



*"I do not wish to comment on my work; if it does not speak for itself I have failed."* -  
**George Orwell**

**FRIDAY, MAY 15, 2017**

**Morning Summary:** Stocks continue to trade near all-time record highs on extremely low-volatility. Bears argue that with U.S. corporate quarterly earnings mostly behind us and very little fresh economic news scheduled for this week, the media minds will more heavily press the headlines and drama coming out of Washington, the latest of which is President Trump's firing of FBI Director James Comey. The Senate Intelligence Committee is currently investigating allegations of Russia meddling in last year's U.S. Presidential election and allegations of collusion between the Trump campaign and Moscow. They had extended an invitation to Comey to testify in a closed session this week, but the former Director declined. The session would have provided Comey a first chance to discuss with lawmakers the circumstances of his firing, of which there seem to be conflicting accounts. Keep in mind, the Senate is also still trying to compose a new bill to repeal and replace the Affordable Care Act, which many investors see as a roadblock on the path to implementing tax-reform and infrastructure spending. There is a risk in the market that a lack of confidence in the President could hurt his support in Congress, thus hindering his ability to get his pro-growth policies passed. As for money-flow, ETFs continue to grow at a very strong clip. Year-to-date data shows more than +\$175 billion has been added to ETFs this year and that total assets under ETF management could exceed \$3 trillion by year end. Interestingly however, during the first quarter of 2017 most of the money was flowing into funds that only owned U.S. stocks, whereas during the second quarter most of the money is going into ETFs owning foreign stocks. Many big-money investors have been arguing that U.S. stocks are "over-valued" in comparison to their foreign counterparts and it looks like they are putting their money where their mouth is. There's some fear that accelerating wage growth and an uptick in inflation coming at the same time the U.S. Fed is looking to raise interest rates could put downward pressure on forward looking profit margins for many U.S. businesses. The tight labor market, faster wage growth and higher cost of debt could essentially lower profit margins and forward guidance. The bears also argue that we could see a significant slowdown in corporate stock buybacks as rates and wages move higher. There are just a ton of moving parts further out on the time horizon that I'm a bit uncertain about, therefore I remain cautious in regard to being widely diversified in varying asset classes. I am only sticking with what I consider my favorite positions and not trying to outthink the rally. I will be taking closer look at the latest U.S. housing data this week and keeping one eye on the headlines coming out of Washington.

**Massive Cyber Pandemic Strikes Computers In Over 150 Countries:** *A global cyberattack leveraging hacking tools widely believed by researchers to have been developed by the U.S. National Security Agency hit international shipper FedEx, disrupted Britain's health system and infected computers in over 150 countries on Friday. British hospitals and clinics were forced to turn away patients because their computers were*

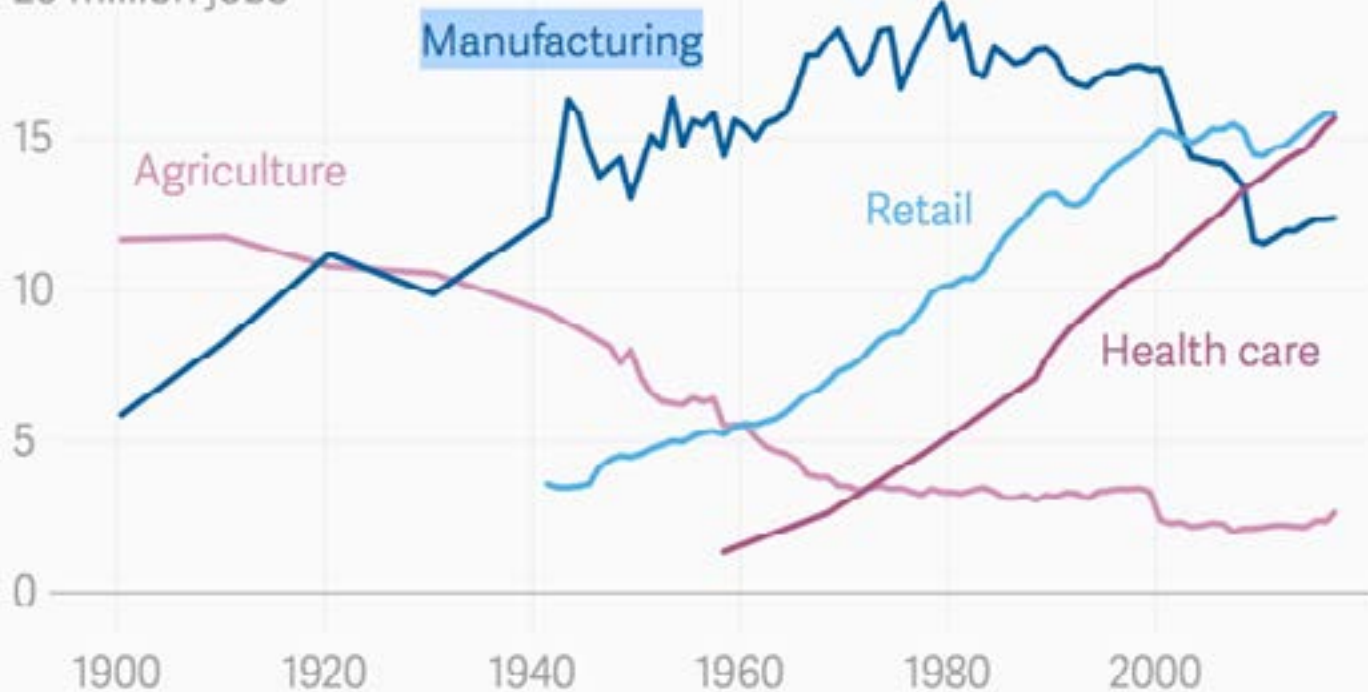
infected by a new form of "ransomware" that rapidly spread across the globe, demanding payments of as much as \$600 to restore access and scrambling data. Leading international shipper FedEx Corp said it was one of the companies whose Microsoft Corp Windows system was infected with the malware that security firms said was delivered via spam emails. A small number of U.S. organizations were infected, but as the campaign began in Europe, security experts were able to get ahead of the fast spreading attack. Researchers with several private cyber security firms say the hackers exploited a piece of NSA code known as "Eternal Blue" that was released last month by a group known as the Shadow Brokers. The incident was one of the largest global ransomware attacks the cyber community has ever experienced. There's talk of more computers possibly being effected this week. (Sources: TechCrunch, Reuters)

**Crude Oil Prices** are up close to +3.0% this morning after Saudi Arabia and Russia, the world's top two producers, said that a crude production cut would be extended from the middle of this year until March 2018. While the output cut will initially be on the same volume terms as before, they hope other producers will join in their efforts. OPEC is due to meet in Vienna on May 25th. (Source: SeekingAlpha)

**Four Eras Of American Jobs:** In the 1950s, the health care industry accounted for only around 3% of jobs in America. Today, it's nearly 13% of the labor market. At the current pace of growth, health care jobs will surpass retail jobs for the first time near the end of this year. While agriculture jobs dominated the private-sector labor market in the 19th century, manufacturing had its moment in the 20th century, and retail reigned in the first part of the 21st century, the future belongs to health care. The combination of an aging population and increasingly sophisticated treatments for chronic conditions will make health care jobs grow faster than any other major industry in the coming decades. The US Bureau of Labour Statistics forecasts that health-related jobs will grow at an annual rate of almost 2% through 2024, versus 0.5% annual growth for jobs overall. (Source: Quartz)

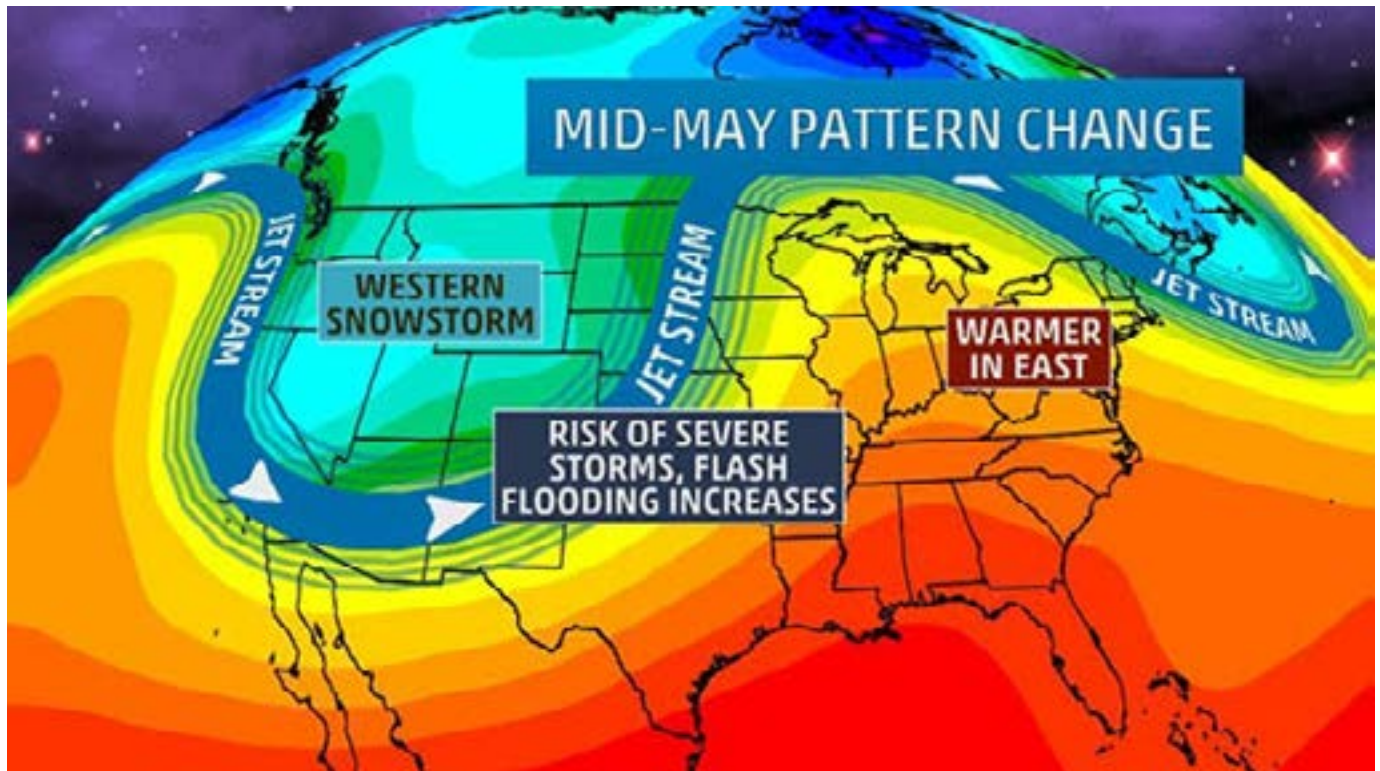
## US jobs by industry

20 million jobs



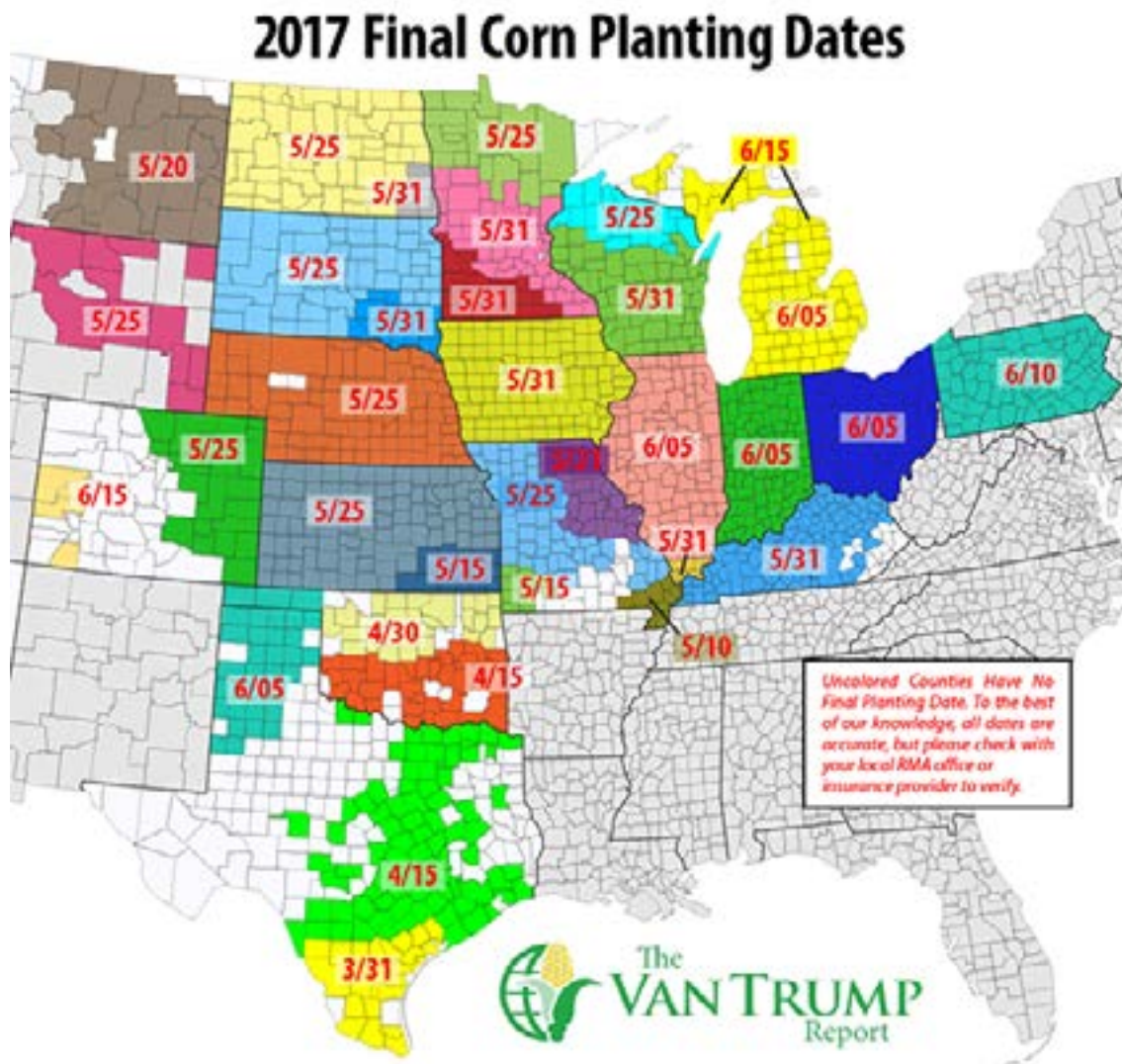


**Weather** will see a major pattern evolve, which will bring several big changes across the nation. An omega block has influenced weather conditions across the U.S. so far this month, but this clog in the atmosphere is finally expected to break down this week. The pattern will slowly transition to an upper-level trough, or southward dip in the jet stream. The result of this pattern change will increase the chances of severe thunderstorms in the central U.S. First chance for a storm will come Tuesday. A second round of severe thunderstorm is likely later this week. Many parts of Kansas, Oklahoma, north and central Texas, Missouri and Arkansas should see at least 1 to 3 inches of rain this week. Warm spring temperatures are also expected this week as a high-pressure ridge develops from the Plains to the East Coast. A large shift will take place with cooler than normal temps moving to the West and warmer temps moving to the East.

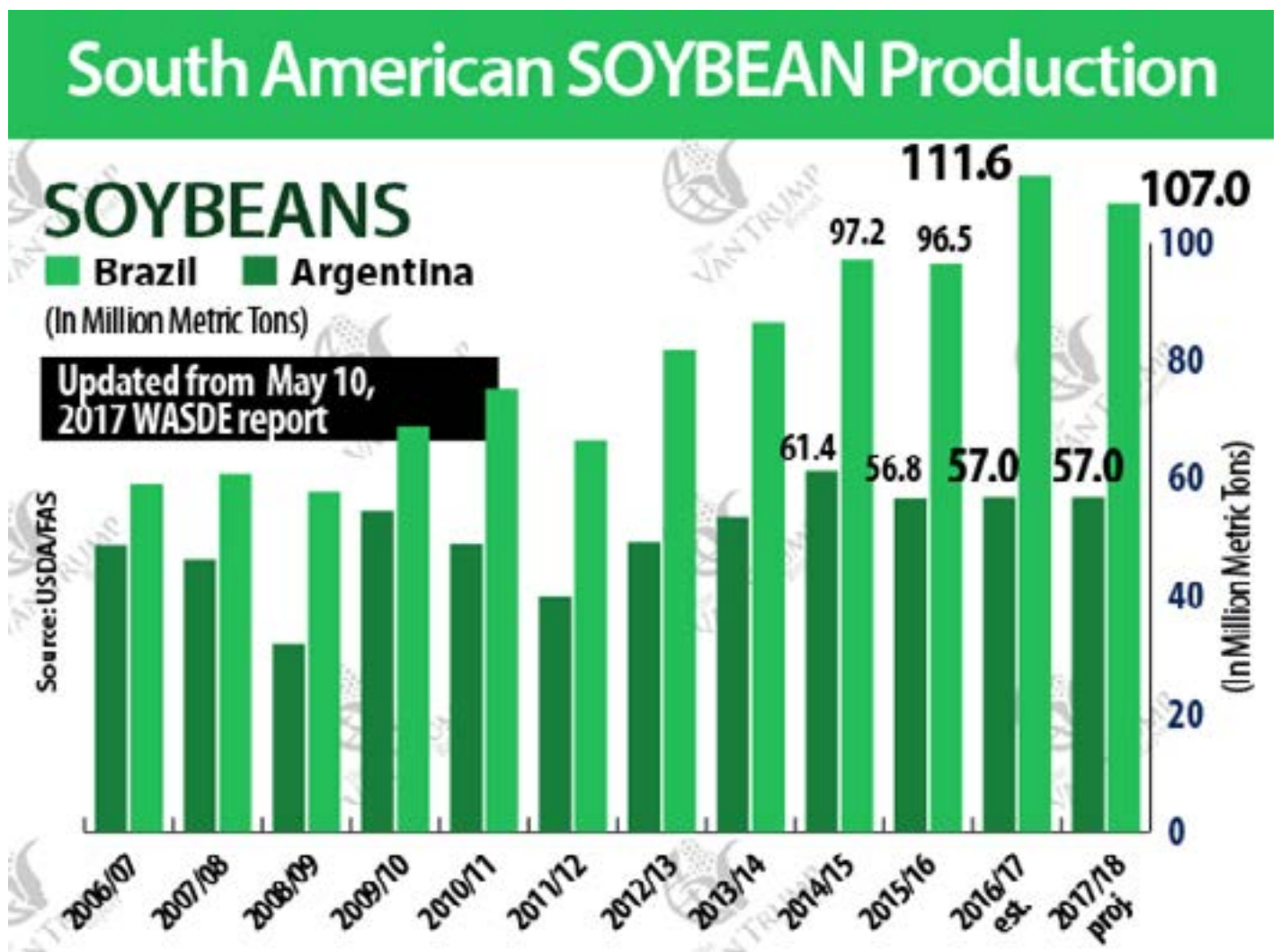




**Corn** prices continue to trade in a sideways channel. The new-crop DEC17 contract has essentially traded between \$3.80 and \$3.95 for the past two months. The old-crop JUL17 contract during the same period has traded between \$3.60 and \$3.80 per bushel. The bulls can argue that the new-crop balance sheet has tightened up a bit on fewer U.S. acres being planted, but the bears still point to the fact it remains extremely burdensome at +2.1 billion bushels. I should also note, the funds are still thought to be holding short positions in excess of over 200,000 contracts. More nearby, traders are focused on U.S. weather and how much of the crop will actually get planted? Last week traders were talking about key production states like Iowa, Minnesota, Dakotas, etc. seeing some improved weather and better windows of opportunity to plant. Bulls still want to talk about complications for producer to the south and east and a possible increase in prevented plant acres or alternative crops. Last year as of May 15th we had 75% of the entire U.S. crop planted, this year the trade is wondering if we will get to 65% planted? Last year Illinois had 83% planted; Iowa 88% planted; Kansas 80%; Minnesota 93% and Missouri 96%. Comparing the same states to this past week the USDA showed Illinois with 65% planted; Iowa 52%; Kansas 45%; Minnesota 35% and Missouri 77%. It will certainly be interesting to see how much got planted this past week. Regardless of this afternoons USDA update, I suspect there will still be +30 million unplanted corn acres. I wanted to include again the graphic we had in the office for "final planting dates" for many areas across the U.S., we are starting to get close for many locations. Make certain you talk with your local FSA office for more specifics. As both a producer and a spec it seems to now be all about U.S. weather, specifically too much rain and abnormally cool temps...stay tuned!



**Soybean** traders have very little fresh news to chew on this morning. The bears continue to point to record acres being planted here in the U.S., some +6.0 million more than last year potentially going in the ground, while the bulls point to the fact the USDA is using a yield estimate of 48 bushels per acre (-4.2 bushels per acre less than last year), which pushes their total new-crop production estimate lower when compared to last year by -52 million bushels. Obviously U.S. "weather" will prove to be make or break in regard to this estimate as we move forward, so the trade will be paying extremely close attention. As for South America, record production is in the bag in Brazil and the Argentine harvest is approaching 75% complete. Record production out of South America continues to work negatively against the bulls. We also have to remind ourselves that global old-crop ending stocks are now reported at a new record of 90.14 MMTs and new-crop still at a burdensome level of 88.81 MMTs. Here at home and more nearby the trade will be debating the pace of U.S. planted acres and perhaps more early field damage and crop complications in some key growing regions due to excessive rains. Last week the USDA showed 14% of the U.S. soybean crop was planted and running slightly behind our traditional pace. I doubt the theme changes much, as last year by May 15th the USDA estimated 36% of the crop was planted with the 5-year average planting pace of around 32% complete. On top of planted acreage the trade will also be digesting the latest NOPA crush data. The trade seems to be looking for an April crush number of between 144 and 147 million bushels, with soy oil stocks just north of 1.7 billion pounds. As a producer I'm still a bit nervous about the downside and want to keep my current hedges in place and will use another significant move higher, perhaps on an upcoming U.S. weather scare, to reduce more longer-term risk.



**Wheat** bulls are thinking the USDA will once again lower their weekly crop-condition estimates as more talk of production hiccups circulates inside the trade. Last week winter wheat conditions fell from 54% down to 53% rated "Good-to-Excellent" vs. 62% rated "Good-to-Excellent" last year at this juncture. I suspect this week we see another 1-2% reduction. Let's also not forget the USDA recently dropped its total U.S. wheat production estimate for 2017/18 down nearly -500 million bushels from the prior year to 1.820 billion bushels. Unfortunately the bears continue to argue the drop in U.S. production is no big deal as both the domestic and global balance sheets remain extremely burdensome. U.S. ending stocks are projected to decline -245 million bushels but look as if they will still remain over +900 million. On the flip side global wheat production is projected at a whopping 737.8 million tons, the second highest total on record, while global ending stocks are projected at a fresh new record of 258.3 million tons, up +2.9 million from 2016/17. Hence reason enough for the funds to continue holding a near record short position in the wheat market. I personally sticking with my conservatively bullish tilt and of the belief that the traditional bearish fundamentals are already cooked into the market and that any unforeseen bullish headline could easily rock the boat back in the opposite direction.



**> Brazil's Mato Grosso Leads Push For GM-Free Soy:** *A movement to replace genetically modified soybeans with conventional seeds is gaining traction in Brazil's largest soy-producing state of Mato Grosso as farmers anticipate growing demand from Asia and Europe. Brazil was an early adopter of transgenic crops and more than 96 percent of its soy harvest is of GM varieties, which helped to transform the country into the world's largest soy exporter. Proponents of biotech crops say the technology lowers the cost of food and helps farmers to manage pests and diseases more safely. But some consumers and environmental groups argue that GM crops boost pesticide use and pose threats to the environment and human health. Wininton Mendes, coordinator of a program to promote use of conventional seeds run by Mato Grosso growers and the government agricultural research agency Embrapa, said that Mato Grosso's drive to plant more conventional soy is backed by three trading firms - including Amaggi SA, owned by the family of Agriculture Minister Blairo Maggi - which pay a premium. The other two traders are Imcopa International SA and Caramuru Alimentos SA. (Source: Reuters)*

**> Buenos Aires Grains Exchange Ups Argentine Corn & Soy Estimates:** *The Buenos Aires grains exchange lifted its estimate for the country's soybean production by +1 million metric tons to 57.5 million (USDA 57 million). The exchange said its forecast took into account the loss of 2.84 million acres of crop to heavy rains, inundations which had prompted some observers to talk of a sub-50m tonne harvest. The exchange lifted its estimate for Argentina's corn crop by +2 million metric tons to 39 million (USDA 40 million), citing in part a 494,210 acre upgrade to its forecast for seedings.*



**> China-U.S. Beef Trade Details Released:** *U.S. beef will be making its way to China no later than July 16 and cooked poultry from China will be entering the United States under an agreement with China announced late Thursday evening by the Commerce Department. It's not the first time the administration has announced that China will end its 14-year ban on U.S. beef over BSE concerns, and it remains to be seen how the U.S. will overcome technical barriers previously in the way, but U.S. cattle ranchers are expressing excitement over the prospect of gaining access to an export market now believed to be worth \$2.6 billion. "Success in this arena will drive the U.S. cattle market and increase demand for U.S. beef," Kenny Graner, president of the U.S. Cattlemen's Association, said in a statement. "USCA looks forward to working with this administration to establish U.S. beef access to China during the final rounds of these technical consultations."*

**> Organic Livestock Handling Rule Delayed Another Six Months:** *USDA's Agricultural Marketing Service is delaying the effective date of the Organic Livestock and Poultry Practices final rule by an additional six months, until Nov. 14, the agency said on its website. USDA said the delay allows time for further consideration of the rule. Among its provisions, the rule amends requirements for transporting organic livestock and poultry to slaughter, sets maximum indoor and outdoor stocking densities for organic chickens and requires that outdoor spaces for organic poultry include soil and vegetation. The public may submit comments until June 9 on what actions USDA should take for disposition of the final rule, the agency said. The rule's effective date previously was postponed to May 19 from March 20. (Source: MeatingPlace)*

**> Mexican Beef Exporters Look To U.S. Alternatives:** *Mexico's growing beef industry is targeting Muslim consumers in the Middle East for its prime cuts as it seeks to reduce dependence on buyers in the United States. The potential for a U.S.-Mexico trade war under President Donald Trump has accelerated efforts by Mexican beef producers to explore alternative foreign markets to the United States, which buys 94 percent of their exports worth nearly \$1.6 billion last year. Mexican beef companies fear they may be dragged into a renegotiation of the North American Free Trade Agreement. That has firms looking to the Middle East, where most meat is imported from non-Muslim countries using animals slaughtered by the halal method prescribed by Islamic law. Mexico, the world's sixth biggest beef producer, plans to quadruple exports of halal beef to 44 million pounds (20,000 tonnes) by the end of 2018 from 11 million pounds (5,000 tonnes) this year, according to data from the Mexican cattle growers association AMEG. The country should have 15 plants certified to produce halal meat by the end of next year, up from a current six, according to AMEG data. (Source: Reuters)*

**> Kinder Morgan Redirecting Ethanol Trucks:** *Kinder Morgan has begun redirecting ethanol delivery trucks bound for its Argo, Illinois, terminal to its nearby Stony Island facility, according to a customer notice seen by S&P Global Platts. The notice added that the last truck to unload at Argo was at 7 am CDT Thursday. The company will notify customers by email when deliveries can resume. This is the second time this year that Argo has redirected deliveries away from Argo. The company began turning away deliveries in February as high stock levels prompted the move to balance inventories between the terminals. Sources said at the time that Kinder Morgan needed to make room at Argo for large inbound rail deliveries. Stock levels have remained high over the past several weeks despite plant turnarounds trimming output. (Source: Platts)*

**> USA Rice May Ask FDA For Help Against "Pretenders":** *USA Rice says in an ar-*

ticle posted Thursday that newly confirmed FDA Commissioner Scott Gottlieb could have an impact on the rice industry in relation to several matters it cares about, including the proliferation of what it calls "rice pretenders," or vegetables that have been put through a ricer. "Only rice is rice, and calling 'riced vegetables,' 'rice,' is misleading and confusing to consumers. We may be asking the FDA and other regulatory agencies to look at this," USA Rice President and CEO Betsy Ward said. (Source: Politico)

**> Treasury Intel Unit May Turn Over Financial Records For Trump-Russia Probe:**

A financial intelligence unit within the Treasury Department has agreed in principle to turn over financial records related to President Donald Trump and associates, NBC News confirmed Friday, citing a person close to the Senate Intelligence Committee. CNBC and NBC News first reported on Wednesday that the committee requested the documents from the Treasury's Financial Crimes Enforcement Network. A committee aide said the evidence could include possible money laundering and to what extent, if at all, people close to Vladimir Putin have invested in Trump's real estate empire. In response to that report, White House spokesman Michael Short said the president is confident the investigation will exonerate his campaign. One person said that without them, though, the committee wouldn't be able to reach a conclusion on whether there was collusion between Trump associates and Russia during last year's campaign. The Senate intelligence panel's request was made because investigators, who have been reviewing U.S. intelligence reports about Russian interference in the 2016 election, came across information that led them to inquire about Mr. Trump's business ties, according to the anonymous sources. The inquiry could also include businesses owned by or associated with Mr. Trump's family members, including Kushner Cos., where his son-in-law and now senior White House aide, Jared Kushner, was previously the CEO. (Sources: CNBC, Wall Street Journal)

**> Which State Is Posting The Most Selfies While Driving?** The smallest state in the country by population has the most drivers (per capita) taking selfies and posting them to Instagram according to a recent report from Auto Insurance Center. There were nearly 44 posts to the social media site with driving-related hashtags per 100,000 residents. A close second was Nevada (41.2 posts), followed by Utah (38.8 posts), New York (33.6 posts) and Hawaii (31.7 posts.) To conduct the study, Auto Insurance Center analyzed more than 70,000 Instagram posts with hashtags such as #DrivingSelfie and #HopeIDon'tCrash. Meanwhile, drivers in Mississippi kept their eyes on the road the most, at least according to this study, with only 2.48 posts per 100,000 residents. Other states at the low end of the spectrum include Iowa (4.40 posts), Arkansas (5.42 posts) and Delaware (5.46 posts). Overall, the U.S. far outpaces other countries when it comes to posting to social media while on the road. Nearly half of all driving-related updates on Instagram originate from the U.S. — the U.K. comes in a distant second at 10.1%. And app usage while driving is on the rise. In 2016, the study noted nearly 72,000 driving-related posts to Instagram, up from 32,376 the year before. (Source: MarketWatch)



The number of Instagram posts with driving-related hashtags by state, per 100,000 residents



**Central Illinois** - *We finished all of our corn plantings on April 17th. We are hoping that we will not have any acres to replant but with 5.5" of rain in a short window, I think that it's only a matter of time. We do have some ponding in a lot of fields now. The early planted corn was at the three leaf stage and I think it has all came out of it but could have a few issues. I was just glad to see that it was all still alive after the water came off of it.*

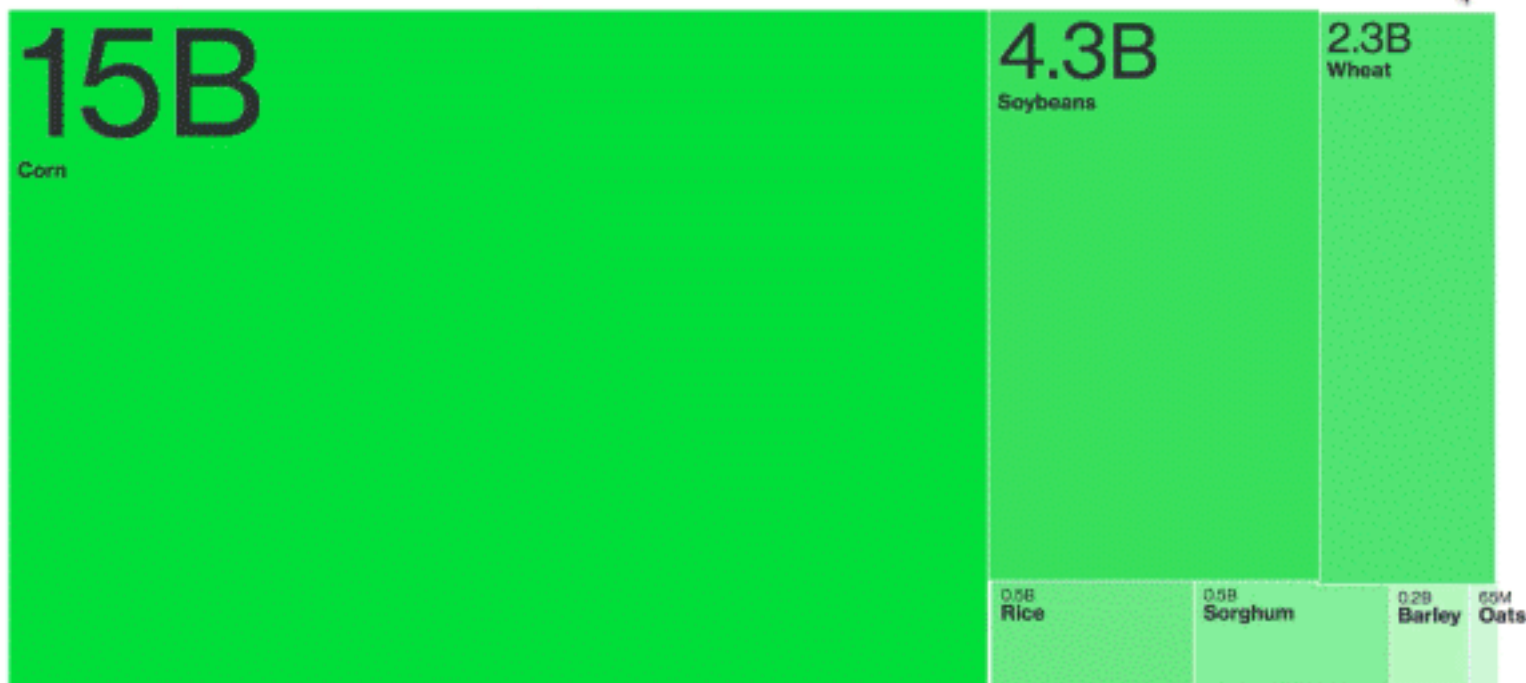
We were very wet but the warm up and a little wind has helped but we are still tacky in the fields. We will try to get going on bean planting later today or in the morning. We are planting all Liberty beans this year, which is a first. I think that we are seeing more and more weed pressure that is not easy to take care of with other products. We could have planted beans before the rains but wanted to keep the seed in the bag until the weather settled down and I think we made the right decision. I have rented a lot of our ground this year but didn't do cash rent and opted to do crop share. I had a few different neighbors that were interested so I just divided it up between the two and didn't have them bid against each other.

**Southcentral Michigan** - We have just started planting for this year's crop, rolling with two planters putting in corn and beans at the same time. We have had plenty of moisture over the past few weeks and need to miss the next rain in the forecast. We are back in the shop now getting the bugs worked out of the planters. Believe it or not, we had a white lawn this morning but it has now gotten up to the 50-degree mark and we are to be cooler the next couple days before we warm up by the weekend. Nobody is too concerned about the date to plant as last year we started on May 18th. In 2012, it was a very weird year and we had all of our corn planted by April 12th. We had one of our best crops while much of the corn belt was in one of the worst droughts ever. We got lucky that year because you only had to go 20 to 30 miles in any direction to find very dry conditions, with terrible yielding crops. If we miss the rains forecast for this weekend we may have a good window to get planting wrapped up. Some areas up here have localized flooding and there will be a few acres that will need to be replanted.



**The Crop That Ate America:** Farmers who had long rotated plantings among a diverse group of grains are increasingly turning to a single one. Corn has always been a mainstay of U.S. agriculture, but its increasing profitability has driven up corn's share of total production, while grains such as wheat, oats and sorghum have steadily fallen, according to a Bloomberg analysis of a half-century of crop data. This locks farmers, as well as machinery-makers including Deere & Co., to the rises and falls of one crop, as both domestic and export markets grow more and more tied to the dominant U.S. grain. That exposes farmers to greater volatility and greater trade risk if a major buyer, such as Mexico, were to decide to stop buying U.S. corn. Check out a larger version of the graphic below and more of the story [HERE](#).

**Corn muscles its way to dominate the harvest: 1968**  
Production in billions of bushels



**Administration Adds Emphasis On Trade In USDA Changes:** *Secretary of Agriculture Sonny Perdue says international trade plays a significant role in the success of American agriculture. Last week, Perdue announced the creation of an undersecretary for trade and foreign ag affairs in the USDA. "I want someone who gets up every day who says, 'where can I go to sell American farm products today around the world'," he says. "And help us grow that market." He says international trade has been a key component of the American economy for many years. "Every dollar of these exports has a multiplying effect of \$1.27 dollars in business activity along the whole supply chain and logistics," he says. Listen to his full statement [HERE](#).*

**Beyond Florida...How Retirees Are Looking Elsewhere:** *When it's time to retire, consider skipping the Sunshine State. Warm weather and low taxes shouldn't be the sole basis on which you decide to spend the rest of your life, said Claes Bell, an analyst for Bankrate. "It's not a place where you're going on vacation," he said. Florida, for instance, ranked 17th, because crime was a bigger issue there than in other locales. Also, consider your options if you can't drive and whether you can easily access your care providers. Your accessibility to a social network is also important. "A support network of family and friends will be important as you get older," said Bell. "You can't get isolated — it can lead to issues with well-being." The following is the top five. How does your state rank? Read more [HERE](#).*

**As Solar Demand Grows Jobs Have Been Added at Record Pace:** *The rapid rise of solar power is one of the most astonishing transformations in the history of global energy use. A decade ago, solar photovoltaics (PV) was just a tiny sapling, easily dismissed by fossil fuel advocates. Today, after a remarkable 30-fold increase in PV sales in just nine years, it has become a giant redwood forest. Last year alone saw a stunning jump in annual global PV demand of more than 50 percent. And GTM projects that demand for solar power will continue to rise. This transformation has been driven by steadily plummeting costs for solar (and other enabling technologies). See how the industry is growing jobs [HERE](#).*



**Out Of The Cloud And Onto Your Phone:** *You want AI on your phone. It's faster, more secure, you can use it regardless of the availability of cell service or wi-fi, and perhaps just as importantly, you can look down in your hand at that five-inch device wrought from sand and silicon with the full knowledge that dozens, if not hundreds, of virtual machine brains are making decisions inside just for you. Luckily, tech companies that develop the services you use every day, like Google and Facebook, also want this to happen, and have been developing AI that takes up less space and runs faster, which is optimal for mobile devices. Read more [HERE](#).*

**Practicing The Subtle Art Of Detachment...Why taking a step back is as necessary as moving forward:** *Mental fatigue and burnout is almost like the epidemic of the century. Some of the brightest people with immense energy and passion go through this phase of extreme exhaustion which might last for months if not years. the problem hasn't entirely got to do with being passionate alone. Passion is everything, after all. Defined as 'a strong and barely controllable desire', feeling passionate is what makes you feel alive. The problem turns out to be with delusional thinking. Read more [HERE](#)*

**Seven Leadership Secrets of Great Team Captains:** *Some years ago, I set out to identify the greatest teams in sports history across the world, interestingly they all had just one shared characteristic: Their long streaks of dominance either began or ended—and in many cases overlapped precisely—with the tenure of one player. And in every case, this player was, or eventually became, the captain. The men and women who led these teams were surprisingly similar to one another, but their skills, personalities and leadership styles were not at all what I expected. The qualities they shared were not the ones I would have guessed. Some, in fact, were traits I would have rejected. It occurred to me that in sports—and perhaps in other fields where teamwork matters, from business, politics and the military to science and the arts—we've been choosing the wrong people to lead us. The captains whom I identified had seven traits in common. A couple of the traits I personally liked, where the fact they were independent thinkers, unafraid to dissent, had emotional self-control and often broke the rules! Read more at [The Wall Street Journal](#) article by Sam Miller*



ILLUSTRATION BY KEITH WEBB



## Understanding What Gives Soil Life

Soil health, as defined by the USDA, is the continued capacity for soil to function as a vital living ecosystem that sustains plants, animals, and humans. In terms of managing this ecosystem we have to remember that soil contains living organisms that provide the basic necessities of life - food, shelter, and water. Millions of species and billions of organisms make up a complex and diverse mix of microscopic and macroscopic life that represents the greatest concentration of biomass anywhere on the planet. Bacteria, algae, microscopic insects, earthworms, beetles, ants, mites, and fungi are among them. All together their value has been estimated at \$1.5 trillion a year worldwide. Estimates vary but if you could weigh all the organisms in the top six inches of soil on one acre of land you would find they would weigh between 2,500 pounds to more than 5,000 pounds, depending on how healthy the soil is. Obviously these creatures are microscopic. In fact "bacteria", the soil microbes with the highest numbers, can fit 40 million of themselves on the end of one pin. Many scientist say there are more soil microorganisms in a teaspoonful of soil than there are people on the earth. These microbes make up only one-half of 1% of the total soil mass, including yeasts, algae, protozoa, bacteria, nematodes and fungi which process soil into dark, rich, stable humus. As a group they cycle nutrients, build the soil and give it structure. The healthiest soils tend to be those with a diversity and abundance of life. Farmers with the healthiest soils nurture that life by creating a diversity of plant life above the soils surface with year-round ground cover, no tillage, and judicious pesticide use. Below are examples of a few of the more popular organism and what they do for our farm grounds: (Source: USDA, [Natural Resources Conservation Service](#))

**Bacteria** - *Feed on organic matter, store and cycle nitrogen, and decompose pesticides.*

**Fungi** - *Up to 3,000 species of fungi are in the soil. Some feed on dead organic matter like crop residues that are more difficult to break down - others are parasites that attack other microbes. Some fan out from the root to get more nutrients and hold more water for the plant, delivering nutrients to the plant in exchange for carbon.*

**Protozoa** - *Eat bacteria, fungi, and algae. When they eat bacteria, their main food source, they unlock nitrogen that's released into the soil environment slowly. They convert organic nitrogen to inorganic nitrogen that's available*





to plants.

**Mites** - *Decompose and shred organic matter as an important part of the nitrogen cycle.*

**Nematodes** - *These microscopic worms are an important part of the nitrogen cycle. Most are non-pathogenic and don't cause disease. They eat other organisms in the soil.*

**Earthworms** - *Expel partially decomposed organic matter and make tunnels that aid soil structure and water movement in the soil.*

### **Pulling Water Out Of Thin Air**

A new device created by researchers at MIT and UC Berkeley uses the power of the sun to extract water out of the air. It works at low power and in arid conditions, making it ideal for remote desert areas. It's basically the same concept as a dehumidifier, pulling water vapor from the air and converting it to liquid water. Dehumidifiers require a large amount of electricity though, whereas this new water harvester runs on solar power and a special material called a Metal-Organic Framework, or MOF. An MOF is a lattice of organic molecules interspersed with metals like magnesium or aluminum. The MOF used in the scientists' water harvester is made of zirconium and adipic acid. Think of it as a molecular sponge, which captures and stores specific particles. The materials this MOF is made of are ideal for capturing water molecules. Air passes through the MOF, which captures particles of water vapor. Sunlight heats the device, which causes the water to condense into a tank. With this process, over a quart of water can be produced per day per pound of MOF material, even in arid conditions with only 20 percent humidity. That amount of water is already enough to prevent someone from dehydrating, but the researchers stress that the current model is only a prototype. They have visions for water harvesters that could use even better MOF materials that can collect more water. They also believe there is room to improve the design that would help maximize the efficiency. As it can work without any electricity, it could be adopted for a wide range of purposes and conditions. For instances, such a device could provide water to remote communities that don't have easy access to fresh water. A larger, more efficient version of the water harvester could easily produce multiple gallons of water per day, enough to support a large family. Atmospheric water is a resource equivalent to approximately 10% of all fresh water in lakes on Earth. To this point, there has not been an efficient method created to capture and deliver that water though, especially at low humidity levels. Fog harvesting, which is being used in many countries including Chile and Morocco, requires very moist air, with a relative humidity of 100 percent - conditions only common in very limited regions. Another method of obtaining water in dry regions is called dew harvesting, in which a surface is chilled so that water will condense on it, as it does on the outside of a cold glass on a hot summer day, but it "is extremely energy intensive" to keep the surface cool. Obviously, this new system does not have these limitations and could have a huge impact on securing one of our planet's most precious resources. (Sources: Popular Mechanics, MIT)



### **The 11 Most Valuable Pieces Of Baseball Memorabilia Ever Sold**

The folks over at [WealthManagement.Com](http://WealthManagement.Com) love baseball and recently put together an interesting list of the 11 most valuable pieces of baseball ever sold. Something else they pointed out is of the 15 most expensive pieces of sports memorabilia ever sold, 11 are actually baseball-related and seven involve "The Babe". Their research and editorial team is always putting out great information. I encourage you to check them out [HERE](#)

**11. Hank Aaron's 755th Home Run Ball \$650,000** - Aaron set one of the most respected records in baseball history (many fans still consider Aaron the true home run king due to suspicions about Barry Bonds' performance enhancing drug use) on July 20, 1976. This price was realized in a Guernsey's auction in 1996 and the ball has rarely been seen since. It's current owner, portfolio manager Andrew Knuth, keeps it in an undisclosed location that he will only characterize as "very safe." I suspect it would go for much much higher in today's marketplace.

**10. Babe Ruth's 1933 Jersey \$657,250** - 1933 was Ruth's second to last year with the Yankees. Though that may sound like a bit of a random season to fetch such a high price, the significance of 1933 is that it also marked Ruth's first all star selection and, unsurprisingly, the year he hit the first home run in all star game history. For those wondering why Ruth didn't make an all star team until 1933, the answer is simple — that was the first year the game even existed.

**9. Barry Bonds' 765th Home Run Ball \$752,467.20** - This dinger, hit on August 7, 2008, broke Hank Aaron's long-standing all-time career home run record. The ball

was caught by Matt Murphy, a 21-year old student who entrusted it to Sotheby's auction house for sale. The winning bidder was fashion designer Mark Ekko, who laser etched an asterisk into it before sending it to the Hall of Fame. Unbelievably, a different Bonds home run ball has arguably had a larger impact on society. His single season record setting 73rd home run ball in 2001 caused a fight in the stands over ownership. The lawsuit that ensued, *Popov v. Hayashi*, cast light on some arcane property law principles, primarily the concept of abandoned property. To stress just how rarely this particular issue has arisen, the primary sources of precedent on which the decision hinged were 19th century fox hunting and whaling cases. Popov won and sold the ball for \$450,000, but the real winners were property law professors who finally had a case less than 200 years old to demonstrate these concepts to first-year law students.

**8. Babe Ruth's 1934 World Tour Uniform \$771,000** - This piece, sold by Mastro Auctions in August 2005, seems a bit underwhelming given the history connected with the other items on the list, but it splendidly illustrates an important tenet of auction sales: condition matters. Ruth only wore this obscure uniform a few times, mostly during an offseason tour of Japan, but because of its infrequent use, it's still in fairly pristine condition for a garment that old. More importantly, it's a complete uniform, with socks hat and all which adds to the price.

**7. Babe Ruth's Signed 1933 All-Star Game Home Run Ball \$805,000** - The first homer hit at the first all-star game — in Comiskey park in 1933 — this item is so valuable because it's a double header (hooray, baseball puns). It has historical value, marking the first home run in all-star game history, but it also holds celebrity value, given that it was signed by Ruth, whose signature on any item would fetch a hefty price, let alone a one-of-a-kind piece with such history of its own. This ball was kept in chests and closets — even spent a decade in an old cardboard box — by the family of the man who caught it for the better part of a century before it was sold at a memorabilia auction at Major League Baseball Fanfest in Pittsburgh in 2006.

**6. Babe Ruth's 1932 Jersey \$940,000** - This is the Jersey Ruth was wearing during, arguably, his most famous moment: his called shot against the Cubs in game 3 of the 1932 World Series. There's some debate as to whether Ruth was actually pointing where he'd hit the ball, or if he was simply pointing at the pitcher or just gesturing in general. However, the idea of a called shot, let alone in the World Series, is too iconic of an image to really question which is why this item fetched such a hefty price at a Grey Flannel Auctions sale in 2005.

**5. Babe Ruth's 1919 Yankees Contract \$996,000** - This document, which marks the sale of Ruth from the Red Sox to the Yankees, is perhaps the most famous (or infamous, if you're not from New York) transaction in baseball history, launching a Yankees dynasty that's won 27 World Series since, and cursing the Red Sox to 86 years of futility before they exorcised that particular demon in 2004. The sale price, realized at a 2005 Sotheby's auction, made this the most valuable sports document ever sold by a fairly wide margin, though it has since been surpassed by a 2010 sales of James Naismith's original rules of basketball for a staggering \$4.3 million (also at Sotheby's).

**4. Babe Ruth's First Yankee Stadium Home Run Bat \$1.265 million** - This item, sold by Sotheby's in 2004, is the only bat on the list for several reasons. First, Ruth



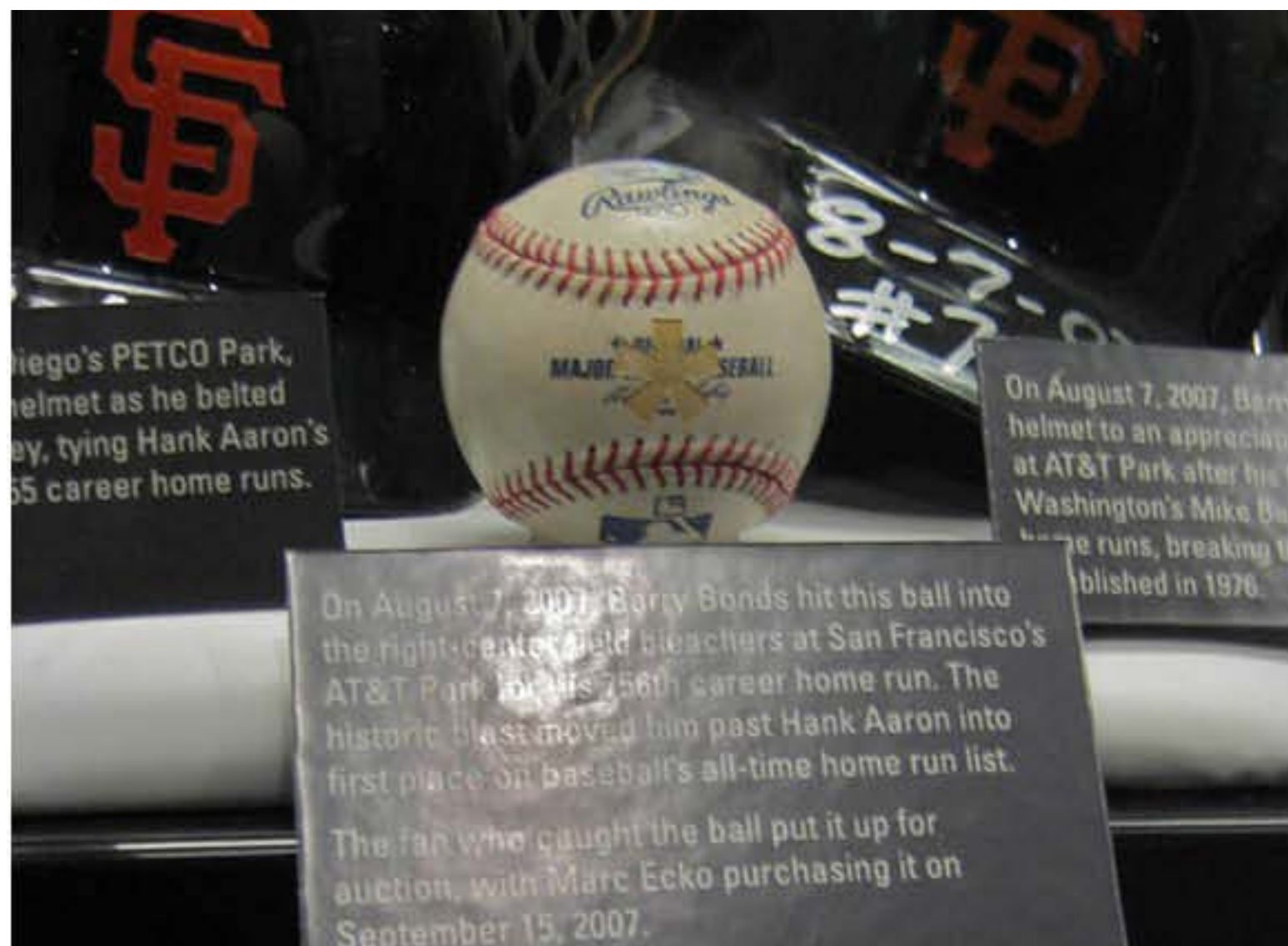
used it during the first game ever played at the original Yankees stadium in 1923. Second, he hit a home run with it — the first home run in the history of the infant stadium. Third, the opponents were the Boston Red Sox, who sold Ruth to the Yankees several years prior.

**3. Honus Wagner 1909 Baseball Card \$2.8 million** - The most famous and valuable baseball card of all, this card was part of a 1936 set that was issued by tobacco companies to stiffen cigarette packaging. It's value stems from the fact that not only was Wagner arguably the best player of that era, but he took a personal stance against smoking, refusing to allow his image to be used by The American Tobacco company because he didn't want to encourage children to buy cigarettes. As such, these cards are exceedingly rare, with only 57 believed to be still in existence, most of which are in rough shape. This particular card, featured in a ESPN 30 for 30 short, was deemed to be in near mint condition at the time of this sale by Mastro's in 2007 which accounted for much of its value. However, there is controversy surrounding it, as in 2013, Bill Mastro, owner of the auction house of the same name, admitted to altering the card prior to sale, shaving the edges and helping it achieve the near mint evaluation. The company went out of business while under investigation in 2009, and Mastro was sentenced to 20 months in prison for shill bidding (that's not one you see every day).

**2. Mark McGwire's 70th Home Run Ball \$3 million** - Deemed "The Crown Jewel of Sports Memorabilia" when it was put up for sale at Guernsey's in 1999, this ball marked McGwire's coronation as the new single-season home run king, shattering the previous record of 61, and for a decade was the most valuable piece of sports memorabilia ever sold. It also harkens back to a simpler time when we could watch sluggers like McGwire and Sammy Sosa rewrite the record books without ever wondering if they were on something "extra." The ball was purchased by comic author/artist Todd McFarlane, most famous for his creation, Spawn. Not sure, but thinking the bid might be much lower today?

**1. Babe Ruth's 1920 Jersey \$4.415 million** - Just when you thought you were done with The Babe! This is the oldest-known surviving game-worn Ruth jersey and was characterized to the New York Times in 2012 as "The Holy Grail of Sports Memorabilia" by David Kohler, President of SCP auctions (which may be just a bit biased since they were the ones selling the thing). Nonetheless, you can't argue with results and this one speaks to the enduring celebrity and force of personality of the Babe. Interestingly, the winning bidder was Leland's, another auction house. Presumably, they think they can sell it for more.





## The Honus Wagner card sales record history makes interesting reading.



In 1985 it sold for \$25,000, in 1987 for \$110,000, in 1991 for \$451,000, in 1995 for \$500,000, 1996 for \$641,500 and in 2000, \$1,265,000.

In 2007 it sold for US\$2,350,000 then later the same year the same card fetched US\$2,800,000. Another T206 Honus Wagner card has sold for more than \$2 million.

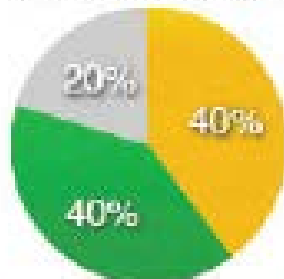
**Only 57 Honus Wagner cards exist.**



# CASH SALES & HEDGING TOTALS

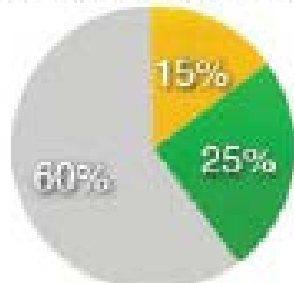
## CORN 2016 CROP

40% SOLD  
40% HEDGED  
20% UNPROTECTED



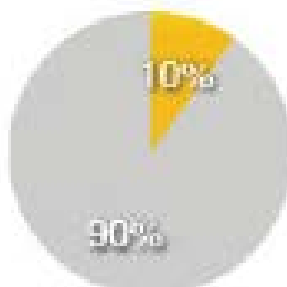
## CORN 2017 CROP

15% SOLD  
25% HEDGED  
60% UNPROTECTED



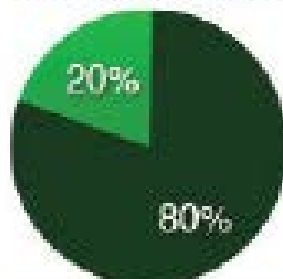
## CORN 2018 CROP

10% SOLD  
0% HEDGED  
90% UNPROTECTED



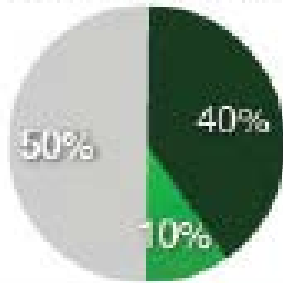
## SOYBEANS 2016 CROP

80% SOLD  
20% HEDGED  
0% UNPROTECTED



## SOYBEANS 2017 CROP

40% SOLD  
10% HEDGED  
50% UNPROTECTED



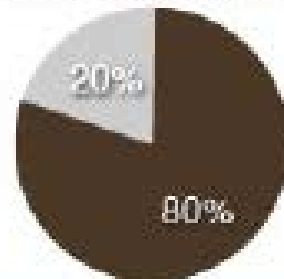
## SOYBEANS 2018 CROP

0% SOLD  
0% HEDGED  
100% UNPROTECTED



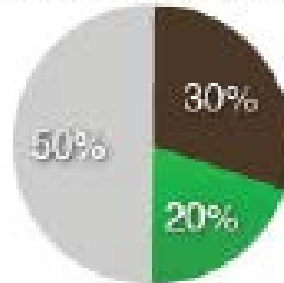
## WHEAT 2016 CROP

80% SOLD  
0% HEDGED  
20% UNPROTECTED



## WHEAT 2017 CROP

30% SOLD  
20% HEDGED  
50% UNPROTECTED



## WHEAT 2018 CROP

0% SOLD  
20% HEDGED  
80% UNPROTECTED

