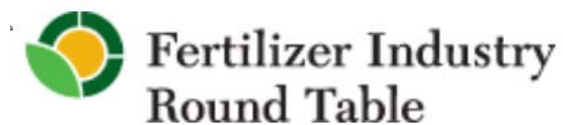


THE STATE OF THE INDUSTRY With A Focus On Distribution



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Farrell Growth Group



State of the Industry

November 17, 2016



The
Fertilizer Institute
Nourish, Replenish, Grow



FARRELL
GROWTH GROUP LLC

What is the State of the Industry?

- Commodity Market Collapse
- Consolidation, Mergers, VC, Acquisitions, Closures
- Technology Explosion
- Global Political and Economic Turmoil
- Advancing Regulations

Be prepared to get out of the rut and advance your business strategy to one of change leadership

Remembering

"Strategy is a commodity, execution is art."

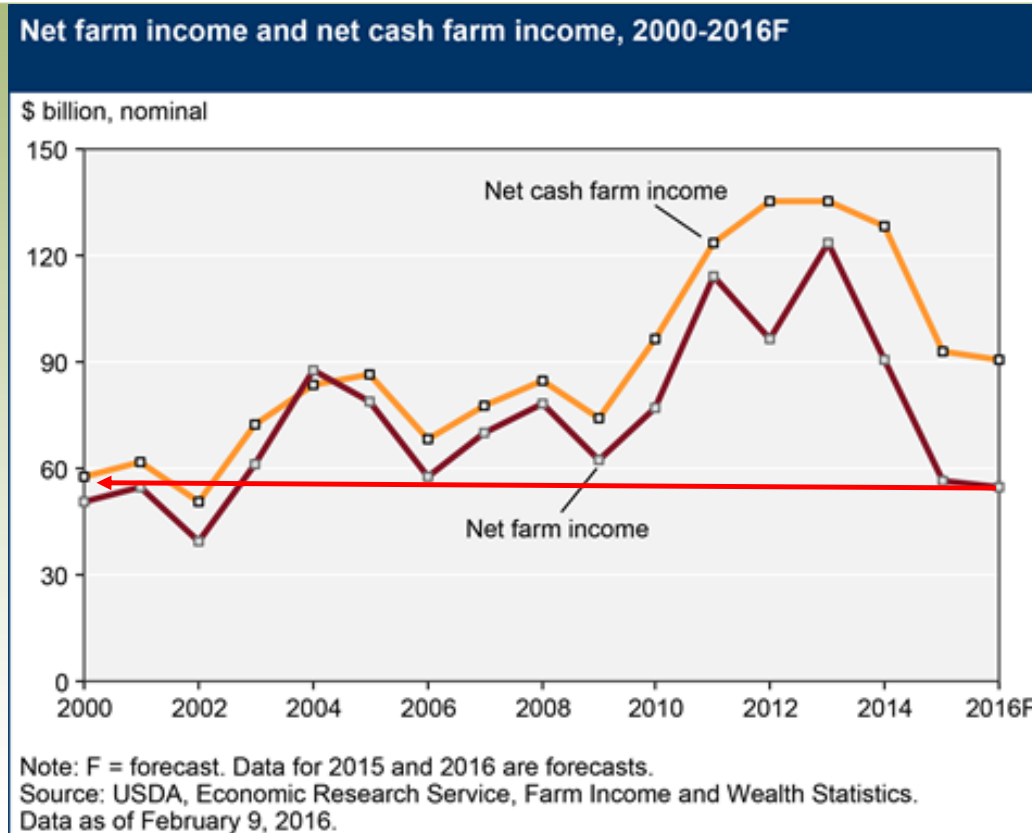
Peter Drucker

The Agricultural Economic Reset

Is still in its beginning stages

It Can and Will continue to bring
tremendous pressure to the entire market

Net Farm Income—US



USDA is now projecting an 11% decline in farm income for 2016 when compared to 2015.

Red-Flag Ratio

- USDA put 2015 farm debt at \$364.3 billion and net farm income at \$56.4 billion.
 - A ratio of 6.5:1
- This ratio has not been that high since 1985 when it was 6:1.
- If this ratio stays above 6:1 for several years, it would suggest a major collapse in land values
 - **Meaning farmland values could correct 50% to 60%, like they did in the 1980s”**

Walsten

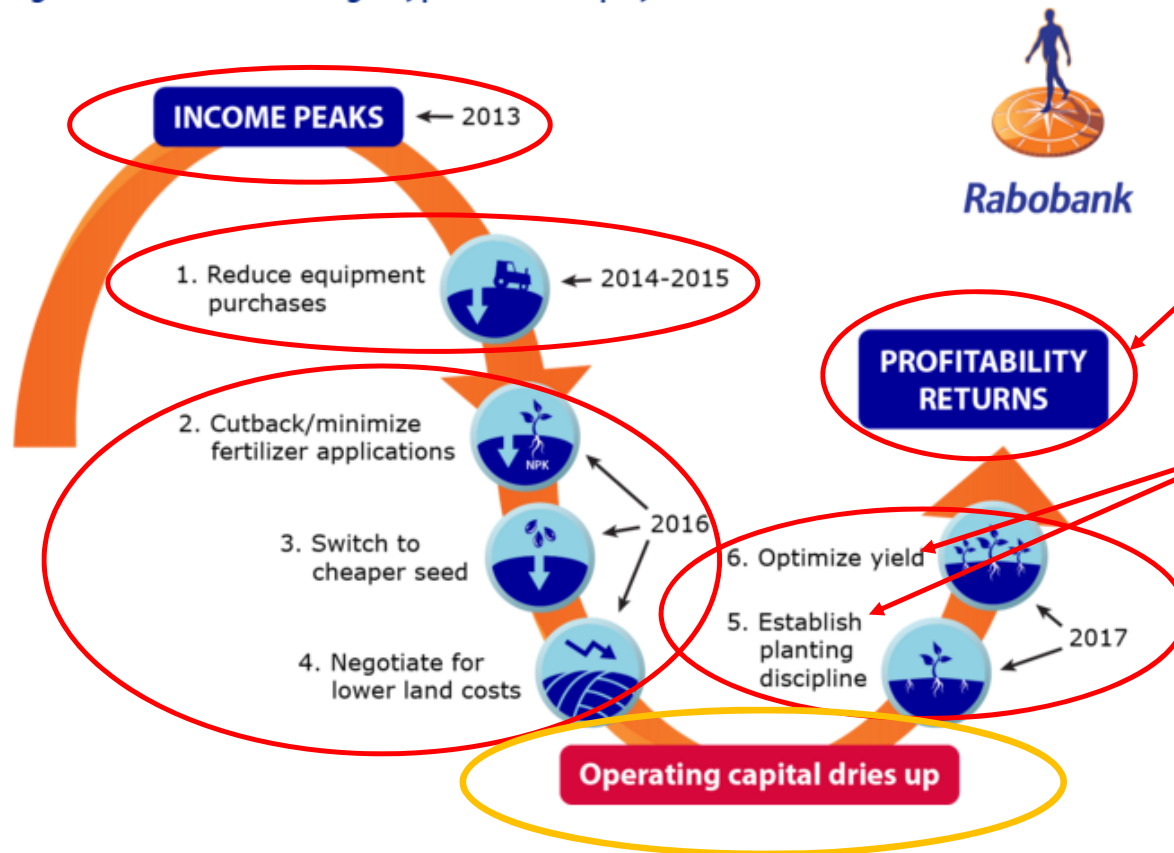
Credit-The Gate Keeper

- Three consecutive years of falling farm incomes have "evaporated" working capital below acceptable credit standards for many producers.
 - 75% to 80% of our (Rabo) customers are in a strong enough equity position that they can find their way through this period
 - But that still leaves 20% to 25% of borrowers requiring bigger changes in their costs or debt structure to ride out the cycle.

Liddell-Rabobank

The Agricultural Economic Reset Cycle

Stages of behaviour during a typical row crop cycle



2018
Could be a little soon

Trusted Advisor Role

Barclays View on Midwest Agriculture

Our long-term price thesis is based on:

- 1) Better quality seed leading to higher yield potential;
- 2) Lower demand than expected due to historical distortion of US corn ethanol program;
- 3) Miscalculated shadow inventory from both Chinese stockpiles and U.S. on-farm storage
- 4) This all leading to the need to take multiple millions of acres out of production to balance supply/demand

Which, 'based' on our numbers, means corn down around ***\$2.60/bu.***

We think something in that area will be trough price for corn and it will probably ***need to sit there for several years*** to get the behavioral change to offset the excess of the recent upcycle.

When Corn Drops Below \$3.00....

The focus will turn from

- Yield to expense control
 - Land costs
 - Equipment costs
 - Input costs
 - Labor
- And From Yield to Maximizing Efficiency
 - Return on Dollar Invested (ROI)
 - Seed Selection, VR Seeding, VR Fertilizer and VR CPC, reduced tillage, etc.

When Corn Drops Below \$3.00....

Farm Consolidations Accelerate

- According to Danny Klinefelter, approximately 8,600 individual operations already produce 32% of farm output today
- When analyzing M&A in agriculture, there are two main sub-sectors to focus on (Forbes):
 - 1) Farming
 - 2) Agribusiness
- Current trends suggest that farming may soon become a hotbed of M&A activity.

Will the Industry's Mega Mergers Occur?

- DowDupont
 - Dow Chemical Co. and DuPont Co. recently indicated they may be willing to offer some concessions to satisfied The European Union's antitrust commission.
 - DuPont may spin off their herbicide business.
- ChemChina-Syngenta
 - A U.S. national security panel has cleared ChemChina's take over of Syngenta
 - ChemChina recently indicated it may be willing to divest of certain Adama assets to satisfy antitrust concerns
 - Rumors of discussions underway to merge ChemChina and Sinochem into \$100 Billion dollar entity
 - Both companies deny the rumor

Will the Industry's Mega Mergers Occur?

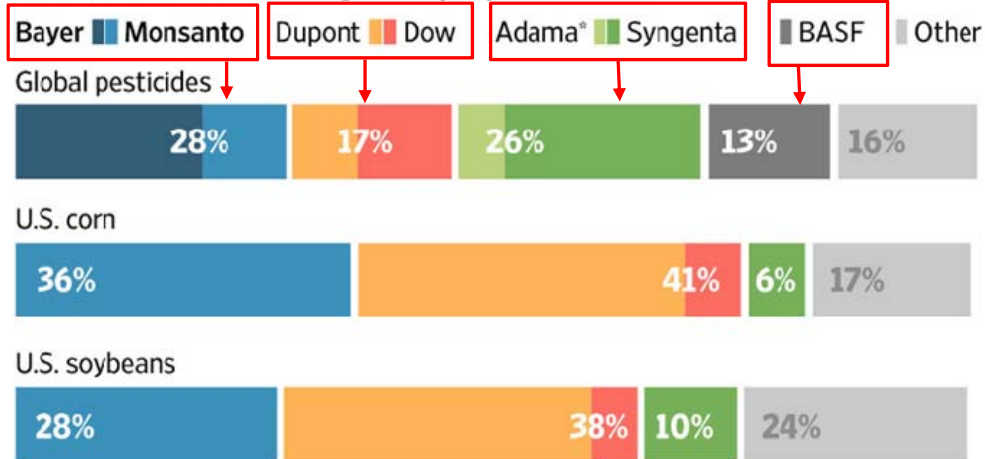
- Bayer Monsanto
 - Bayer has acquired Monsanto with a \$66 billion bid
 - Global Seed & Traits and North American commercial headquarters in St. Louis, MO.
 - Global Crop Protection and overall Crop Science headquarters will be in Monheim, Germany.
 - Under Anti Trust review...may well require some spinoffs to pass muster.
- ChemChina and Sinochem are rumored to be in merger talks.....Nothing confirmed
- BASF—Gowan—Valent—FMC and others
 - May find opportunities to grow their product portfolio through these required divestitures

CPC and Seed Consolidation Results

Crop Kings

A Bayer-Monsanto combination would rival the Dow-DuPont and ChemChina-Syngenta deals and push Bayer deeply into the biotech-seed business.

Market shares resulting from proposed deals



*Adama is the generic crop chemicals business of ChemChina

Source: Morgan Stanley

THE WALL STREET JOURNAL.

PCS-Agrium

- Potash Corp. of Saskatchewan and Agrium Inc. are pursuing a merger of equals
- Discussions were initiated as a result of globally depressed crop prices, which have substantially reduced fertilizer use.
- If the Merger is successful, the combined company would be valued at \$28 billion.
- Likely Offices
 - Saskatoon and Loveland, Colorado

New Regulations to Contend With...

- The American Action Forum reports the Obama Administration recently added its 600th major regulation over 7½ years.
- These regulations have added \$743 billion to the cost of living and working in the U.S.
 - An amount roughly equal to the 2015 **combined GDP of Iowa, Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, and Wyoming.**

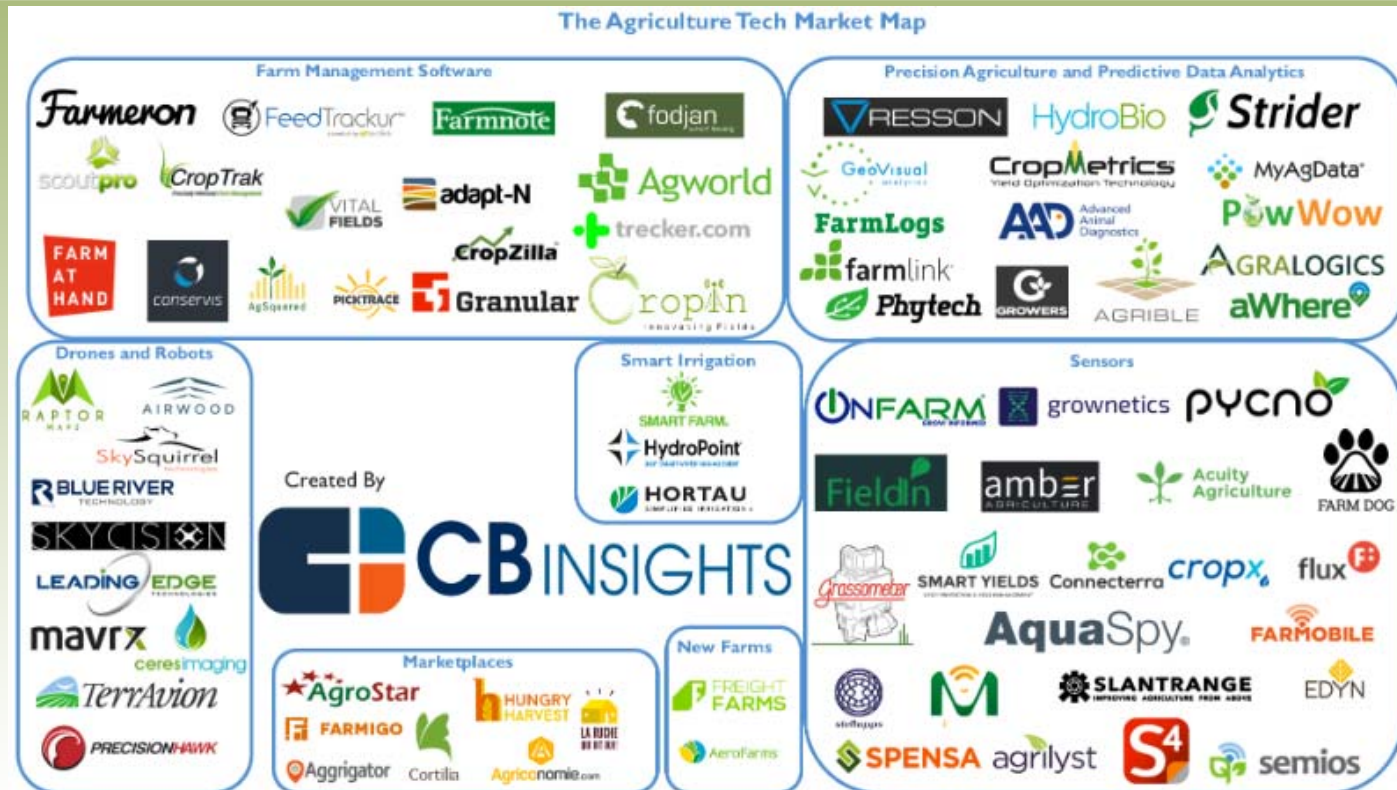
New Day Dawning



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77 Startups Powering The Future Of Farming And Agribusiness



Agtech Investments

- In 2015, the combined Agtech investments of agribusiness companies and early-stage investments of venture capital firms totalled an estimated \$20 billion to \$25 billion.
 - This represents 4% to 7% of company revenues, depending on the agribusiness sector.
- Most companies and VC investors expect 2016 investment levels to match or exceed last year's.

Large Players Competing for this Space

- Climate Corporation—Climate FieldView Pro™
- DuPont's Encirca—Expanded into a buying group as well as a precision ag service provider
- Syngenta—AgriEdge Excelsior
 - Purchased Ag Connections
- John Deere—Intelligent Solutions
- Farm Business Network
- Trimble—Connected Farm
 - Purchased Agri-Trends
- A Plethora of others

Monsanto's Plans for Open Platform

- Monsanto/Climate (and now Bayer) plans to build a centralized and open digital platform for **farmers** to access agronomic data and analysis from a broad range of industry providers.
- A hub for **all** agtech providers to sell their wares to farmers, while Monsanto captures their data and integrates it into the Climate FieldView platform.

Monsanto's Plans for Open Platform

- Matt Bell (CEO Cultivian Sandbox—VC Firm) states...

‘By providing agronomic tools, Climate Corp, and other data-driven digital ag providers, **are standing to disrupt farmers’ traditional relationships with their retail agronomists;**’

Based on their actions, is there any question about the direction Climate/Monsanto, Encirca, etc. have chosen to pursue?

Large Players Competing for this Space

*Don't kid yourself—These folks
(Large Industry Players) are seeking
ways to disintermediate The
Retailer as the “trusted advisor”*

As this “Technology Disruption” Progresses

- Crop farmers will need to:
 - **Conserve** liquidity and maintain alternative sources of capital
 - **Expand focus** on farm efficiency, conservation, and sustainability practices
 - **Optimize** and/or reduce certain crop inputs
 - Effectively utilize...

ROI data with regards to planting decisions (acreage planted, crop mix, seed, tillage, fertility, CPC, tillage etc.).

As this “Technology Disruption” Progresses

Traditional Businesses (ours included) will need to contend with a plethora of small startup companies, many of which have little chance of success but will have opened unique doors

that will never be completely closed again.

As this “Technology Disruption” Progresses

- These small, unique start up businesses will remain a challenge for the foreseeable future as they:
 - **Steal Market share**—often based on price thus reducing profitability
 - **Disrupt markets**—Often winning via innovation, uniqueness, social media savvy, better awareness of market change opportunities
 - **Grow Quickly**—Thus perpetuating the concept through presumed validation.
 - **Deliver Substantial Change**—Much of what your customer paid for in the past is now available at a reduced price or free on line

Auto Industry Disruption

Introduction of “Car as a Service”:

- Cheaper—Remove the cost of the driver, and an electric, autonomous Uber has the potential to be 10x cheaper than the average ownership of a car in America today
- Fully autonomous cars will result in a shift from "buying and owning" a car, to "car as a service" (CaaS).
- Ford has announced they will have a fleet of autonomous vehicles in operation by 2021.
 - **No steering wheel...no pedals**

Trucking Industry Disruption

Autonomous Trucks

After market kits are currently available that will convert any tractor trailer to a fully autonomous operation for a cost of \$30,000

Driver Wages—\$85,000+

Trucking Industry Disruption



Anheuser-Busch hauled a trailer loaded with beer 120 miles in an autonomous-drive truck between Fort Collins, Colorado and Colorado Springs, Colorado. (Mid-October 2016)

Pesticide Application Disruption

Precision Ag Drones Reducing Pesticide Use

- A team in Japan has successfully developed Agridrone, which will seek out and terminate 50 different types of pests.
 - Works by patrolling the fields at night
 - Flies fully automatically.
 - When it spots a threat it swoops in and delivers a tactical strike of pesticide.

Pesticide Application Disruption

Blue River Robots:

- Estimates its robots are currently harvesting in 10% of U.S. lettuce fields
 - Plan to move into other crops rapidly
- Developing tractor-towed robot that can examine individual plants and apply fertilizer and chemicals on an ‘as-needed’ basis

Agricultural Disruption

Autonomous Tractors

415
Horsepower

No Seat or Steering Wheel

Top Speed—
31 mph.



Will the Technology be Adopted?

- Absolutely!
 - Farmers will buy them because they will help solve one of the biggest challenges in crop production:
 - Lack of time, manpower and the narrow windows of opportunity.
 - Autonomous tractors, combined with high-speed planter technology, for example, will create unimagined efficiency,
 - 100% or even 300% gains may be possible, as this equipment never sleeps.
 - Autonomous machines may not need to be so big

How Will this Technology Affect Ag Retail?

- The first real utilization of autonomous technology in agriculture will likely be employed by Ag Retail.
- Retailers who fertilize and spray millions of acres will obviously find tremendous value in tender trucks that deliver themselves to the field and sprayers and spreaders that can literally be on the clock 24/7 during crunch time.

How Will these Changes Impact Ag Retail?

The single biggest challenge facing Ag Retail is breaking of the 'mold of traditional business.' For those unable to break from doing essentially the same thing they have done for the last several years they will be faced with a continuing decline in margins and profitability....

How Will these Changes Impact Ag Retail?

.... as their customers either turn away from ag retail (“go it alone”) or seek those more sophisticated “Trusted Advisors” who are leading technology change and are able to professionally manage and interpret the individual farms data and deliver precise and measurable prescriptions for improving

Return on Investment.

Production Agriculture has Changed

Production ag is no longer a game of dollars rather it is a game of pennies.

In the last 100 years we have experienced mechanization, the introduction of pesticides, the introduction of nitrogen fertilizers, the hybridization of corn, the introduction of single cross technology, the development of GMO's, the introduction of glyphosate, etc....all of which boosted production efficiencies by MANY Dollars per Acre

Production Agriculture has Changed

There are no significant game changers on the horizon that will generate untold dollars of efficiency (translates to profit) as in the past 100 years. It is now a game of pennies. Surviving producers will have changed their focus from volume (yield per acre) to net return on investment.

Michael Porter (Harvard) tells us....

At a fundamental level, all strategies boil down to two very broad options:

1. Do what everyone else is doing **(but spend less money doing it)**
2. Do something no one else can do.

How Retailers Compete in this Environment

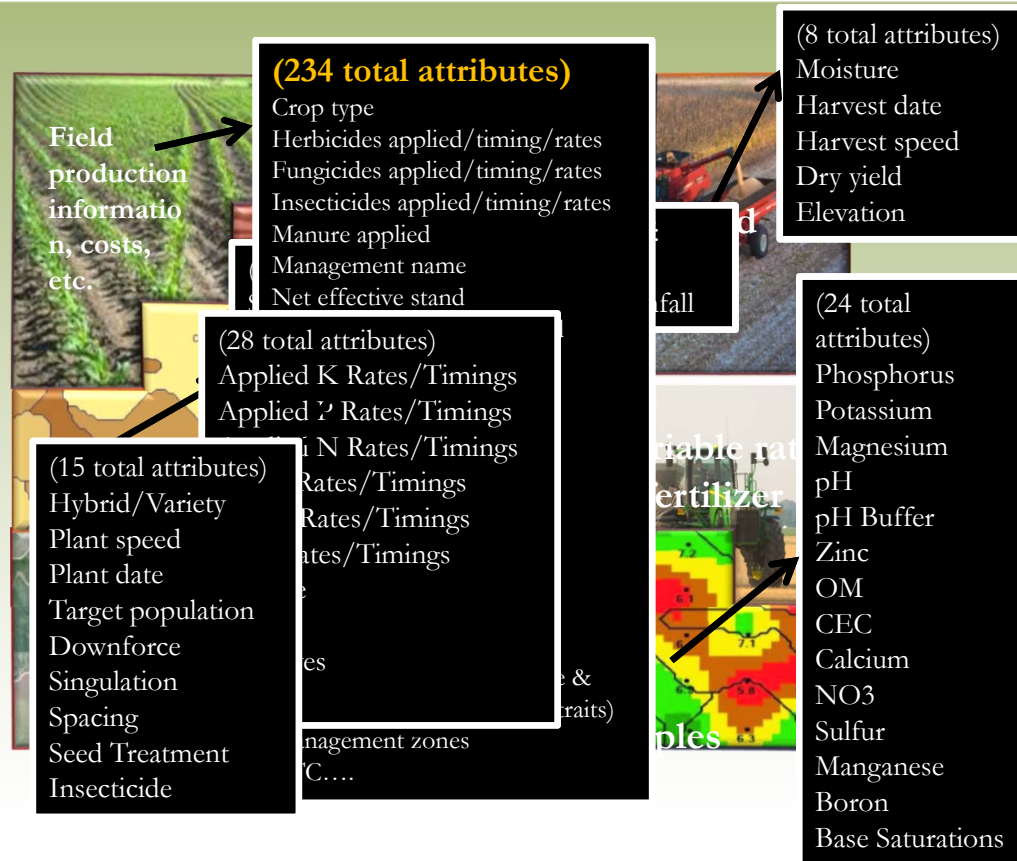
- **They** have the “Trusted Advisor” relationship with their customer.
- It took years to develop and is based on these principles...
 - **Trust**—based on sincerity and honesty in all suggested
 - **Ethics**— ethical in the performance of every service offered
 - **Knowledge**—of all things agronomic
 - **Innovative**—in understanding how all systems interact
 - **Professional**—in every answer, suggestion or evaluation
 - **Futuristic**—An uncanny understanding of developing technologies and how they will apply to their customers operation
 - **Focused**—Always unquestionably focused on what is best for their operation and their needs both as a person and a customer.



The Future is all about Precision

Farming is a complicated business that requires intense management of each attribute that can or will impact yield to maximize his/her Return on Investment.

Who can Better Serve as a “Trusted Advisor” in this Complex World Than the Ag Retailer?



Slide is Compliments of Premier Crop Systems

The Future is all about Precision

Those retailers who have or are making the commitment to enhance their role as leading precision management of information

“Trusted Advisors” will excel and expand their customer base rapidly.

The Future is all about Precision

- Will all farmers rely on Trusted Advisors to help manage their production practices?
- Certainly not! A good rule of thumb is:
 - 20-25% of all acres will chose to 'go it alone' by fully integrating their operation, buying and selling direct and hiring dedicated professionals.
 - 15-20% of the acres will remain loyal to their current source
 - The 60% in the middle are the acres in play

Evolving Ag Input Regulations

- Will continue to re-enforce the need to better manage timing and placement of both fertilizer and pesticides thus demanding precise management
- As precision knowledge and experience has advanced it has been found that there is seldom an overall reduction in fertilizer use on any given field.
 - By placing the right amount of fertilizer on the more productive areas of the field and less on the lower productive areas, there is a higher utilization of applied fertilizer and less or little waste

Micronutrients

- Growers are more focused on nitrogen and other macronutrients at this time and are utilizing precision ag to become more efficient in their application.
- Micronutrients are a tough sell at any point. There must be a certain level of basic fertility from a macronutrient standpoint to get any kind of agronomic response.
 - If the macronutrients the crop needs are not provided, a micronutrient will not save it and/or push it to the next level of yield.
- However with a correctly balanced macronutrient program, a proper micronutrient prescription will add to the return on investment



Microbials

- Beyond micronutrients and macronutrients, the plateau in corn yields has pushed the need for microbial products to stimulate the soil to increase availability of naturally occurring nutrients.
- For example, this past year there has been great acceptance of Humi-Till a corn stalk decomposition aid.
 - The humic technology in the product breaks down corn stalks in a matter of months instead of years, and works as a microbial stimulator as well.

Change is Inevitable

- Amazon offered something unique. Whereas:
 - Walmart strived to help Americans save money
 - Amazon focused on helping them save time

Results

Visits to malls declined by 50% between 2010 and 2013.

One in six American malls are expected to disappear in the next decade.

New Technologies Will Change our Businesses/Lives

3-D Printing:

There are currently 3D printers that can print clothing, circuit boards, furniture, homes, cars and chocolate.

Microlattice:

- A new metal development....
 - Interconnected hollow metal tubes made of nickel about 100 nanometers thick
 - *1,000 times thinner than a human hair.*
 - 100 times lighter than Styrofoam
 - Stronger than Steel

New Technologies Will Change our Businesses/Lives

Graphene

- An extremely strong substance with countless uses:
 - More efficient means of extracting hydrogen from water.
 - Researchers have already printed 3-D hamburger meat using Graphene
 - Graphene is the perfect medium for 3-D printing

New Technologies Will Change our Businesses/Lives

Carbon fiber:

- Made from thin filaments of carbon woven into a cloth.
 - The cloth is cut and pressed into the shape of a part and the fibers bound together with a plastic resin, cured by heat and pressure.
 - Requires no rivets or welds
- The resulting structure is stronger than steel, but is 50% lighter, and 30% lighter than aluminum.
 - And it does not corrode. What a revolutionary material for the fertilizer industry



Full Transparency—Get prepared

- According to Charlie Arnot, CEO of the Center for Food Integrity, “transparency” in agriculture and food production is no longer an option.
- “It’s a basic consumer expectation because consumers have access to almost unlimited information on-line”
 - The consumer’s expectation is that I’m going to be able to find information about you, your operation, your farm—and if I can’t find that, **it implies to me that either you don’t have a good story to tell or perhaps you have something to hide.**

Change is inevitable-What is the Cost?

The price of success in any competitive industry is the willingness to try something different. But trying something different means failing once in a while. And most businesses

aren't willing to fail.

Price of Success

Jeff Bezos' (CEO of Amazon) Comment to Analysts when asked about the dismal performance of Amazon's Fire Phone

“If you think that's (Amazon's Fire Phone) a big failure, we're working on much bigger failures right now. I am not kidding. Some of them are going to make the Fire Phone look like a tiny little blip.”

Jeff Immelt (CEO-GE)

- GE is a company of 330,000 employees ...steeped in tradition.
- To compete in today's highly competitive e-Business environment, Immelt sees the need for a company "Culture Change."...a big challenge and a huge risk.
- How are they going to accomplish this change?

Jeff Immelt (CEO-GE)

- “We may be a century-old company, but we need to *move quickly, take risks, fail fast and behave like a startup to keep winning.*”
- “...culture is a combination of people and technology. If you are joining the company in your 20s, unlike when I joined, *you’re going to learn to code.* It doesn’t matter whether you are in sales, finance or operations. You may not end up being a programmer, *but you will know how to code.*”



Internet of Things (IoT) *

- The Internet of Things is not merely about creating savings within current industry models. It's about **upending old models entirely, creating new services and new products.**
- Of all current technologies, IoT is the one that's **going to give us the most disruption as well as the most opportunity over the next five years.**
 - Computers are becoming so powerful that some are now **able to “learn”**

Is Artificial Intelligence Real?

- In the military world, fighter pilots have long been described as the best of the best.
- Popular Science has a story of a A.I. pilot developed by a doctoral graduate that has shown it can not only beat other A.I. pilots but also a professional fighter pilot with decades of experience.

In a series of flight combat simulations, the A.I. pilot successfully evaded retired U.S. Air Force Colonel Gene Lee, and shot him down

every time.

Internet of Things

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In Summary....

- Over the next twenty years, the global economy will go through what the World Economic Forum calls the
"Fourth Industrial Revolution."
- “We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before.”

Klaus Schwab (Founder and Executive Chairman—World Economic Forum)

In Summary....

Today's business decision-makers are **too often trapped** in traditional, linear thinking, or too absorbed by the multiple, daily crises demanding their attention, **to think strategically about the forces of disruption and innovation shaping their future.**

Don't get Caught in that Trap

Always Remember.....



Thank You!