

Commodity Outlook 2019: Corn and Soybeans Struggle to Find Strength

Wayne County 2019 Agricultural Outlook
Ben Brown
January 30, 2019

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THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL
AND ENVIRONMENTAL SCIENCES

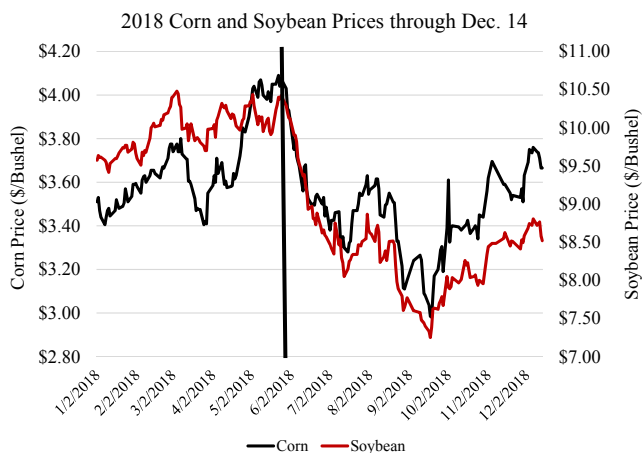
2018: A Tale of Two Halves

January-May

- ✓ \$4.00 corn and \$10.50 soybean cash prices
- ✓ Strong world economic growth
- ✓ Shrinking world stocks

June-October

- ✓ Escalating trade tensions
- ✓ Large Supplies



Source: USDA-Agricultural Marketing Service Daily Prices for Cincinnati, Ohio

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2019 Prices: **Highly variable Outlook**

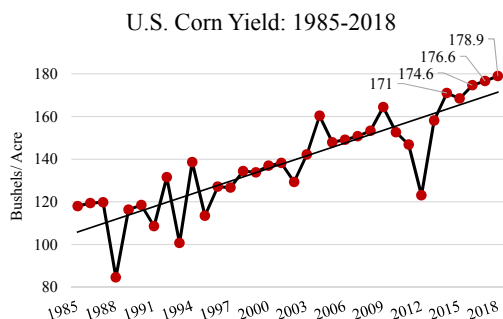
- ✓ Trade barriers continue- 90 day trade truce with China
- ✓ South America Production- Looks good right now, but things can change quickly
- ✓ U.S. Production- acreage decisions this spring and weather this summer
- ✓ Government Shutdown delaying key USDA Reports



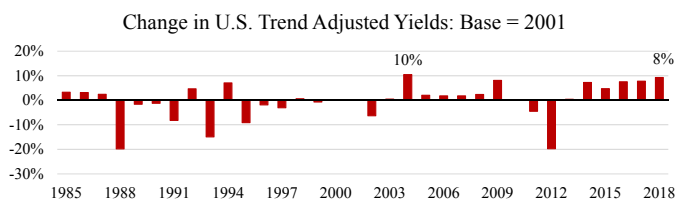
“is pleasant as well as challenging; for I know the joys and discomforts of Agriculture life.”- FFA Creed

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2018 U.S. Corn Yield: **Another Record**



- ✓ New Record 3 Straight Years
- ✓ 6 Straight years of Above Trend Yields
 - ✓ 2013 was at the time
- ✓ Reasons?
 - ✓ Weather
 - ✓ Genetics
 - ✓ Management

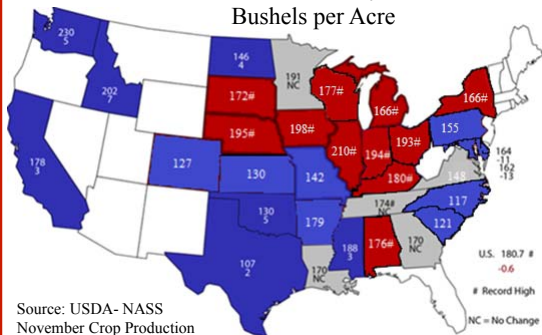


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Source: USDA- NASS

2018 Ohio Corn Yield: How'd we compare?

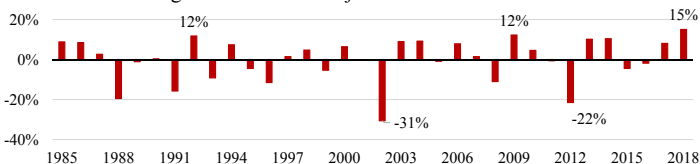
2018 Corn Yield by State
Bushels per Acre



Source: USDA- NASS
November Crop Production

- ✓ Record Yields Across Corn Belt
 - ✓ Ohio 16 bu./acre above previous record (2017)
- ✓ Ohio outperformed the country in deviation from trend
 - ✓ The country had a good year, Ohio just had a better one!

Change in Ohio Trend Adjusted Yields: Base = 2001

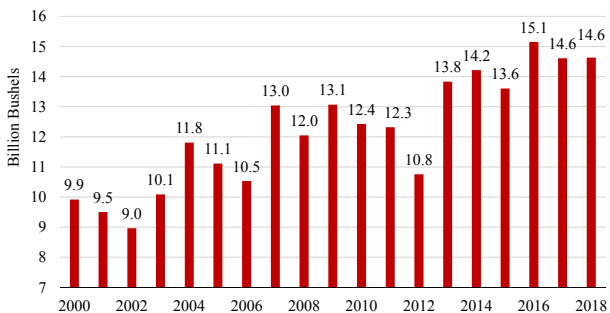


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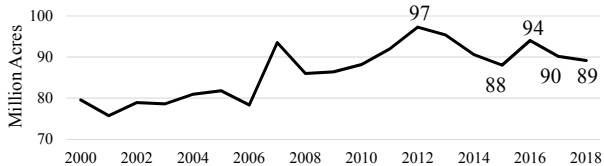
U.S. Corn Production: Up Slightly from 2017

- ✓ U.S. Production is up slightly from 2017 on higher yields.
- ✓ Not a record due to fewer acres.
- ✓ Only 3 major corn producing states up in acreage from 2017.
 - ✓ Missouri, Nebraska and Ohio
- ✓ Second Largest Ohio corn crop.

U.S. Corn Production

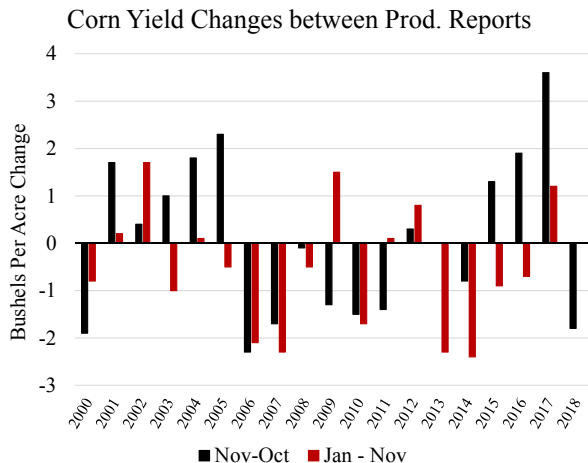


U.S. Planted Acres



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Jan. Production Report: Good News???



- ✓ Do Big Crops really get bigger?
- ✓ Reduction from Oct.-Nov. happened 8 times.
 - ✓ 7 out of 8 saw drops in January.
- ✓ Average drop of 7 years was 1 bu./acre
- ✓ Difficult harvest in Western Corn Belt, a drop in yield could be expected.

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Source: USDA-NASS
Crop Production Reports

U.S. Corn Demand: Projected Strong

		2015/16	2016/17	2017/18	2018/19	Δ 2017/18
Area Planted	(Mil. Acres)	88.0	94.0	90.2	89.1	-1%
Yield	(Bu./acre)	168.4	174.6	176.6	178.9	1%
Production	(Mil. Bu.)	13,602	15,148	14,604	14,626	0%
Beg. Stocks	(Mil. Bu.)	1,731	1,737	2,293	2,140	-7%
Imports	(Mil. Bu.)	67	57	36	45	25%
Total Supply	(Mil. Bu.)	15,401	16,942	16,934	16,811	0%
Feed & Residual	(Mil. Bu.)	5,120	5,470	5,302	5,550	5%
Food, Seed, & Other	(Mil. Bu.)	1,422	1,453	1,453	1,480	1%
Ethanol	(Mil. Bu.)	5,224	5,432	5,605	5,600	0%
Exports	(Mil. Bu.)	1,898	2,294	2,438	2,450	0%
Total Use	(Mil. Bu.)	13,664	14,649	14,793	15,030	2%
Ending Stocks	(Mil. Bu.)	1,737	2,293	2,140	1,781	-17%
Season Av Price	(\$/bu.)	\$3.61	\$3.36	\$3.36	\$3.60	+\$0.24

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Same Production and Lower Beg. Stocks
Roughly same Total Supply as 2017/18

Source: Dec. USDA-WAOB

Corn Feed Use: Livestock up but use down??

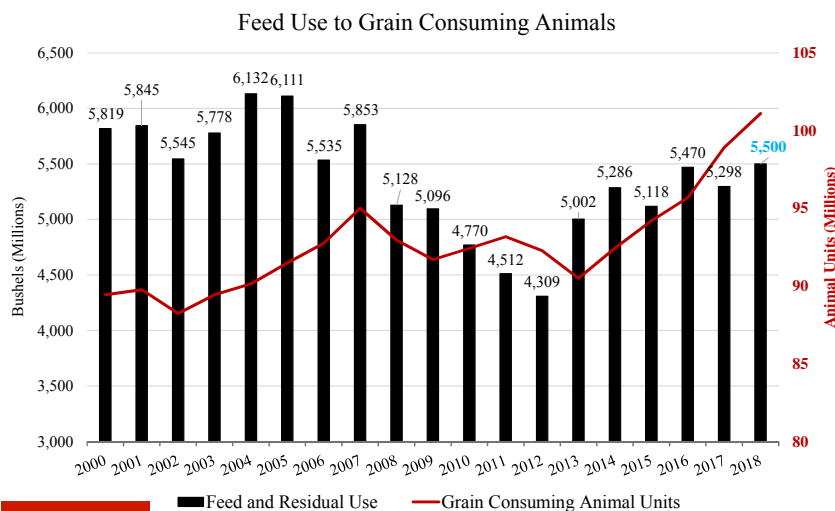
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Cattle on Feed is up 5% from 2017, new record
September placements were lower than 2017

Source: USDA-WAOB

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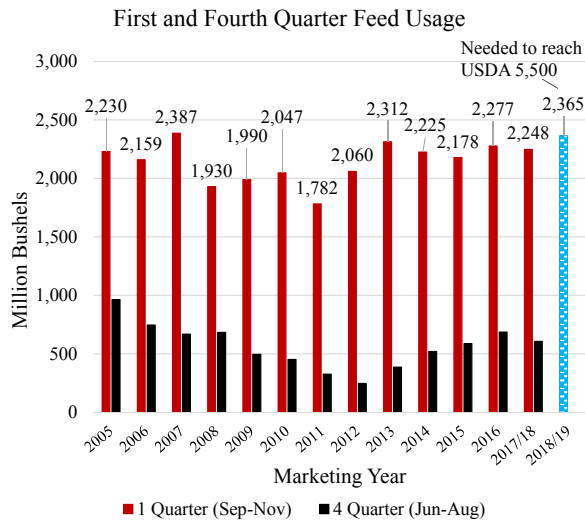


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Source: USDA-NASS

Corn Feed Use: Disappointing 4th Quarter

- ✓ First Quarter feed usage makes up roughly 43% of total MY feed use.
- ✓ To reach 5,500 the first quarter would need 2,365 mil. bu.
- ✓ Given low performance of 2017/18 fourth quarter, first quarter could look more like 2,200 mil. bu.
- ✓ 2017/18 feed use decline 250 mil. bu. from Oct- Finish



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5,150-(350)

Data: USDA-ERS, Feed-Grain Report

U.S. Corn Demand: Ethanol Strong in 2017/18

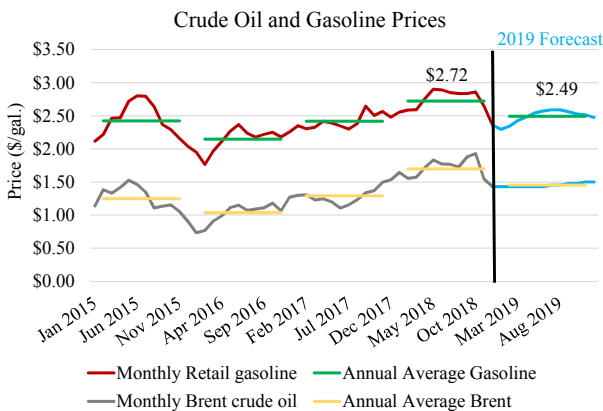
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Source: USDA-WAOB

U.S. Corn Use: Expanded E-15, Little Change

- ✓ Oct 9, Trump proposes E-15 Reid Vapor Pressure waivers. EPA needs to offer rule and then lawsuits likely.
- ✓ RIN's are cheap not making up for lower mpg
- ✓ The RFS is the rule of the land and so is the Clean Air Act. Any change to RVP waivers will likely require changes to policy.
- ✓ Oil and Gasoline Prices are forecasted down in 2019.
- ✓ Low Profit Margins by Ethanol Manufactures expected at breakeven for 4th year. Lower daily production.



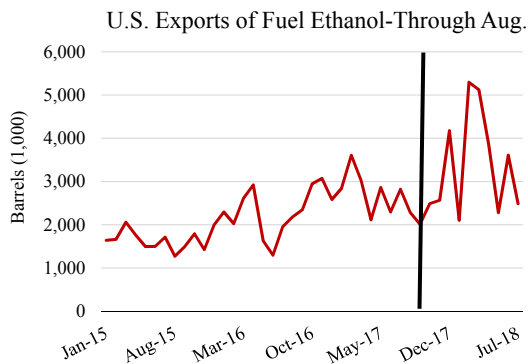
Ethanol Production	2015	2016	2017	2018	2019
Mill. Barrels per Day	0.966	1.003	1.04	1.048	1.011
Percent Growth		4%	4%	1%	-4%

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Data Source: U.S. Energy Information Administration Short Term Energy Outlook December

U.S. Corn Use: Ethanol Exports

- ✓ Ethanol Exports were record strong in 2017/18 at almost 1.62 billion gallons.
- ✓ U.S. Ethanol Exports to Brazil accounted for 34% of total 2017/18 exports.
- ✓ Brazil's Ethanol stocks are up 29% over last year.
 - ✓ Sugar refineries
- ✓ 2018/2019 corn use for ethanol numbers are more likely to be similar to 2017/18 at 5.6 bil. Bu.



Top U.S Ethanol Markets

Brazil	33%
Canada	24%
India	13%
Philippines	5%

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Data Source: U.S.-EIA

U.S. Corn Demand: Exports Finish Strong

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Source: USDA-WAOB

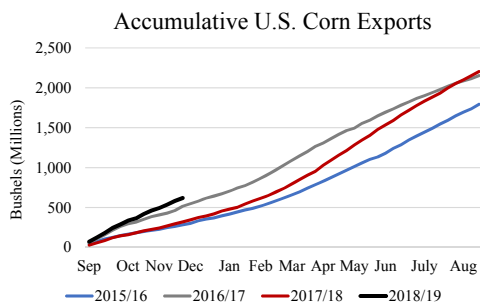
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U.S. Corn Use: Low Price Spurs Exports

- ✓ Strong corn sales through the first 4 months of the marketing year.
- ✓ 2018/19 corn sales came in 38% higher first week of Dec. compared to year ago.
- ✓ Total export inspections sit 94% above a year ago.
- ✓ Large supply and relatively low prices suggest strength in exports.

Data: USDA-FAS

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Status of Emerging and Existing Markets

Country	Percent Change	Absolute Change Million Bushels
Vietnam	632%	63
Mexico	11%	56
EU-27	114%	40
Israel	847%	23
Columbia	12%	21
Japan	-6%	-29

U.S. Corn: Balance Sheet

	Dec WASDE	Ben's January Forecast	Difference
Supply			
Harvested Acres (Millions)	81.8	81.8	-
Yield (Bushels/ Acre)	178.9	177.9	(1)
Total Production (Million Bushels)	14,626	14,544	(82)
Beginning Stocks (Million Bushels)	2,140	2,140	-
Imports (Million Bushels)	45	45	-
Total Supply	16,811	16,729	(82)
Demand			
Feed and Residual (Million bushels)	5,500	5,350	(150)
Food, Seed and Industry (Million bushels)	7,080	7,090	+ 10
Ethanol	5,600	5,610	+ 10
Exports (Million Bushels)	2,450	2,500	+ 50
Total Demand	15,030	14,940	(90)
Ending Stocks	1,781	1,789	+ 8
Ending Stocks as a Percentage of Use	12%	12%	0%
Average MY Price 2018/19 (\$/Bushel)	\$3.60	\$3.70	+ .10

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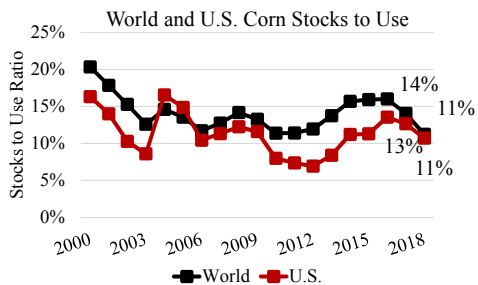
2018/19 World Corn Production: Up

Million Metric Tons	2017/18	2018/19	Percent Change
World	1,076	1,099	2.1%
United States	371	372	0.2%
Foreign	705	728	3.3%
Argentina	32	41	28.1%
Brazil	82	94.5	15.2%
South Africa	13.5	13	-3.7%
Egypt	6.4	6.8	6.2%
European Union	62.3	61	-2.1%
Mexico	27.5	26	-5.5%
Canada	14.1	14.5	2.8%
China	215.9	225	4.2%
Ukraine	24.1	31	28.6%

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Data Source: USDA- WAOB

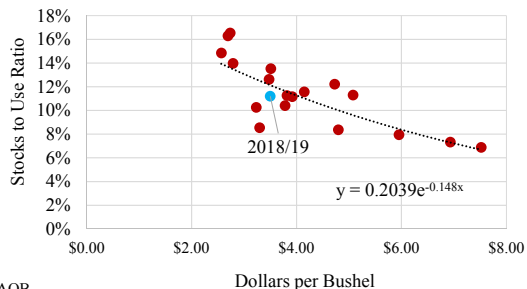
Stocks to Use: Tighter World and U.S. Stocks



- ✓ Even with increasing production world use of corn has increased, lowering both U.S. and World Stocks to Use Ratios.
- ✓ 2018 projected at 11.2%

- ✓ Tight stocks to use would suggest that any sudden positive change in world supply or use would sharply increase price.

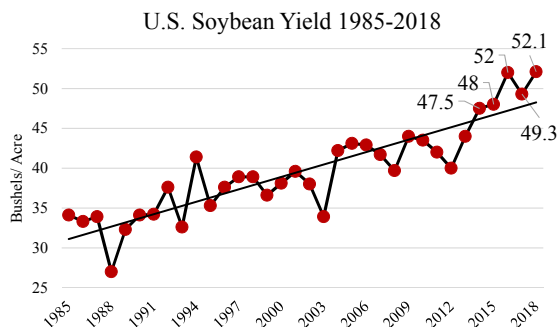
Price vs Stocks to Use Ratio



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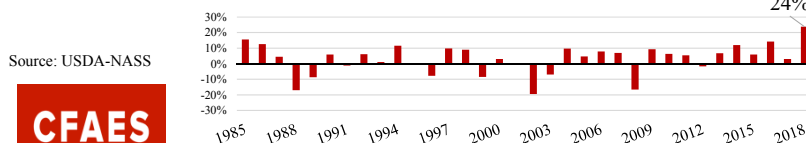
Source: USDA-FAS & WAOB

U.S. Soybean Yield: 4 out of 5 Years of New Records



- ✓ 4 out of last 5 years have been new records.
- ✓ Ohio -59 bu./acre
- ✓ Nov. WASDE -1.0 from Oct. Estimate.
- ✓ Ohio's performance in yield was strongest in last 33 years.

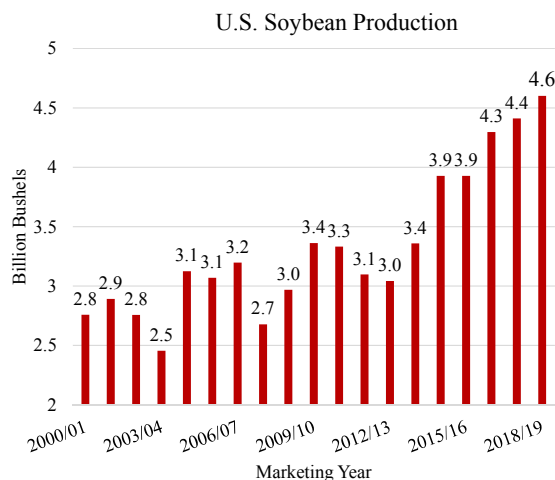
Change in Ohio Trend Adjusted Soybean Yields: Base-2001



Source: USDA-NASS

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U.S. Soy Production: **New Record, Bad Time**



- ✓ Record Yield as of **Now**
- ✓ But still record acreage so record production.
- ✓ Second time in history more soybean acres then corn acres.
- ✓ Projected soybean returns early in the year suggested the market favored soybeans to corn.
- ✓ Large increases in demand last eight years.

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Source: USDA-NASS

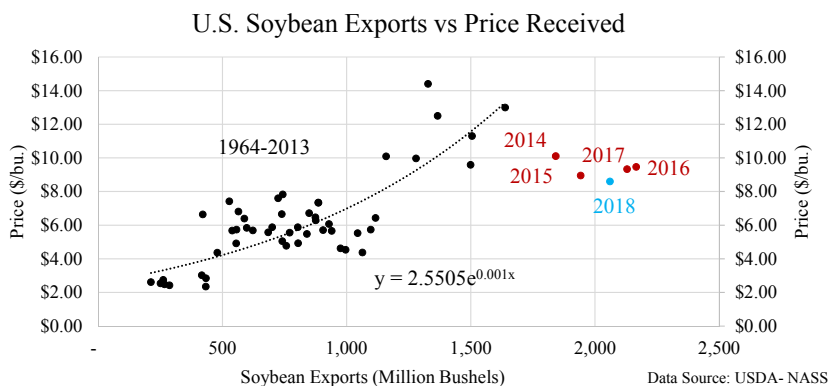
U.S. Soybeans: **Story is really all about Exports**

		2015/16	2016/17	2017/18	2018/19	Δ 2017/18
Area Planted	(Mil. Acres)	82.7	83.4	90.1	89.1	-1%
Yield	(Bu./acre)	48.0	52.0	49.3	52.1	6%
Production	(Mil. Bu.)	3,926	4,296	4,411	4,600	4%
Beg.Stocks	(Mil. Bu.)	191	197	302	438	45%
Imports	(Mil. Bu.)	24	22	22	25	14%
Total Supply	(Mil. Bu.)	4,140	4,515	4,734	5,063	7%
Crushing	(Mil. Bu.)	1,886	1,901	2,055	2,080	1%
Exports	(Mil. Bu.)	1,942	2,166	2,129	1,900	-11%
Seed and Residual	(Mil. Bu.)	115	146	112	128	14%
Total Use	(Mil. Bu.)	3,944	4,214	4,296	4,107	-4%
Ending Stocks	(Mil. Bu.)	197	302	438	955	118%
Season Average Price	(\$/bu.)	\$8.95	\$9.47	\$9.33	\$8.60	-\$0.73

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Source: USDA-WAOB

Soybean Price: Large Supplies Counter Exports

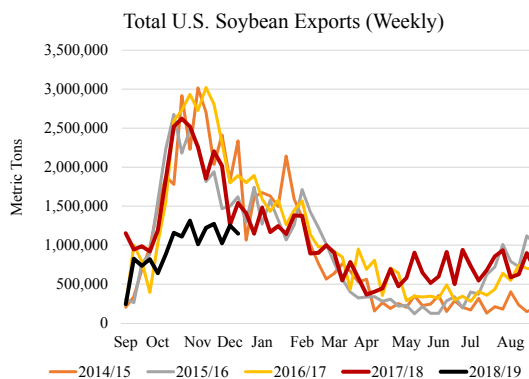


- ✓ 2018/19 originally forecasted as largest year for U.S. Soybean exports at 2,290 mil. bu. (Currently 3rd)
- ✓ Increased U.S. and world production have weighed on price even with expanded exports

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Total Soy Exports: Lagging in 2018/19

- ✓ Cheap soybeans encouraged exports in end of 2017/18.
- ✓ Exports have been extremely week to start 2018/19.
 - ✓ 33% behind average pace and forward sales are 16% below last year.
- ✓ 1st Quarter historically represents 42% of total sales.
- ✓ Simply the smaller markets are **NOT** making up the loss from China.
- ✓ Brazil's new crop will soon be on the market.

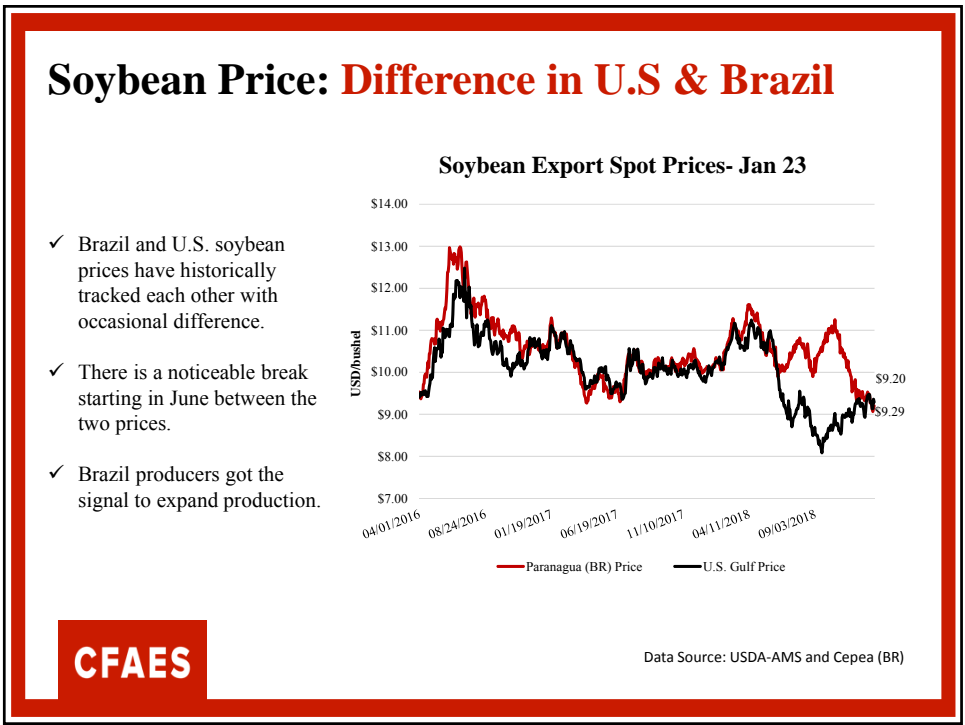
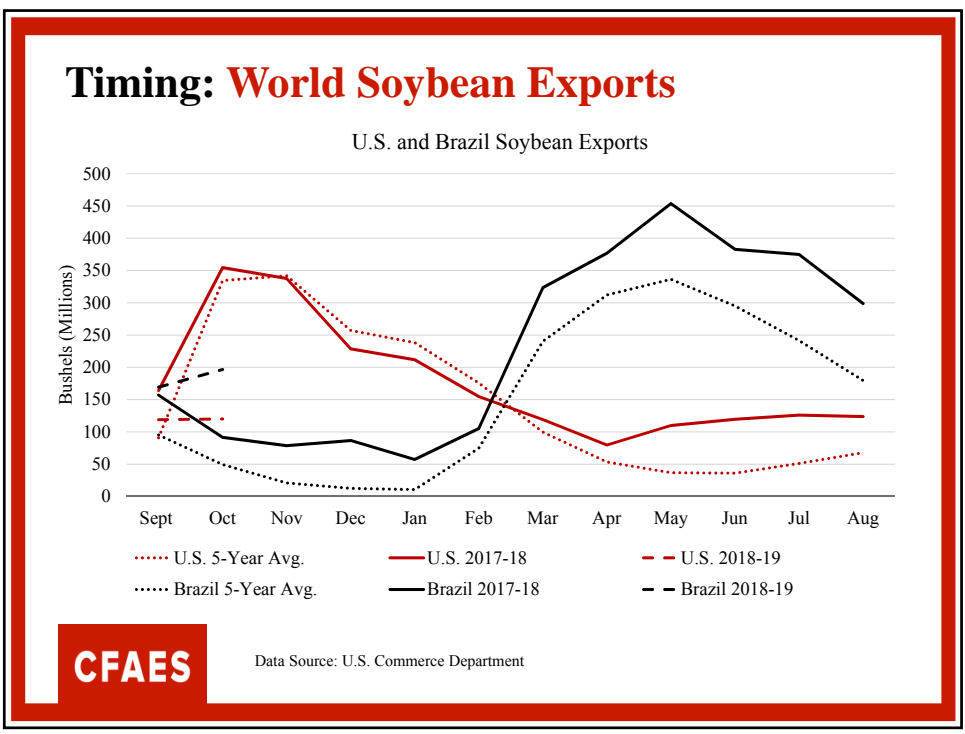


Status of Emerging and Existing Markets

Country	% Change	Absolute Change Metric Ton
EU-27	210%	1,094,487
Egypt	1,968%	411,176
Iran	733%	294,417
Netherlands	106%	203,681

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Data Source: USDA-FAS



China Consumption Behavior: **Changing**

China's new animal feed standards set to lower soybean consumption, ministry says -From South China Morning Post

China rolls out subsidies to boost domestic soybean production

BUSINESS CGTN

-From CGTN

✓ While the production and import changes from 2017 are small, what is the potential in future years?

✓ Will China continue to change their production policies?

✓ Away from subsidies for corn and wheat to soybean production.

Chinese Soybean Behavior (Million Metric Tons)

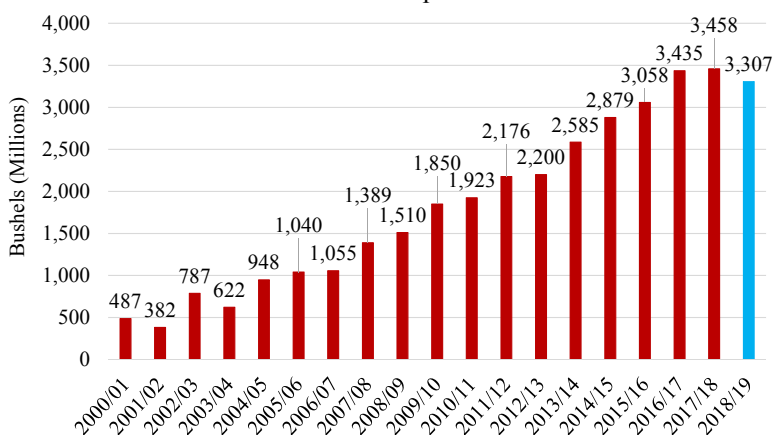
	2017/18	2018/19	% Δ
Production	15.2	16	5%
Imports	94.0	90.0	-4%
Ending Stocks	23.5	19.84	-16%

Data Source: WASDE Dec. Update

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Chinese Consumption: **Reversing Trend**

Chinese Imports



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Data Source: USDA- FAS

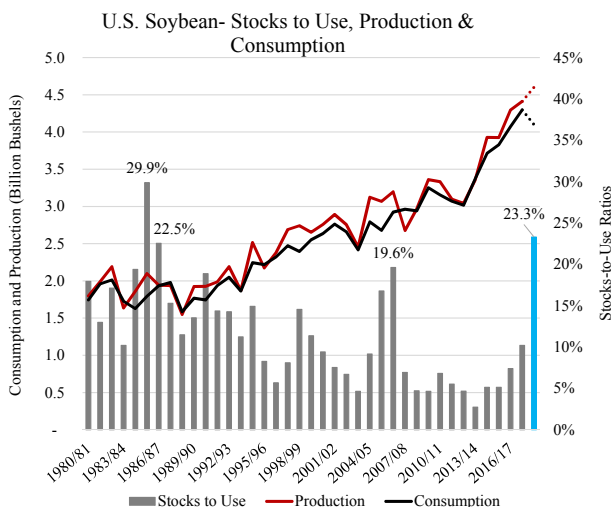
U.S. Soy: Balance sheet, looking for positives

	Dec. WASDE	Ben's Jan. Forecast	Difference
Supply			
Harvested Acres (Millions)	88.3	88.3	-
Yield (Bushels/ Acre)	52.1	51.9	0.2
Total Production (Million Bushels)	4,600	4,583	17
Beginning Stocks (Million Bushels)	438	438	-
Imports (Million Bushels)	25	25	-
Total Supply	5,063	5,046	17
Demand			
Crushing (Million Bushels)	2,080	2,090	+ 10
Exports (Million Bushels)	1,900	1,850	(50)
Seed and Residual (Million Bushels)	128	128	-
Total Demand	4,107	4,068	(39)
Ending Stocks	955	978	118
Ending Stocks as a Percentage of Use	23%	24%	+ 1%
Average MY Price 2018/19 (\$/Bushel)	\$8.60	\$8.30	(\$0.30)

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Soybean Stocks to Use: Double 2017/18

- ✓ Large supply and reduced exports result in more production and less consumption for 2018/19
- ✓ Stocks to use forecasted double 2017/18.
- ✓ Largest since 1985/86
- ✓ Why does this matter?
 - ✓ Soybean price and stocks-to-use are negatively correlated.

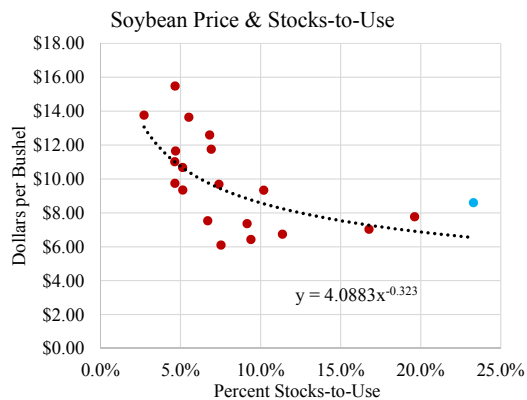


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Data Source: USDA-FAS & WAOB

Soybean Price Potential: **Struggling**

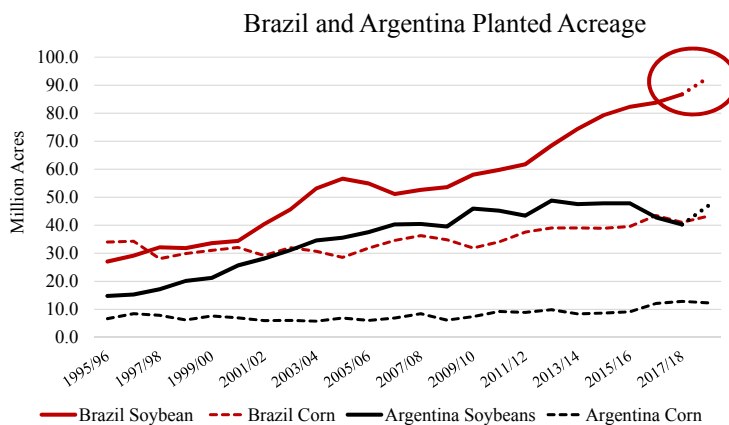
- ✓ Outside a resolution in trade with China or a production shortfall in one of the major producing countries, the current 995 Mil. Bu. might still be low.
- ✓ Recent price rallies appear linked to the market over projecting yield or under projecting failed acreage early on.
- ✓ Price prospects look to have limited upside potential.



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Source: USDA-FAS & WAOB

South America Acreage: **UP in 2018/19**



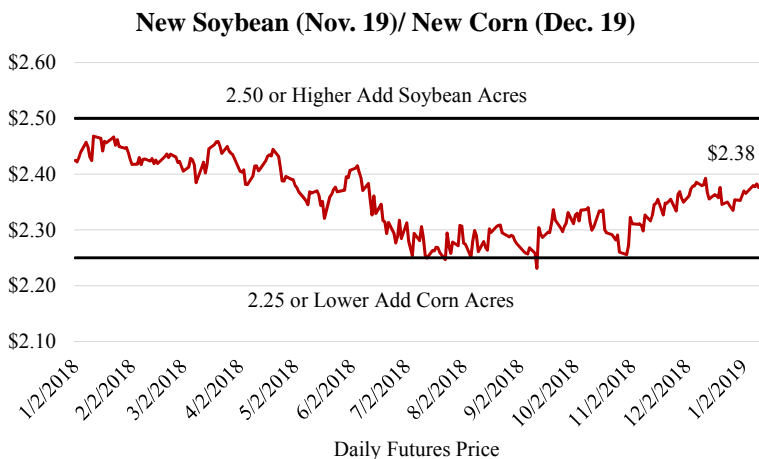
- ✓ Brazil: Five year average in corn/ soybean acreage= **4.5% increase**
2017 to 2018= **6.8% increase**

- ✓ Argentina: Slightly up, but projected larger yield compared to drought of 2017/18

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Source: USDA-PSD data

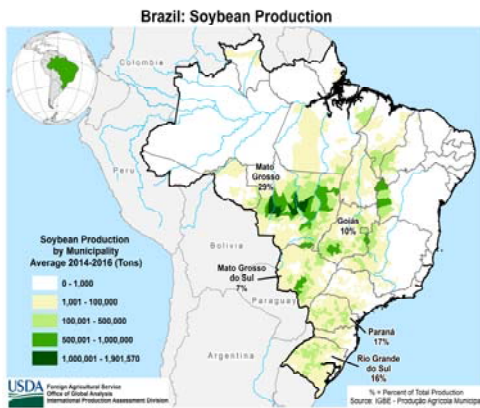
Price Relationship: Corn to Soybeans



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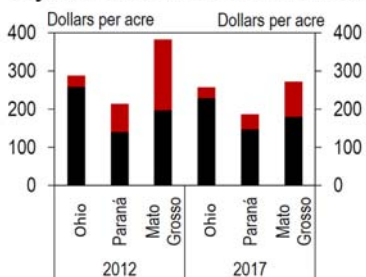
Rule of Thumb is a corn to soybean price ratio of 1 to 2.35

South America Production: Brazil



- ✓ 30% of Brazil's production is produced in Mato Grosso.
- ✓ Average field farm size in Mato Grosso is 3,200 acres.

Soybean Costs in the U.S. and Brazil

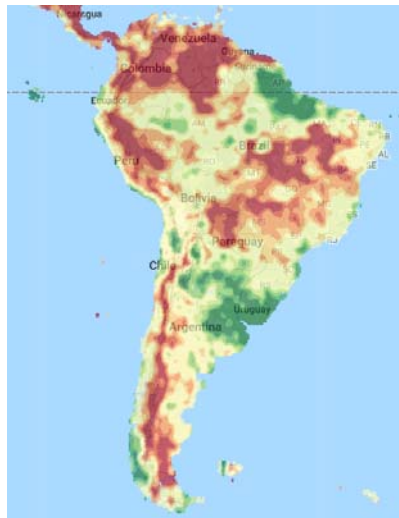


- ✓ Cost of Production is Comparable.
- ✓ Infrastructure is improving
- ✓ Yields increased 23% in 16 years

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Production* *Calculated from The Ohio State University and Federal University of Mato Grosso enterprise budgets.
 Transportation** ** USDA and Gavillon transportation estimates

South America Production: **Brazil Weather**



December WASDE had production at
 ✓ Brazil- 122 Million Metric Tons
 ✓ Argentina- 55.5 Million Metric Tons

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✓ Estimate about 119 MMT

Source: Latin American Flood and Drought Monitor-
 Jan 7, 2019

South America Production: **Brazil Weather**



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Source: Latin American Flood and Drought Monitor-
 Jan 10, 2019

Marketing: Fundamental vs Technical

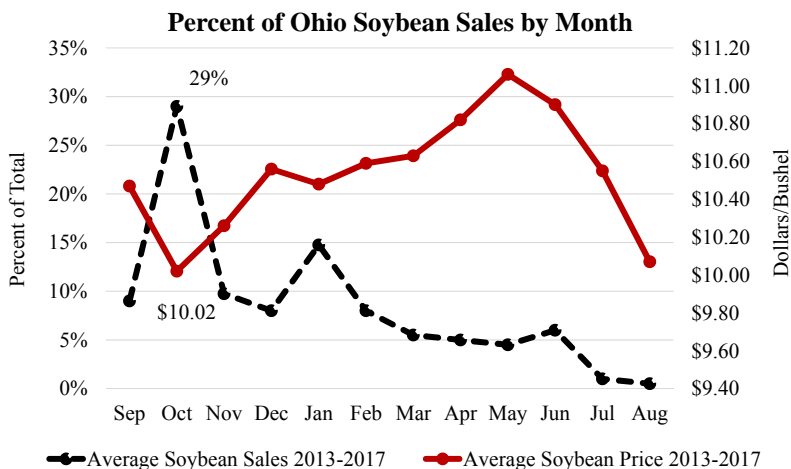
“So Ben, this was all great and dandy, but what does it mean for my operation?”



The Greed-Hope-Fear School of Marketing

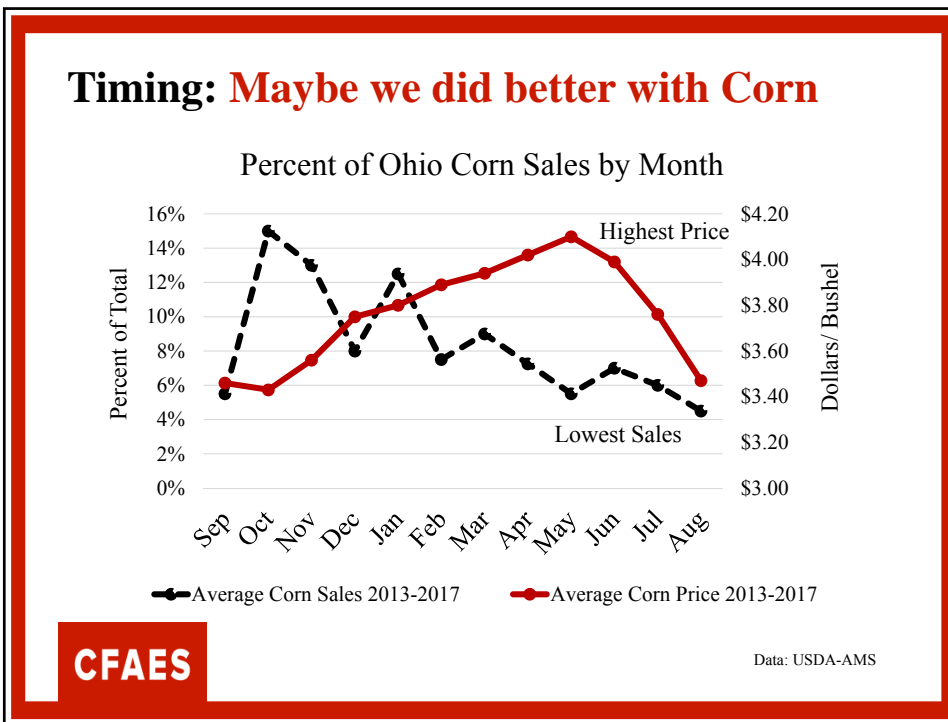
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Timing: Could we do better?



Data: Author Calculation using USDA-Agricultural Marketing Service

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Timing: Seasonality

- ✓ Since 2000, 14 out of 19 years have had a higher futures price on May 15 than Oct. 15. **That's 74%!!**
- ✓ The average increase was \$0.73.
- ✓ 5 out of 19 years had a higher futures price on Oct. 15 than May 15 or 26% of the time.
- ✓ The average decrease was \$0.83.
- ✓ If done every year you would have netted, a **positive \$0.32/bu.**

Year	May 15	Oct 15	Change
2007	\$3.77	\$3.54	\$0.23
2008	\$5.90	\$3.73	\$2.17
2009	\$4.16	\$3.68	\$0.48
2010	\$3.56	\$5.38	\$(1.82)
2011	\$6.88	\$6.44	\$0.44
2012	\$6.37	\$7.57	\$(1.20)
2013	\$7.05	\$4.51	\$2.54
2014	\$4.86	\$3.43	\$1.43
2015	\$3.69	\$3.85	\$(0.16)
2016	\$3.95	\$3.45	\$0.50
2017	\$3.66	\$3.31	\$0.35
2018	\$3.95	\$3.58	\$0.37

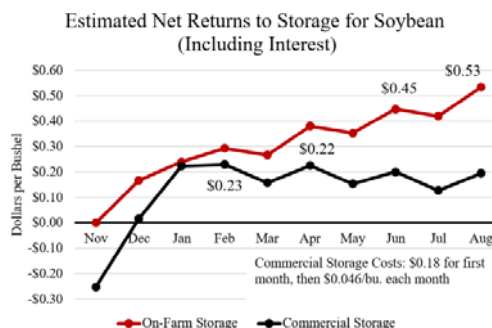
CFAES Data: Barchart Nearby Futures

I didn't sell enough, what do I do??

- ✓ Look for Carry in the Market.
 - ✓ Typically a large crop will have large carry because the market is trying to incentivize you to keep your grain and deliver at a later date
- ✓ Basis Appreciation
 - ✓ Basis usually strengthens post harvest. However, keeping an eye on historical basis as a benchmark is important.
- ✓ Use your on-farm storage like the elevators do and take advantage of both carry and basis appreciation.

Example from Nov. 2018

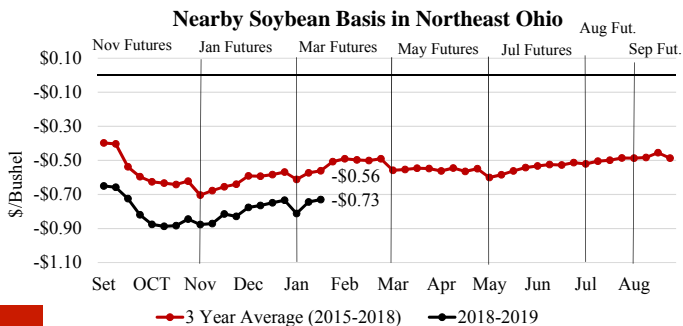
	1-Nov	1-Aug	Change
Futures	\$8.33	\$9.00	\$0.67
Basis	-\$0.75	-\$0.50	\$0.25
Cash	\$7.58	\$8.50	\$0.92



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Soybean Basis: Still Weak Comparably

- ✓ Basis is local, **large** differences across state
- ✓ To start 2018/19 marketing year, on average \$0.20 below 3-year average
- ✓ Lowest at harvest, then increasing
 - ✓ I'm not sure we can expect basis to increase as much later in the year given PNW basis conditions.

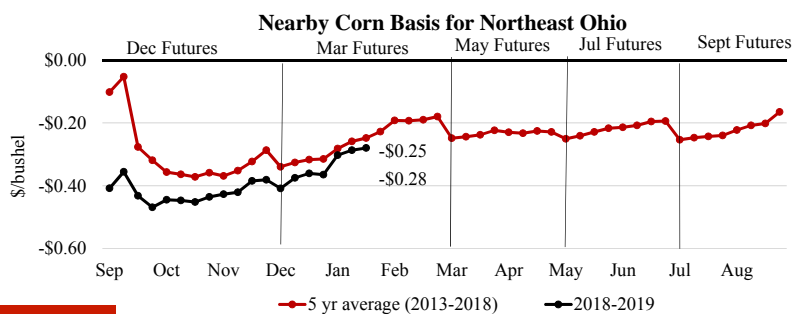


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Data Source: Author Calculation using DTN data

Corn Basis: Strengthened last two months

- ✓ Basis is local, has strengthened against historical average since start of November.
- ✓ To start 2018/19 marketing year Ohio was on average \$0.10 below 5-year average
- ✓ Lowest at harvest, then increasing
 - ✓ My expectation is for corn to follow this pattern slowly getting back to average.



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Data Source: Author Calculation using DTN data

Key Takeaways: The 2 minute Rundown

- ✓ Grain Markets
 - ✓ The release of the January Commodity Reports could be positive to corn and soybeans on lower yield and acres.
 - ✓ Corn shows some positive characteristics, but feed use remains a question.
 - ✓ Soybeans prices to me still look a little strong in relation to stocks and use.
- ✓ Trade Relations with China are affecting prices differently around the world.
 - ✓ Changing prices will influence producer/consumer choices
- ✓ Based on today's markets- I'm not expecting big swifts in acreage from soybeans to corn, but maybe a total reduction of corn and soybean acres.
- ✓ Marketing plans can take the emotion out of grain marketing, and it can increase your bottom line over time.
 - ✓ Know what you are going to do Pre and Post Harvest.

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Until we meet agrain... (or oilseeds)



Picture of soybean pile in North Dakota-October 20th

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