

AgReview

November 2019

Volume 31, No.9

World Perspectives, Inc.

Sorghum's Row

China Opens to Chicken

Oilseed Highlights

China Market Update

A Faint Light from Golden Rice



WORLD PERSPECTIVES: AG REVIEW

If you would like to receive *World Perspectives: Ag Review* in PDF format via email, please send your name, organization name and e-mail address to: wpi@agrilink.com.

Cover Design: Renee Boudreau, Studio Del Ray
Cover Photo: www.canstockphoto.com

For more information about WPI and its information services, including subscriptions for *World Perspectives: Ag Review*, please contact us via email at [**wpi@agrilink.com**](mailto:wpi@agrilink.com) or mail your request to:

World Perspectives, Inc.
1621 North Kent Street
Suite 606
Arlington, VA 22209 USA

Copyright ©2019 World Perspectives, Inc. World Perspectives, Inc., 1621 North Kent Street, Suite 606, Arlington, VA 22209. Telephone: 202-785-3345. Email: wpi@agrilink.com. Web: www.worldperspectives.com. The information contained herein has been obtained from sources believed reliable but is not necessarily complete and cannot be guaranteed. Any opinions expressed are subject to change without notice. Reproduction of any portion of this report is strictly prohibited without permission of World Perspectives, Inc.

How can WPI's consulting services help your business succeed?

Consumer Research: WPI produces low-cost, non-probability consumer surveys around the world. When overlaid with conventional market research data, the result is insights into where and how markets for agrifood products can be expanded – and we have the results to prove it.

Market Identification: Conventional use of macroeconomic and demographic data has correlative value in identifying new markets, but WPI digs deeper. The result has been unique recommendations with some netting a return ratio of 6:1 for increased exports and promotional investment.

Investment Analysis: WPI has provided due diligence on agrifood investments in disparate parts of the world from dairy and juice packaging in Cameroon to soybean crushing in Ukraine and biotech corn planting in Canada. In other instances, the company has used its decades of risk management experience to caution enthusiastic but new-to-agriculture investors to be prudent.

What do our clients say about our services?

- *Any company that follows up like WPI deserves our business.*
- *WPI does an excellent job of working to assess the client's needs and tailoring their methodologies accordingly.*
- *WPI is very responsive in addressing any questions we have; they are helping the association gauge how to move forward with effective strategies in international markets. This year they have increased the level of their services and continue to help us find ways to be effective with our strategies.*
- *WPI has been responsive and cooperative under every challenge and circumstance presented in their work for us.*
 - *WPI really provides us with a life-blood service.*

Please contact Gary Blumenthal, CEO and President, at 202-785-3345 or gblumenthal@agrilink.com for more information about how WPI's consulting services can work for you.

CONTENTS

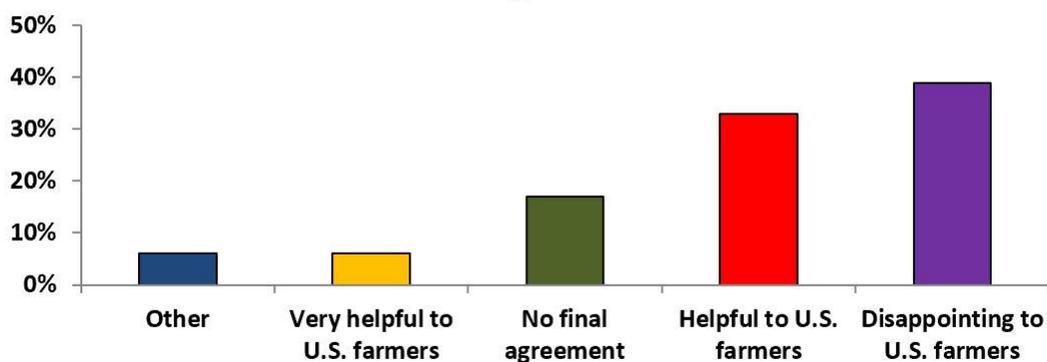
WPI POLLING.....	vi
FROM THE WPI TEAM.....	1
WPI MARKET ANALYSIS	2
Alternative Crop	2
China Opens to Chicken	2
Sorghum's Row.....	3
WPI INTERNATIONAL ANALYSIS.....	4
Oilseed Highlights: U.S. Soymeal Exports to Face More Competition from Brazil.....	4
China In-Country Analysis - 20 November 2019.....	6
WPI POLICY ANALYSIS.....	14
Will Technology Complicate Next Farm Bill?	14
A Faint Light from Golden Light	15
U.S-China Chasm	17

WPI POLLING

Below are the results of two recent WPI polls. Visit www.worldperspectives.com to cast your vote in our current survey.



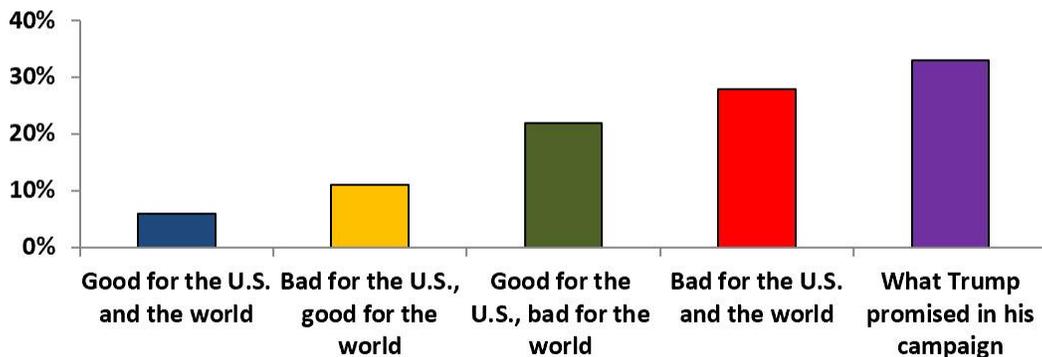
Results: The outcome of the U.S.-China trade negotiations will be?



Source: WPI online poll LH October 2019



Results: Reducing U.S. intervention in other countries is best described as?



Source: WPI online poll FH November 2019

FROM THE WPI TEAM

By Gary Blumenthal

The machinations of the market are complex and uncertain; yet we use ever changing probabilities to chart them for their likeliest direction every day. When there is actual skin in the game, the market's direction can provoke intrigue, frustration, exhilaration, joy or defeat. Throw in policy variables and we have a lot of stuff with which to work. Living in interesting times is supposedly a Chinese curse but dull times fail to provoke the body's chemical signals (dopamine, serotonin, epinephrine) that accentuate being alive.

And if you think you are working harder, it is because you are laboring more hours. Some politicians categorize success as undue privilege, but this ignores the role of hard work and merit. A recent study by UCLA's Edward Leamer and Pontificia Universidad Católica de Chile's Rodrigo Fuentes quantifies the role of worker effort in increased income inequality. Essentially, skilled workers have been unilaterally increasing the number of hours they work, and thus income earned, while unskilled workers lack this flexibility and run into its physical limits.

But the agriculture sector literally caters to everyone. As the *Wall Street Journal's* Andy Kessler notes, you can buy a hot dog for 25 cents or spend a dollar, depending on the ratio of muscle tissue or meat byproducts you want to consume. Delivering all of this diversity in nutritional content and varying price points requires people with specialized skill sets, hard work and vision.

This publication is called *Ag Review*, but this month's edition reflects in some respects the *Ag Future*. It is chalk full of articles covering the next farm bill, the future of ag technology from artificial meat to drones, potential shifts in production to different crops, and of course the

outlook for U.S. – Chinese relations. Times of low-price volatility are only dull when we fail to look for, and work toward what will become our dynamic future.

We hope you enjoy this monthly report and profit from the perspectives provided by WPI's analysts. If you have any feedback or further suggestions for this (or other) publications, we always appreciate hearing readers' thoughts!

WPI MARKET ANALYSIS

Alternative Crop

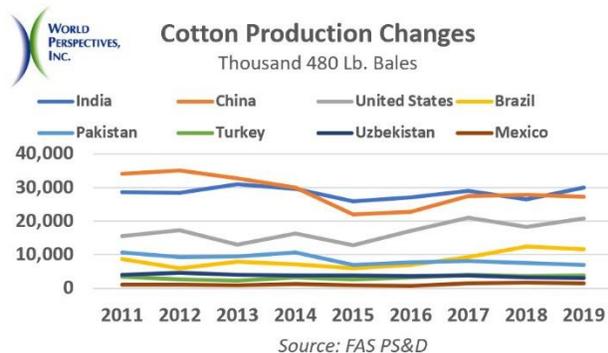
By Gary Blumenthal

Natural fibers remain a buoyant market and cotton has always been a fallback crop for production when prices of other commodities soured. With global demand for cotton growing at a 1.59 percent annual rate, it isn't a market on fire, but neither is it one to ignore.

What is notable are the markets where it is expanding in production, and where it has slacked off. Brazil and the U.S. have increased cotton production in recent years, while India has expanded production, but it is still below the level in 2013.

China, the largest market for cotton consumption, made a strategic decision to favor food production and has seen cotton output slide and imports increase. Pakistan is another larger producer that has seen stagnant to declining output. By contrast, demand is growing in Vietnam, Bangladesh and Pakistan, creating opportunities for those that are tired of the corn and soybean doldrums.

But then again, one reason cotton gets abandoned relative to other major row crops is because it is so input intensive to produce. Moreover, some of the upcoming demands for sustainable agriculture production are likely to be hardest for cotton to meet.



China Opens to Chicken

By Dave Juday

On 31 October, we reported that it was expected that broilers would be included in any U.S. China trade deal, and although that deal remains elusive, China announced this month that it would open its market up to U.S. poultry. The access is effective immediately.

As we reported previously, U.S. poultry had been banned from the market since 2015 in response to the avian influenza (AI) outbreak in the U.S. This included broilers, even though AI only hit turkeys and layers. Prior to that, antidumping duties were applied in 2010 (which were successfully challenged in the WTO, but that case was not ruled on until 2018).

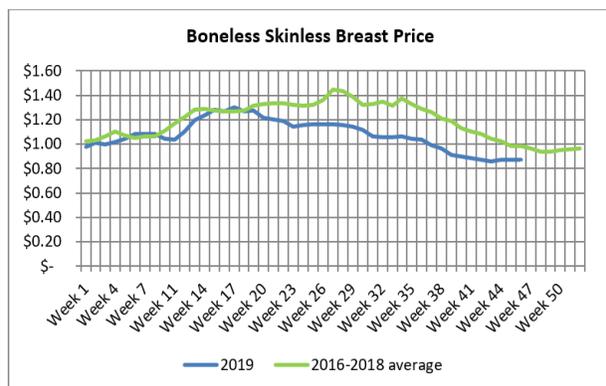
In 2008 and 2009, broiler exports were at more than \$700 million (and about \$71 million for turkey). As we detailed in our earlier report, in 2014, China accounted for about 7 percent of U.S. broiler exports (at 260.1 million pounds). USDA is forecasting total imports of chicken meat into China in 2020 at 1.65 billion pounds. If the U.S. gets about 15 percent of that market share, shipments would be similar to the 2014 volumes and would represent about 4 percent of total export volume from the U.S.

We also noted that paws represented 50 percent or more of the total import volume of chicken into China from 2006 to 2008. The U.S.A. Poultry and Egg Export Council (USAPEEC) is forecasting that given the shortage for protein in the Chinese market Paws alone could be up to \$1 billion in addition to a \$1 billion demand for muscle cuts. Turkey could be another \$100 million, and poultry breeding stock could be an additional \$60 million.

Breast meat should be in the mix for China, which would take a lot of pressure off producers. Breast meat has been in the dumpster for a long time as there is a large supply of protein on the market,

and consumers are increasing demand for other cuts.

The industry is geared up to processing larger birds for de-boning breast meat. Last week, slaughter was up 5.2 percent over a year prior, but meat production was up 6.5 percent.



Source: USDA, WPI

Sorghum's Row

By Gary Blumenthal

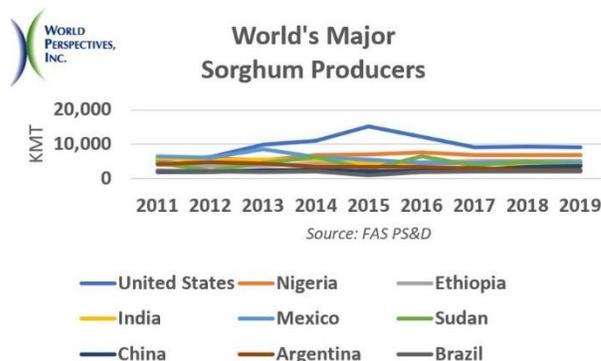
Sorghum was once the darling crop to grow because it was cheaper to produce than corn and environmentally friendly since it required less water. U.S. farmers nearly tripled the amount of sorghum they grew between 2011 and 2015, but since then production of the crop has fallen by 40 percent.

Likewise, production in Nigeria, the world's second largest sorghum producing nation, has fallen from its peak of 7.55 MMT in 2016 to 6.9 MMT this year. Only in Ethiopia and China is the production up, and then not by much.

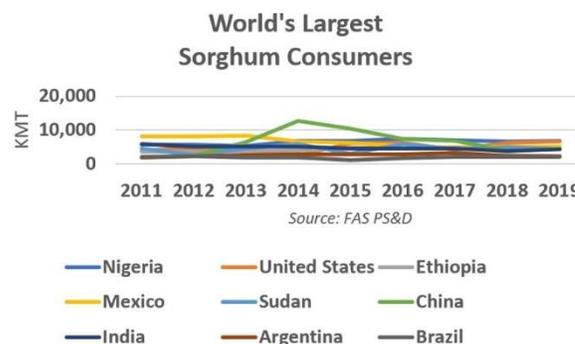
Notably, while global production of sorghum over the past decade has increased by an average 0.47 percent per annum, consumption has been advancing 30 percent faster than that.

Global ending stocks will nonetheless rise slightly this year even as they are nearly 20 percent down from their peak in 2014. The corn/soybean rotation for net profitability has been difficult competition for lower yielding sorghum.

Climate change and sustainability certification schemes could change this dynamic in the future.



Source: FAS PS&D



Source: FAS PS&D

WPI INTERNATIONAL ANALYSIS

Oilseed Highlights: Increased Brazilian Soymeal Exports, U.S. Domestic Soymeal Demand - 14 November 2019

By John Baize

U.S. Soymeal Exports to Face More Competition from Brazil

The U.S. has faced aggressive competition in exporting soymeal from Brazil and Argentina for at least two decades. However, it appears the competition will intensify if the government of Brazil moves ahead with its plan to boost biodiesel consumption.

The government of Brazil has indicated it wants to raise the mandatory blending of biodiesel with petrodiesel from the current level of 11 percent by 1 percentage point per year through 2023. That would result in the blending rate rising to 15 percent in 2023. This year, Brazil is expected to produce 6.69 billion liters (1.767 billion gallons) of biodiesel. That is expected to rise to 9.7 billion liters (2.562 billion gallons) in 2023.

About 80 percent of Brazil's biodiesel output currently is made from soyoil. That percentage will likely rise as production expands because of limited alternate feedstocks. The head of Brazil's soybean processing group (ABIOVE) says Brazil's soybean processors will need to crush 8 MMT more soybeans by 2023 to supply the soyoil that will be required. That means the annual crush volume will expand from about 44 MMT to approximately 54 MMT in 2023. That assumes the biodiesel industry does not turn to importing substantial amounts of palm oil or other feedstocks.

If Brazil does increase its processing of biodiesel by 8 MMT by 2023, it will mean about 6.3 MMT of soymeal will be produced. Brazil's annual growth in domestic soymeal consumption is

around 600,000 MT. That means by 2023 Brazil's soymeal consumption will have increased by only about 2.4 MMT. Thus, the remaining 3.9 MMT of soymeal will need to be exported to maintain a balanced supply and demand.

Because Brazil's soybean processors are likely to receive a premium price for soyoil to supply the biodiesel industry's demand they will likely be able to sell their soymeal into the export market at very competitive price and still make good margins. It will be hard for soybean processors in the U.S., Argentina and elsewhere to compete with the increased Brazilian soymeal that will be moving to the export market. Most likely global imports of soymeal will increase between now and 2023, but it is far from clear that it will increase by an amount equal to the increased amount Brazil will need to export.

As noted above, Brazil's biodiesel industry may decide to import more palm oil to produce biodiesel. Brazil is forecasted to use about 520,000 MT of palm oil for industrial products, including biodiesel, in 2019/20. Of that amount, 310,000 MT is forecasted to be produced domestically and 210,000 MT imported. It may be that the strong demand for biodiesel feedstocks will cause large investments to expand Brazil's domestic oil palm industry.

Considering much of the Amazon Basin is an ideal place to grow oil palms it is somewhat of a mystery why that industry has not expanded faster than it has up to now. Since 2014/15

Brazil's palm oil production has increased only from 400,000 MT to 525,000 MT in 2018/19.

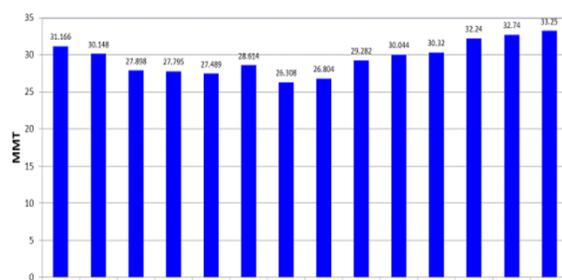
U.S. Domestic Soymeal Demand Likely to Increase Faster in 2019

U.S. soymeal consumption has been strong in the last six years as a result of solid growth in pork and poultry meat production, consumption and exports. However, there is evidence to suggest demand may grow even faster in the new years because of faster growth in pork and chicken meat exports.

USDA estimates the U.S. consumed 32.74 MMT of soymeal in 2018/19. That was an increase of 500,000 MT over consumption in 2017/18 and 5.94 MMT greater than in 2013/14. The increase came about because of increased domestic chicken and pork production, but also because there was little growth in U.S. production of DDGs from the ethanol sector that displaced soymeal demand.

U.S. soymeal demand fell from 31.116 MMT in 2006/07 to only 26.308 MMT in 2012/13 because of the huge expansion in ethanol production from corn that flooded the market with inexpensive DDGs that reduced demand for soymeal. Because of the current stagnation of the corn ethanol industry increased feed protein demand mostly is being supplied from soymeal.

U.S. Soymeal Consumption
2006/07 – 2018/19 and USDA Forecast for 2019/20



Source: USDA

China's outbreak of African Swine Fever (ASF) and the loss of as much as half of its swine population has forced China to greatly expand its

imports of pork and alternate animal protein products. As of 31 October 2019, the U.S. had exported 251,900 MT of pork to China versus only 21,800 MT at the same point in 2018. In addition, unshipped sales of pork to China on that date totaled 151,600 MT versus none a year ago.

U.S. pork exports to all destinations as of October 31 totaled 1,278,800 MT this year. In the same period in 2018 exports totaled only 943,400 MT. Outstanding unshipped pork sales to all destinations this year totaled 295,700 MT, up from 165,500 MT a year earlier. USDA is forecasting total U.S. pork exports in CY 2019 at 2.947 MMT versus 2.665 MMT in CY 2018.

China also announced today that it has opened its market effective today for import of U.S. chicken meat. China banned imports of U.S. chicken meat in 2015 because of a short-lived outbreak of avian influenza and has refused to lift the ban up to now. However, its great need now for animal protein caused it to remove than ban. The U.S. exported 333,736 MT of poultry meat to China in CY 2013 and 237,300 MT in CY 2014. As it stands now USDA is forecasting U.S. exports of chicken meat will reach 3.193 MMT in CY 2019 and 3.289 MMT in CY 2020. Now that the Chinese ban has been lifted it is likely next year exports will be well above exports in 2019. Domestic demand for broiler meat also is expected to increase by 297,106 MT in CY 2019.

India's Soymeal Exports Likely to Decline by 1 MMT

The Soybean Processors Association of India has told the *Times of India* that India's exports of soymeal in 2019/20 will likely decline by 1 MMT because of a smaller crop and very high prices. Mr. DN Pathak said India's soybean crop this year is only about 8.984 MMT because of excess rainfall late in the growing season. Last year India produced about 10.9 MMT. Production in the top soybean producing state of Madhya Pradesh decline by 31 percent to only 4.02 MMT.

Mr. Pathak said India exported about 2.22 MMT of soymeal in 2018/19. If he is correct about exports declining this year then exports in 2019/20 will reach only about 1.2 MMT.

Indian soymeal currently is available for export at the port of Kandla for about \$450/MT. In contrast, Argentine soymeal is available now for export at about \$320/MT FOB ports near Rosario.

China In-Country Analysis

20 November 2019

By Yangjun Lu

Trump Administration Again Threatens Tariffs, Phase One Deal Stalls

The optimistic prospects for an end to the tit-for-tat trade war that commenced in the summer of 2018 have yet again been dealt a setback. Although trade negotiators from China and the U.S. appeared to have agreed on the framework for a phased-in set of agreements, which were to commence with a signing at the Asian-Pacific Economic Cooperation (APEC) summit in Chile, that prospect disappeared as the host country become embroiled in internal economic strife. If and when the signing of a phase one accord will take place remains to be seen.

The sticking point at least as reported in various press outlets has been China's unwillingness to commit to buying a specific amount of U.S. agricultural products. The Trump Administration sees this as a pretext for future backsliding on other phases of a long-term trade deal. Moreover, U.S. trade negotiators have insisted that their Chinese counterparts made a commitment to purchase at least \$50 billion worth of agricultural products. Now, with talks stalled and disagreements mounting over who committed to what and when, President Trump has threatened once again to raise tariffs on imports from China.

How Did We Get to the \$50 Billion Figure?

Taking a step back from the hot rhetoric and looking at the realities confronting China's domestic food and agricultural situation at present reveals another perspective. In 2018, China imported a total of \$145.19 billion worth

of agriculture, food, and feed related products, according to the country's customs bureau. This included cotton, hides, beer, wine, and spirits. Of that total, oilseeds, hay, and planting seeds amounted to \$53.35 billion or 37 percent followed by seafood with \$11.60 billion or 8 percent and meat and offal at \$11.02 billion or 7.6 percent.

The U.S. for its part saw its agricultural exports to China, in value terms, peak at just under \$25.86 billion back in 2012. In 2013, they reached nearly \$25.5 billion. Volumes of U.S. agricultural exports to China actually continued to rise through 2016, reaching an all-time annual record of 49.22 MMT, and then retreated to 47.84 MMT in 2017. The key difference between 2012 and 2016 was the share of soybeans, as well as the decline in higher value items like poultry, which was banned in 2015 as a result of avian influenza outbreaks in turkeys and laying hens.

Soybeans in 2012 represented just under 70 percent of the total volume of U.S. ag exports to China but only 57.5 percent of the total value. In 2016, soybeans share of the total volume of U.S. ag export to China rose to 73 percent, but as a share of value, they surged to 66.3 percent of the total. For all of 2018, China imported a total of 88.03 MMT of soybeans, which was down nearly 8 percent from 2017, as African Swine Fever (ASF) began wreaking havoc during the third and fourth quarter of last year.

The ASF outbreak, which has been chronicled in this column for the past 15 months, really did not take hold until this year. In fact, China is far from out of the woods. Another outbreak was reported last week in the western province of Yunnan, which has become a key producing region, as hog production began shifting west to meet new environmental regulations well before ASF arrived. While estimates of how much the country's hog population has been impacted continue to be far from accurate, the sheer drop in

soybean meal inventories in the north and northeast regions are a good proxy for the damage done.

Soybean meal stocks in major feed producing provinces like Shandong have fallen to historic lows. The lack of pipeline for producing new sows and piglets remains problematic. More importantly, China's central government and its key producing provinces have opted to focus on production subsidies and insurance rather than address fundamental issues regarding the lack of qualified veterinarians, poor quarantine measures, rampant peddling of fraudulent vaccines for other porcine illnesses, inadequate technical assistance to small and mid-sized farmers, and neutralizing a shadow slaughtering industry controlled by criminal enterprises.

While Beijing is perhaps reluctant to tell its U.S. counterparts that it does not have the fire in its backyard under control when it comes to animal disease management and food safety, the reality is that China's demand for feedstuffs has been decimated and won't return for quite a while. Thus, it remains to be seen how exactly China will get to this \$50 billion figure in one to three years' time, which would amount to a near doubling of the 2012 historical record.

Even if China were to try to close its projected meat shortfall of 10 MMT by buying it all in the form of U.S. beef, which would translate into \$80 billion worth of sales given the current average FOB price to China, U.S. meat exporters sent out just 1.35 MMT beef worldwide in 2018, an all-time record.

Remembering Who the Customer Is

While all of this is happening, China's economy and the wallets of its lower and middle classes are hurting. It was the growth of the middle class and the migration of poor rural residents taking up factory jobs that helped underwrite the protein

thesis for both poultry and pork during the past fifteen years. Chronic avian influenza, which spread to humans and resulted in deaths caused animal protein demand to fall in 2016 and created a major recession among China's domestic poultry producers. And, while ASF cannot cause harm to human health, the massive runup in food costs that have confronted average Chinese consumers here in 2019 has perhaps created indirect impacts on stress and overall well-being.

It is this point that is seemingly lost on the Trump Administration and its trade negotiating team. China's massive consuming middle class wants first and foremost safe, high quality food. Secondly, with the cost of real estate and the burdens of caring for elderly parents and grandparents who have long since retired, being what they are, double-digit food inflation rates take away needed funds for housing and healthcare. Forgetting the importance of these customers, or rather putting them in the role of collateral damage, runs the risk of seriously harming long-term relationships, particularly when the bulk of China's population is in the prime of its workforce years.

In this vein, it is important to dispel a common myth held about China. There exists this notion that Beijing with its seemingly endless supply of foreign exchange reserves can simply write-off any bad investment or shadow banking problem with no real repercussions. The reality, however, is that no mountain of money lasts forever. The infamous derivatives trader, Nick Leeson, proved that when he took down Barings Bank in 1995. Observant financial historians note that Leeson's activities and Barings related collapse did not transpire overnight. Rather, they were the result of poor checks and balances that eventually reached catastrophic levels.

A similar parallel can be drawn here with China. Household debt to GDP hit an all-time high at 53.6 percent in the first quarter of this year. By

the end of 2019, with all the trade war's added costs and the central government's stimulus packages, that figure will likely have risen. Meanwhile, provincial governments have struggled to address the impact and causes of ASF due to a lack of funds. Without a resolution to the trade war, Morgan Stanley estimates the GDP growth could fall to as low as 5.3 percent in the fourth.

Internationally, China's Belt and Road Initiative (BRI) appears to be leaving a lot of unfinished promises. The *South China Morning Post* reports that the Philippines President Duterte, who famously gave the Obama Administration the old number one sign and pivoted toward the direction of President Xi, has received just \$1 billion out of promised \$9 billion in funds for assorted infrastructure projects. Countries in Africa remain unconvinced by Beijing's overtures. Overall, BRI seems to have lots of bells, but one can fairly question whether the whistles will ever work.

So, does that mean that making China cry uncle in an attempt to extract every last trade concession will work? Will that help U.S. farmers facing a tide of rising bankruptcies in the short run or even the medium term?

Incrementalism Leads to Sustainability

Most serious observers of China's policy toward U.S. agriculture rightly argue that having a fairer set of rules would offer more to U.S. producers now and in the long run. These include consistent fair market access rules, the use of accepted scientific standards and practices, such as compartmentalization and regionalization for animal disease outbreaks, and real protection of intellectual property. Even if China just met its basic obligations to fulfill its WTO TRQs for coarse grains, U.S. farmers would see a substantial benefit. The reopening of China to U.S. poultry is certainly a step in the right

direction. Refocusing a phase one trade agreement to address the quality of the trade problems rather than this headline making quantity figure is what's needed next.

Livestock

U.S. Beef Exports Jump as China Looks to Fill Domestic Shortfall

As with pork exports, U.S. beef shipments to China really began to take off during the summer. In September, beef and beef product exports to the Middle Kingdom had their best month since their reintroduction back in the summer of 2017. With a total volume of 1,261.1 MT valued at \$10.3 million, September shipments had an average FOB price of \$8.18/Kg or \$3.71/lb. That compares to September 2018 totals of 534.2 MT worth \$4.4 million for an average export value of \$8.30/kg or \$3.76/lb. The nice September showing pushed up 2019 totals through the first nine months of the year to 6,885.5 MT worth \$54.98 million. By comparison, U.S. beef and beef product exports to China for the same period in 2018 amounted to 5,114.5 MT valued at \$44.24 million.

The vast majority of U.S. beef shipments over the past three years is comprised of frozen and chilled cuts of beef. Offal and other beef products make up a much smaller share. Since September, USDA's weekly ag exports show that a total of 1,277 MT of fresh, chilled, or frozen cuts have been exported to China. In addition, outstanding sales through the first week of November totaled 2,219 MT. Provided these outstanding sales ship before the end of the year, and U.S. beef exports to China should easily surpass the 10,000 MT mark and approach \$80 million in value.

U.S. BEEF AND BEEF PRODUCTS EXPORTS TO CHINA FIRST NINE MONTHS OF THE YEAR, 2014 - 2019				
Year	Value (000 \$)	MT	\$/kg	\$/lb.
2014	\$271.00	71.00	\$3.82	\$1.73
2015	\$3.00	0.20	\$15.00	\$6.80
2016	\$0.00	0.00	\$0.00	\$0.00
2017	\$12,320.00	1,056.20	\$11.66	\$5.29
2018	\$44,242.00	5,114.50	\$8.65	\$3.92
2019	\$54,982.00	6,885.50	\$7.99	\$3.62

Source: USDA GATS

Hog and Live White Feather Broiler Prices Slide Further

Prices for live hogs and white feather broilers continued to correct nationwide as expected. Consumer demand with the 70th Anniversary party hangover having runs its course is steadily dissipating. Furthermore, with China lifting the four-month band on Canadian pork and pork products, there are more foreign suppliers coming into the market.

Last week's national live hog price finished at RMB 34.75/Kg (\$4.96/Kg) or RMB 15.76/lb. (\$2.25/lb.), down RMB 4.06/Kg (\$.58/Kg) or RMB 1.84/lb. (\$.26/lb.) from a week ago. That represents the biggest weekly decrease since the rocket ride upward began in mid-May. The average live white feather broiler price also contracted last week, shedding RMB .60/Kg (\$.09/Kg) to end the week at RMB 10.26/Kg (\$1.46/Kg) or RMB 4.65/lb. (\$.66/lb.).

Operationally, the live pig margin saw an even sharper decrease last week. Since the start of November, when the live pig profit peaked at RMB 3,374/head (\$481.31/head), it has now fallen by RMB 669/head (\$95.43/head) to RMB 2,705/head (\$385.88/head) as of last Friday. As discussed in the previous week's article, the soaring costs of piglets are starting to bite. It would also seem that the heavier slaughter weights may not be contributing to the marginal gains that they did in October as consumers, and specifically the hotel, restaurant, and institutional

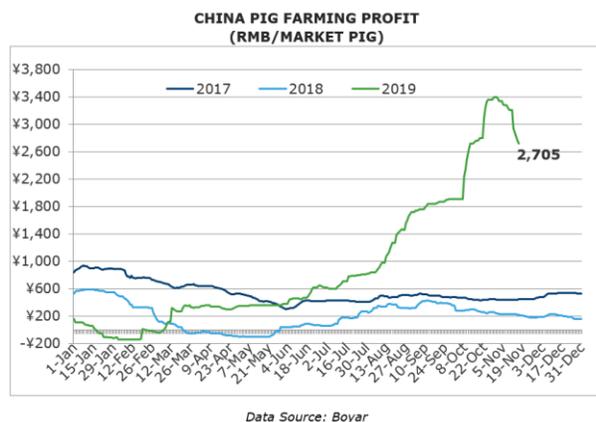
sector, have placed a premium on lean pork cuts rather than hogs loaded up with extra fat.

Beijing Holds Internal Meeting as Pork Supply Remains Troubled

On Sunday, 17 November, Mr. Han Changfu, the Minister of Agriculture and Rural Affairs (MARA) convened a private meeting with officials from nine hog producing provinces. Represented were Jiangsu, Zhejiang, Anhui, Jiangxi, Hunan, Guangdong, Guangxi, Chongqing, and Sichuan. The purpose was to discuss detailed plans to facilitate the recovery of China's hog production at the local and regional level and to remind attendees that this issue was a top political priority for the Party.

Mr. Han reminded regional officials that local mayors were responsible for securing the supply of pork and that MARA and Beijing needed real time production information from the provinces in order for the central government to grasp the actual situation and initiate appropriate measures and policies accordingly. Even with live pig and pork meat prices on a downward trend in recent weeks, with some regions seeing price reductions by as much as 15 percent, a sustained recovery in slaughtering utilization rates has yet to materialize. In some cases, slaughterhouses in really impacted localities have seen their utilization rates fall to 15 percent of capacity.





Oilseeds

Soymeal Inventory Falls to Lowest Level Since December 2016

Back in November and December of 2016, China's northern provinces were beset by horrific air pollution. In response, the central government initiated a series of emergency inspections and mothballed various industrial plants, including soybean crushing facilities from mid-December to early January. Consequently, China's nationwide soymeal inventory at that time tumbled to levels not seen since the financial crisis. In fact, for the week ending on 16 December of that year, the nationwide total reached an eight-year low of 334,800 MT.

Nearly three years later, the circumstances for the current inventory level could not be more different. Reportedly, some soybean shipment cargoes have met with delayed port clearances due to disputes over the removal of the previous 25 percent tariff penalty. One importer a couple of weeks ago went ahead and paid the charges. However, the industry believes that these tariffs are supposed to be waived and potentially apply retroactively to imports that happened over the summer.

Notwithstanding these clearance and regulatory issues, the underlying driver in the sharp fall-off

in soymeal inventories in China since mid-October has been faltering feed demand. The hog recovery simply is not going at a pace to underwrite a large buildup of soymeal stocks, and the poultry and fish farming sectors are not big enough nor do they consume enough to offset the drop from the pork industry.

As of 15 November, the estimated combined soymeal inventory across China totaled 355,100 MT, a decrease of 57,000 MT (-13.8 percent) from the previous week. Regionally, trends were mixed as soymeal stocks in Shandong, Guangdong, and Fujian increased by 2,200 MT (+11.8 percent), 3,100 MT (+7.9 percent), and 3,000 MT (+11.5 percent), to 20,800 MT and 29,000 MT, respectively. These decent gains were erased by another sharp contraction in soymeal inventories in the East Region, which fell by 20,800 MT (-19.3 percent) last week to 202,800 MT. Putting this into a larger context, China's soymeal stocks through last Friday are down year-on-year by a staggering 672,500 MT (-65.4 percent).

Imported Soybean Inventory Sees Another Steep Drop

Fewer shipment arrivals and delayed clearances carried over into last week, which drove down imported soybeans at China's major seaports by 326,000 MT (-5.5 percent). At a total of just under 5.64 MMT, last week's figures are now back to where they were in early June, when imported soybean stocks were gradually recovering from ASF decimation that occurred last spring.

At seaports outside of the big three provinces of Shandong, Guangdong, and Jiangsu, imported soybean inventories contracted by 274,000 MT last week (-10.4 percent) to 2.36 MMT or 41.8 percent of the national total. Similarly, imported soybean stocks in Shandong shed 106,500 MT (-6.0 percent) to 1.66 MMT or 29.4 percent of the

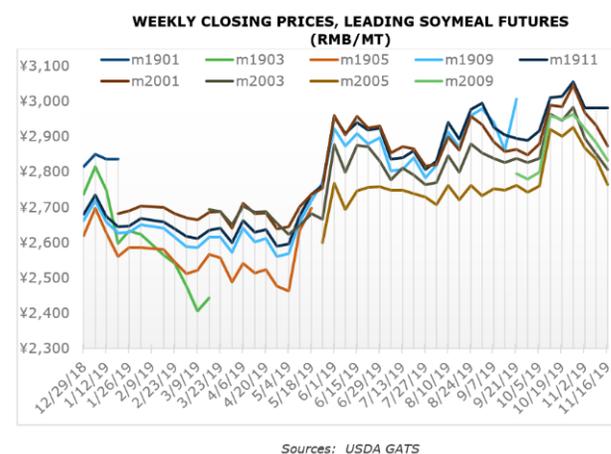
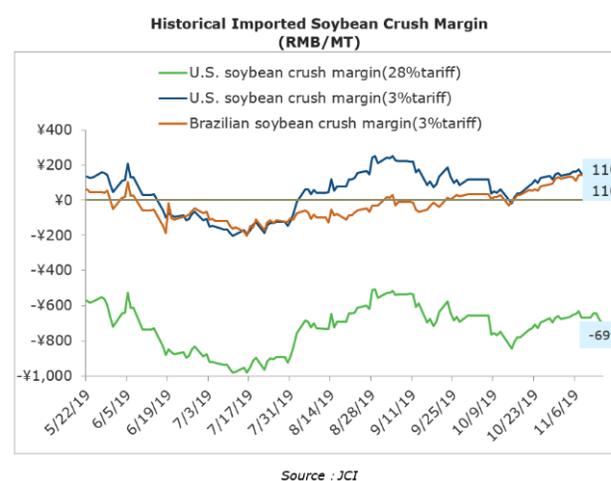
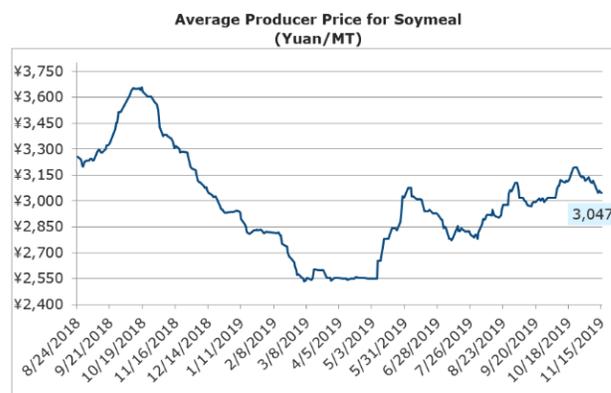
total. By comparison the ports in Guangdong and Jiangsu had decent gains in their imported soybean stocks, rising by 19,000 MT and 35,500 MT, respectively.

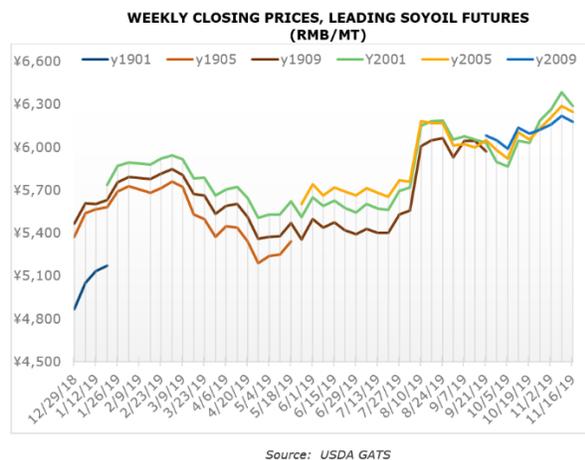


Crush Margins Falter on Lower Meal and Oil Prices

Last week saw the average CNF prices for imported U.S. and Brazilian soybeans reach parity as both retreated to \$409/MT, declining by \$4/MT and \$5/MT, respectively.

On the product front, soymeal cash prices continued to soften last week dropping RMB 70/MT to RMB 3,047/MT (\$434.66/MT), while the average producer's price for soyoil after several weeks of strong gains, fell by RMB 56/MT (\$7.99/MT) to RMB 6,516/MT (\$929.53/MT). The net result saw the average crushing loss on U.S. soybeans purchased when the 25-percent retaliatory was in place widen by RMB 33/MT (\$4.71/MT) to a deficit of RMB 699/MT (\$99.71/MT). Removing this additional penalty, crushing margins on U.S. and Brazilian soybeans actually converged last week, as the average margin on U.S. soybeans fell by RMB 40/MT (\$5.71/MT) to RMB 110/MT (\$15.69/MT), while the margin on Brazilian soybeans slid by RMB 32/MT (\$4.56/MT) to RMB 110/MT (\$15.69/MT).





Grains

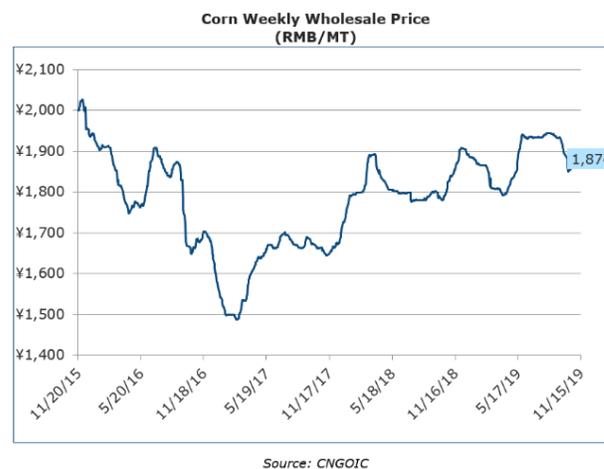
Domestic Corn Rally Sees Corrections in the Northeast

The sustained market rally that began at the conclusion of the 70th Anniversary celebrations experienced a sharp retreat in northeastern China last week. In Heilongjiang, Jilin, and Liaoning, the average corn prices fell last week by RMB 34/MT (\$4.85/MT), RMB 34/MT (\$4.85/MT), and RMB 18/MT (\$2.57/MT) to RMB 1,638/MT (\$233.67/MT), RMB 1,715/MT (\$244.65/MT), and RMB 1,803/MT (\$257.20/MT), respectively.

In Guangdong, the average corn price also retreated last week, declining by RMB 23/MT (\$3.28/MT) to RMB 1,980/MT (\$282.45/MT). The widening spread between Guangdong in the southeast and Heilongjiang in the northeast to RMB 342/MT (\$48.79/MT) reflects the worsening feed demand in China's breadbasket. Overall, China's national average corn price moved just RMB 5/MT (\$0.71/MT) to RMB 1,874/MT (\$267.33/MT), which does not reflect true market sentiment.

On the processing side, the only activity last week involved the average DDGS price in Jilin Province. There, DDGS fell by RMB 100/MT (\$14.27/MT) to RMB 1,600/MT (\$228.25/MT).

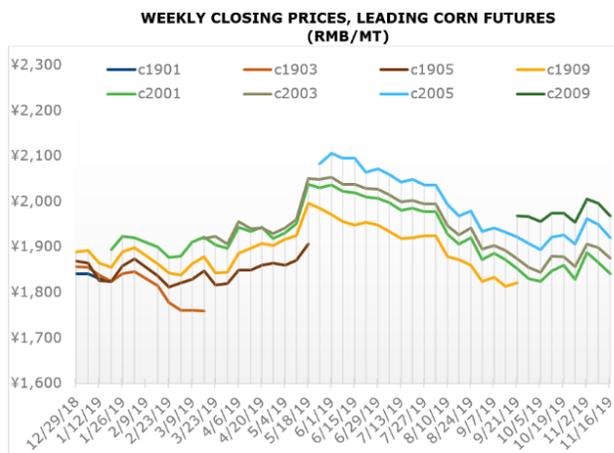
The retreating DDGS prices in Jilin also underscore the problems in the feed market. As for cornstarch, corn gluten meal, and ethanol held steady.



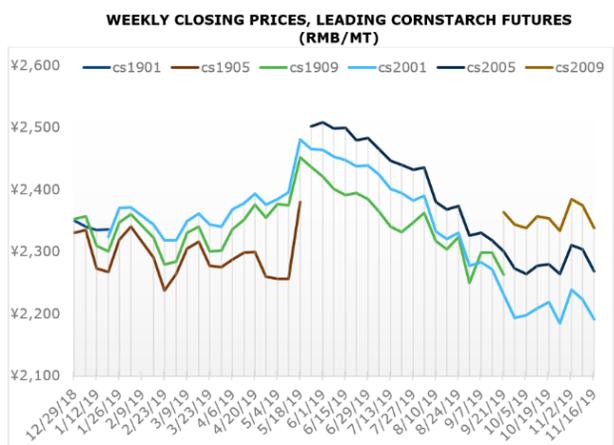
Corn and Cornstarch Futures Down for Second Straight Week

The January and May 2020 contracts, c2001 and c2005, respectively, closed down for the second straight week. The January contract ended last week at RMB 1,841/MT (\$262.62/MT), down RMB 15/MT (\$2.14) from the previous week's settled price. By comparison, the May contract fell by RMB 23/MT (\$3.28/MT) to close at RMB 1,919/MT (\$273.75/MT). Overall, China's corn harvest has been solid and given the feed demand situation prices are likely to continue to soften but at a less volatile pace compared with soymeal.

Cornstarch futures also fell for the second straight week. The January contract, cs 2001, ended last week at RMB 2,191/MT (\$312.55/MT), down RMB 21/MT (\$3.00/MT) from the previous settled price. The May contract, cs2005, also reflected a lack of strong sentiment in the outlook for cornstarch demand, as it ended last week at RMB 2,269/MT (\$323.68/MT), a decrease of RMB 23/MT (\$3.28/MT) from the previous week.



Source: Dalian Commodity Exchange



Source: Dalian Commodity Exchange

WPI POLICY ANALYSIS

Will Technology Complicate the Next Farm Bill?

By Dave Juday

In a recent interview with Politico, House Agriculture Committee chairman Collin Peterson (D-Minnesota) confirmed that he hasn't decided whether he will run for re-election in 2020. A big factor in his forthcoming final decision: the 2022 farm bill. According to Peterson,

"It's getting harder every time to do a farm bill. It's a big commitment. So that's really what my main thing is — if I want to do that. Because then basically I feel like I have a responsibility to see it through."

The chairman is correct – farm bills are difficult. Consider the recent history.

Congress passed a farm bill in 1990, but then passed the Food, Agriculture, Conservation, and Trade Act Amendments of 1991, which was then further reshaped by the Omnibus Budget Reconciliation Act of 1993. The amended 1990 law was to expire in 1995, but a new farm bill didn't pass until 1996. Then the 2001 farm bill became the 2002 farm bill. The next farm bill was due in 2007 but did not pass until 2008. Then came the 2012 farm bill debate which extended into 2013 and did not pass until 2014. Then there was the 2018 farm bill, which passed in a lame duck session after the election and after the legislation had expired on 30 September 2018.

Federal budget issues, politics and the debate over farm programs versus SNAP benefits were at the core of the controversy for the past 25 years. None of that is likely to dissipate between now and fiscal year 2023 (which begins on 1 October 2022). But there is a new policy wrinkle for future farm bills: technology.

The pace of technology adoption in agriculture is staggering and has the potential to materially impact ag policy. Consider the discussion over cellular meat technology and which agency – FDA or USDA – would have regulatory jurisdiction. Indeed, the news is full of agtech coverage, from indoor vertical ag, to crowd-sourced data and market information platforms, to the latest in soil sensing devices. Even Microsoft is moving into the ag space.

Congress is considering a new ag labor bill – one of the few bipartisan initiatives moving in this Congress – but it comes at a time when robotics is being employed to change ag production practices. Specialty crop producers are using robotic pickers for fruits and vegetables. Even meat and poultry processors are putting robotics into their plants. Dairies are using vision technology coupled with artificial intelligence to manage dairy barns.

These new developments seemingly have a lag time before they are addressed by new policies. Consider the 2018 farm bill's definition of plant biostimulants. These inputs had been used for years despite a regulatory gray area about what exactly constitutes a biological stimulant. Consider the recent controversy over the USDA's Animal Disease Traceability (ADT) program and the use of radio-frequency identification (RFID) ear-tags.

Of course, there is still the issue of Big Data and who owns it. Current technology on harvesting equipment can collect seven gigabytes of data per acre (a gigabyte is equivalent to 1 billion pieces of information).

Then there is the case of drones. In late 2014 and early 2015, drones and their application to agriculture was *the* hot technology topic. It is a

full five years later, and drones are gone from the headlines, but policy considerations are still pertinent.

Senator Gary Peters (D-Michigan), along with Senators John Thune (R-South Dakota) and Senate Agriculture Committee Chairman Pat Roberts (R-Kansas) introduced legislation to mandate the Federal Aviation Administration (FAA) to include agriculture and forestry input on the agency's drone advisory committee. Since the Board was established in 2016, there has been no representation from agriculture, even though in the discussion leading up to the FAA regulations and oversight it was a virtual consensus that agriculture was among the first industries where drones would be commercialized. In fact, Microsoft's recent entry into ag through its Farm Beats platform is, in part, based on drone technology.

The next two years, 2020 and 2021, will be the time when Congress will have to decide – or at least prepare for - whether the 2022 farm bill will have a technology title. There are aspects of the ag platform among the 2020 Democratic Presidential primary candidates that are already hinting at these issues – coming from different perspectives.

Senator Bernie Sanders has raised the issue of proprietary computer technology in tractors and whether farmers have the legal right to repair their own equipment. Senator Amy Klobuchar has said, “In a 21st Century economy that demands efficiency, and data, farmers and ranchers are too often unable to take advantage of new technologies ...” and Senator Elizabeth Warren wants to break up big tech and big ag both

The question is, will the 2022 farm bill have a tech title? And, how will that complicate the farm bill process?

A Faint Light from Golden Rice

By Bob Kohlmeyer

As someone who has for many years pursued a deep interest in the business and economics of agriculture and food, one of the greatest

frustrations and disappointments is the organized, systematic opposition to nearly all the scientific and technical advances in food and agricultural production during the past two decades. The use of biogenetics in crop and food production has been a particular target.

Groups claim to defend the environment and save the population by attacking “unsafe” genetically modified food products. Led by Greenpeace, they have managed to attract considerable support (and donations) through their emotional appeals to convince everyday consumers to avoid foods produced from genetically modified ingredients. These luddites have claimed that food products made from genetically modified corn or soybeans are dangerous, that they might cause cancer, heart disease, kidney and liver disease and a myriad of other maladies including male impotence.

Their attacks and the debate over the safety of genetically modified ingredients in foods have made GMO (genetically modified organisms) one of the most widely recognizable acronyms presently in use around the world.

The very first GMO field crop was tobacco. GMO tobacco was produced for commercial purposes in China in 1992. The first GMO food product was a tomato variety which had a longer shelf life than ordinary tomatoes. It was released in the U.S. in 1994, and a GMO potato followed in 1995. However, the big breakthrough for GMOs came in 1996 when GMO herbicide tolerant soybean seeds were first planted commercially in the U.S.

GMO soybean production quickly spread in the U.S. and ultimately to Brazil and Argentina, the other large soybean producers. This was soon followed by GMO corn genetically modified to resist corn borers, and it too spread rapidly across the U.S. and South America. Today there are 10 GMO crops produced in the U.S. They are alfalfa, apples, corn, canola, soybeans, papaya, sugar beets, cotton, squash and potatoes.

Stoked by groups organized to oppose GMOs, growing public concerns about GMO foods caught the attention of politicians especially in the EU. It became politically expedient to stop

production of GMO crops in the EU. The EU Commission stopped approving GMO seed varieties, and many individual member countries outlawed the use of GMO entirely. Many developing countries, especially in Africa, tend to follow the EU's lead in phytosanitary policies, so production or import of GMO crops in African countries have largely been banned.

GMO products are put through a lengthy testing process before being approved for use in the U.S. The general conclusion has been that each GMO product is virtually identical with its non-GMO twin and that GMOs are as safe for humans as the same non-GMO product.

It has been 25 years since the first GMO food was released in the U.S. and 23 years since GMO soybeans were commercialized. Since then, countless millions of people have consumed an untold volume of food produced from GMO crops. Despite the fantasies of GMO opponents, there has not been a single verifiable instance in which GMO food has caused a health problem. Moreover, a multitude of scientific studies since GMOs have been widely used in the U.S. food chain have concluded in summary that GMOs are not a food safety problem.

Lacking recognized scientific evidence to support claims that GMOs are health hazards, opponents have turned to the "precautionary principle". GMOs should be banned because they MIGHT cause problems in the future. The EU has largely built its approach to GMOs on this basis. They have set up a lengthy, complex process for approving GMOs.

No one will deny that being cautious and taking precautions is usually a wise approach when dealing with anything that is new and different. But if the "precautionary principle" were followed to its extreme, we would never travel in cars or planes. In fact, we would never travel at all because if we did something bad might happen. We would not go swimming, cross a street, go jogging, climb stairs or do much of anything because there would be the threat of an accident or other harmful results.

The growing safety record for GMOs is forcing their opponents to switch to other lines of attack. Now they claim that GMOs benefit only large factory farms, not small operations and not subsistence farmers in Africa or Asia. Moreover, they say, GMOs increase the power and enrich big companies like Monsanto (now Bayer), ADM and Cargill. This triggers those populists that routinely oppose "big agriculture", and they are happy to weigh in.

But now Greenpeace and its followers have a problem. That problem is the latest iteration of GMO rice called golden rice due to its yellow color. This variety of rice has been genetically modified so that it is rich in beta carotene which turns into vitamin A in the human body. This is very important because it is estimated that more than a million people, mostly children, lose their eyesight or die from a vitamin A deficiency. And, most of them are in Africa or Asia where rice is a staple food.

Golden rice is the first GMO food product that benefits consumers rather than producers. Greenpeace is finding it difficult to wage a campaign against a GMO food that could potentially save millions of lives, but that has not stopped them from trying. Somewhat irrationally, they cite the amount of time it has taken (since 1999) to get a golden rice variety ready to market as a sign that there are problems with the product. Among other things they tout claims that golden rice quickly loses its beta carotene potency which its developers deny. But Greenpeace and their followers cannot escape the charge that they are opposing something with the potential to do so much good for a portion of the world's malnourished population.

Slowly, it appears that change is underway. For years Bangladesh had banned production of GMO crops, but it is now allowing its farmers to grow golden rice. Bangladesh is one of the countries where vitamin A deficiency is a major problem for a large segment of its population.

For the most part, growing GMO crops has thus far directly benefited producers. The indirect benefits to consumers have been harder to see. We hope that golden rice will be the forerunner

of a new generation of GMO crops that more directly benefit consumers. There already are soybean varieties that produce soyoil with a better, longer lasting profile for consumers including being free of trans-fat.

Having GMOs that directly benefit consumers is the best way to fight off the opponents and cut through the political and regulatory maze GMOs presently face. No doubt scientists are working on this. Thanks to golden rice, the merits of GMOs and the help that sort of technology can provide in meeting future food needs may finally win the struggle.

U.S.-China Chasm

By Gary Blumenthal

The signals out of Beijing and Washington are confusing on the surface but that is only because of how deep the fissures are when it comes to the substance of the disagreements.

On the surface, China is signaling that an agreement can be reached while President Trump is stalling as a leverage technique. Perhaps more important is looking at the extent of the differences.

Some believe that China's real position was revealed when it pulled out of the Global Steel Forum. Since Beijing is the largest source of imbalances in the world's steel market, its unwillingness to negotiate a resolution bodes ill for the many other areas of state-driven supply/demand problems.

China might have taken heart in the recent Democratic debate when presidential candidate Pete Buttigieg slammed President Trump for a trade war that hurts farmers but that was small ball Iowa caucus positioning by someone not expected to be nominated. In fact, his competitor Cory Booker later followed up with a recitation of the same ills about China identified by the Trump Administration.

In fact, Charlene Barshefsky, who is part of the Democratic Party's brain trust on trade policy was at the New Economy Forum in Beijing this

month where she attacked China's subsidies, state planning, protectionism and IP theft as mercantilism.

If Mr. Trump is purged from office, the Democrats may try a different strategy but will not have a different end game when it comes to altering China's policies.

