the spring/summer and losses in the fall/winter

JSF Price Outlook for 2022



- Smaller pig crops will result in sharp reduction in 2022 Q1 availability
- Beyond Q1, availability should run very close to 2021, with some risk that Q3 and Q4 see slightly better availability

- Somewhat weaker demand should keep 2022 pricing below 2021, except for Q1
- Expect the average cutout value to remain well above $80 in 2022



Summary

- There are a number of unique situations in the North American market that will impact pork production and pricing in 2022
- Labor shortages in processing plants are a big concern, but that problem should slowly resolve as the pandemic subsides and packers raise wages
- Domestic demand has been extremely strong in 2021, but it should fade some in 2022 as income growth cools from red-hot levels this year
- China has made great strides in re-building its hog herd following the ASF outbreak. Look for lower pork exports into China out of North America in 2022
- ASF in the Dominican Republic is a black swan waiting to happen for North American pork
- Processors will need to raise wages in order to attract sufficient labor. That, along with other cost increases (e.g., logistics), will end up being passed on to consumers in the form of higher pork prices in 2022
- Expect tighter than normal pork availability in 2022Q1. Price levels for much of 2022 should be below this year's super-strong pricing, but still pretty stout from a historical perspective

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