Setting The Stage For High Yields At The Grower Level.

A long-winded, kitchen-sink approach to enhance grain yields and profits!

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Do we have what it takes to grow 300+ bushel corn?

Do we have the kahoona's…..
To get it done?

We need to re-invent our concept of production agriculture, this is business!

Old MacDonald is dead!

Super RTK-GPS-Twitter-Facebook-Mega-equipment grain farmer is here!

This re-inventing starts with a change in mindset.

Think high-performance!

Time to go to the shed and open the hood!

Genetics

Information

Profitability

Equipment

Inputs/Outputs and the Soil

Skills


Catalina
455


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PONTIAC OAKLAND CLUB INTERNATIONAL

The 1970 Pontiac has a stock original 455 cid V8 engine
10.75 to 1 compression
HO cylinder heads
4 bbl carb
Dual exhaust
3.23:1 rear limited slip
this car makes 450 hp

The 1966 Mustang has a stock original 289 cid V8 engine
10.00 to 1 compression
HO cylinder heads
4 bbl carb
Dual exhaust
3.03:1 open rear
this car makes 217 hp

1962 Chevrolet C-10
factory stock 230 cid 6, 3 speed, 110 hp

Yes, size does matter!

All three vehicles provide transportation…..

- The Mustang is cute and sporty
- The truck can haul
- The Pontiac hauls A**

- Which one would you love to drive and crack the throttle wide open???

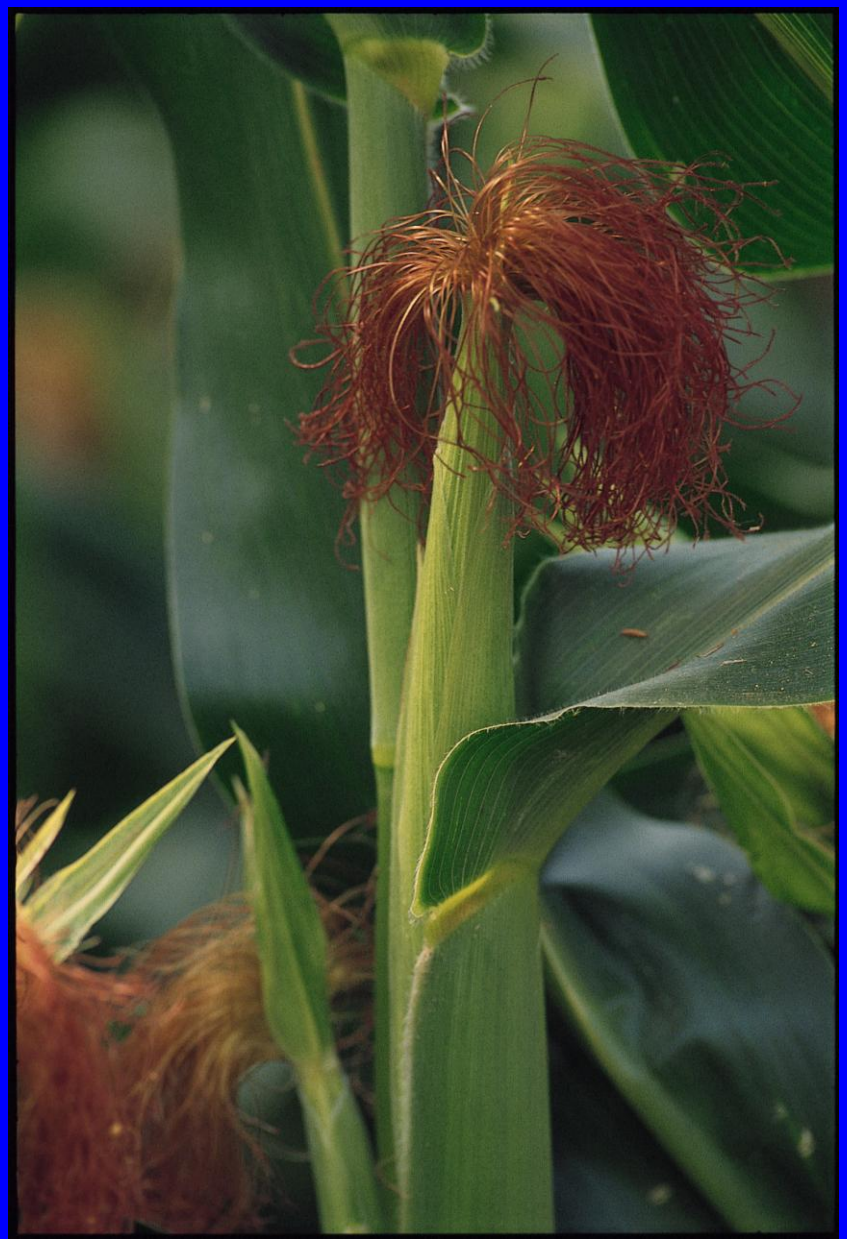
- Answer: the Pontiac, trust me!

The ag industry is very similar to automobiles:

- Some companies promise everything and don't deliver.
- Others fall short on their promises.
- Only a few meet and/or exceed your expectations.

- Who do you think modern producers want working for them???
- We get so focused in one area that we often forget to look at the entire process from seed to harvest!!!!

So, what is under the hood?



Important components modern producers require:

- Genetics: are there really any differences?
- Information: who do you go to?, who do you trust?
- Profitability: yours or someone else?
- Equipment: how confident are you with your equipment performance?
- Inputs, outputs and the soil we play with:
- Skills: do you know what you need to know to know what you need to do?

Genetics:

- Seed characteristics, quality, % germ.
- BT Traits
- RM, days to maturity
- Herbicide tolerance
- Roots, nutrient uptake
- Drydown, grain moisture at harvest
- Test weight, grain quality
- Stalk strength, disease packages
- Early vigor and full season growth
- Adaptability to your operation

Genetics:

- **Seed characteristics, quality, %germ.**
  - **What effect does warm germ have on emergence?**
  - **What effect does cold germ have on emergence?**
  - **What effect do differences in germ have on yield?**

If 99% vs 94%. If 32,000 seeds are planted. A difference of 5% germ is 1600, what is the value of 1600 ears? 1600 ½ lb ears = 800 lbs = 14.25 bu @$3.50/bu = $49.875 per acre. At a seeding rate of 32,000, the value would be $124.68 per bag of 80K seed corn

If corn is $7.00/bushel what value is lost?

Genetics:

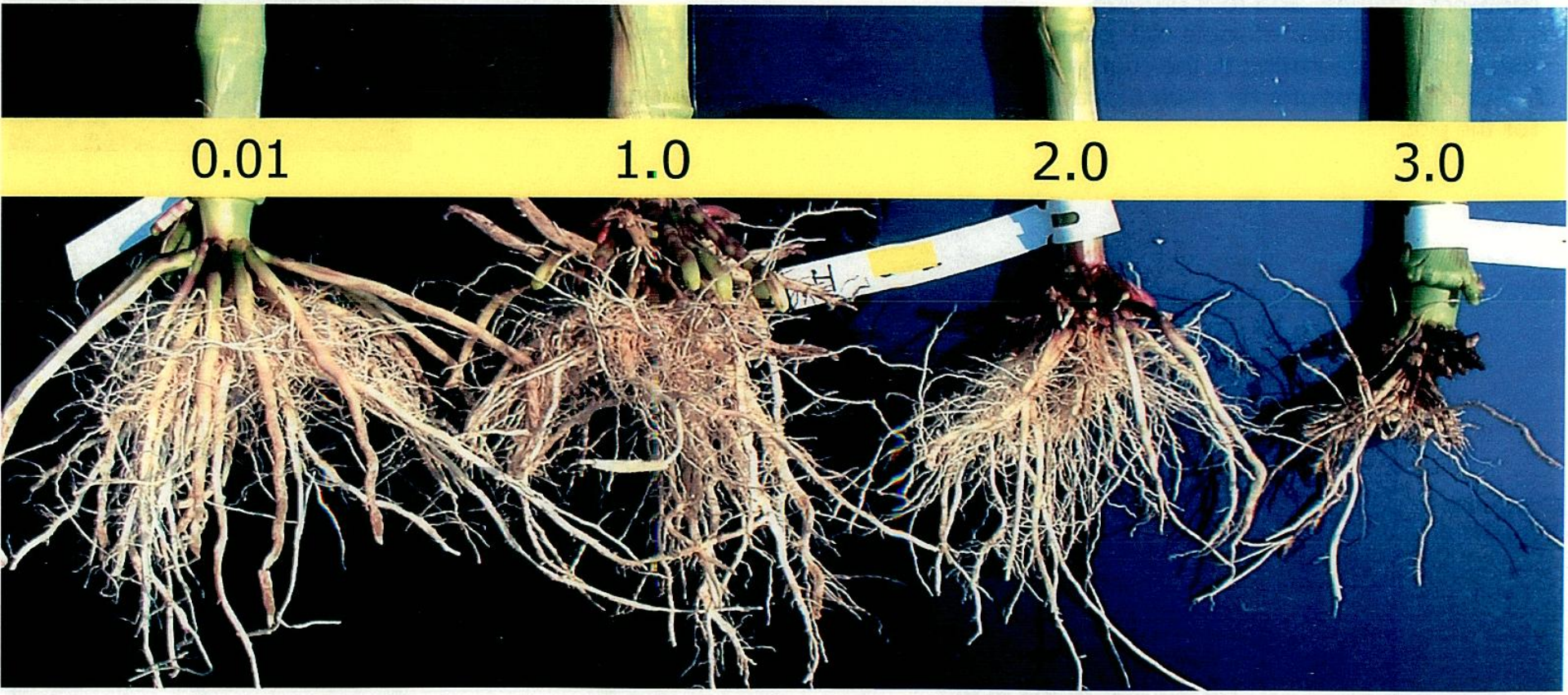
- **BT Traits**
  - **CB = corn borer, % expression in plant**
  - **CRW = corn rootworm, % expression in plant**
  - **What are Bt proteins (are they all alike)?**

- **Adaptability to your operation**
  - **Do you need them?**
  - **How do you know?**
  - **Do you need to spend the extra $$ for traits?**

Genetics:

- **BT Traits**
  - **Is having CRW protection "good enough?"**
  - **Do we ever need to consider "enhancement?"**
  - **Half/Three-Quarter or Full rate too?**
  - **Are you worried about the "Variant Western?"**
  - **Are you worried about the Extended Diapause Northern?"**
  - **Is 4.7 to 11.4 bu/acre mean anything (4 years)?**

0-3 Iowa State Node–Injury Scale



Less Damage

0.25 is the Economic Threshold

Greater Damage

Genetics:

- RM, days to maturity 25-50-25???
  - What RM do you want?
  - What RM do you need?
  - What RM fits you best?

- Adaptability to your operation
  - What is your crop used for?
    - Grain (shell corn)
    - Grain (high moisture)
    - Silage

Genetics:

- **Herbicide tolerance**
  - **Why is this important?**
  - **What is your weed control confidence rating?**
  - **Low vs High field weed pressure?**
  - **Can you control weeds with conventional herbs?**
  - **Do you need to spend the extra $$ for traits?**
  - **Do you understand weed control? TIMING!**
  - **Are there herbicides/classes that you should avoid?**
    - **ALS/Growth Regulator = hidden yield losses!**
  - **Adaptability to your operation**

Genetics:

- **Roots, nutrient uptake**
  - **Deep or shallow rooted hybrids**
  - **Well developed root structure**
  - **Compaction/planting/seed depth/etc**
    - **You can screw up all your best planting by planting too shallow or muddying a crop in, you only have one BEST opportunity to achieve awesome yields, plan ahead, start smart!**

All roots are not created equal

Genetics:

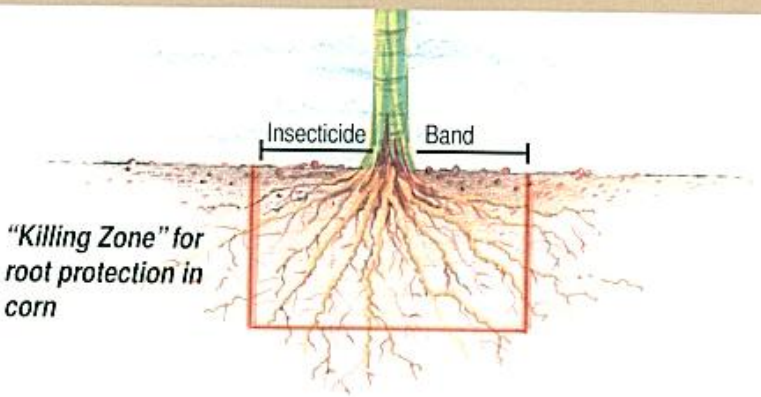
- Drydown, grain moisture at harvest
- Test weight, grain quality
  - How wet was your corn last season?
  - Planting date effects

- Adaptability to your operation
  - Dry and store on farm?
  - Haul to elevator?
  - Premiums vs Dockage?

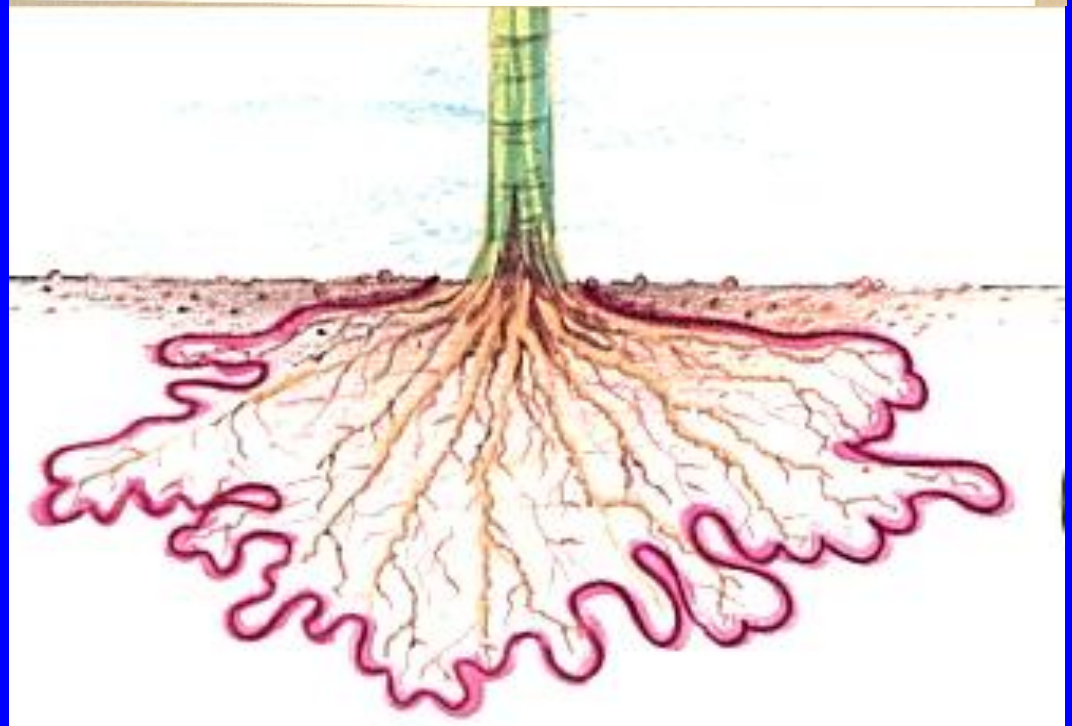
Genetics:

- Stalk strength, disease package
- Early vigor and full season growth
  - Genetic package
  - Plant health
  - Growth importance through V8
  - Yield benchmarks of V4/5 and V8
  - GMO vs soil insecticides and effects on roots and eventual stalk strength
- Adaptability to your operation

Insecticide band treatment



Traditional treatment showing the "killing zone" using an insecticide band. Without using granular insecticides, the "killing zone" is no longer present.



Information

- Seed supplier (what do they offer?)
- Chemical supplier (performance of products)
- Custom applicator (mixing and driving straight)
- Farm service/cooperatives/university (source)
- Trusted friends/neighbors (experience)
- Internet/media (24/7, instant information)
- Troubleshoot yourself! (It’s your business)

The Information Age

- Your local seed sales people
  - Do they know what they are selling?
  - Do they show confidence in their stuff?

- Farm services/applicators/etc.
- The Internet!
- With the Internet you can access everything!
  - The good, the bad, the ugly!!!

Profitability

- Cost of Inputs vs Expected Outputs
- Cost per acre
- Cost per bushel
- Profit per bushel
- Marketing of grain
  - Hit or miss
  - Reliability of your marketing plan

Know what everything costs!

- Land (rent/taxes/improvements)
- Fertilizer (N, P, K and Lime)
- Pesticides
- Seed and seed additives
- Fuel
- Tillage/Planting/Spraying/Fertilizer and Pesticide application/Harvest/Trucking/Grain drying, etc.
- Equipment cost and upkeep
- Labor

Know what everything costs!

- Once you know what everything costs…
  - Then calculate yield expectations
  - Calculate what it takes to produce a bushel of grain
  - Marketing is straightforward after that!

Equipment

- Performance
- Condition (age and acreage)
- Speed kills
- Expected results from a wide assortment of equipment.
- Checklist to follow: (people too!)
  - For planters
  - For tractors
  - For combines

Equipment - planters

- **Performance: (age and acreage)**
  - **A two year old planter with 5000 acres on it will have a lot of wear and tear which will effect seed drop, seed placement, seeding depth.**
  - **Seed meters/brushes, etc.**
  - **Seed tubes**
  - **Coulter/disk blade wear/closing wheels**
  - **Mud scrapers**
  - **Sprockets and chains**
  - **Row clutches/bearings**
  - **Tires/meters/sensors/pumps**

Equipment - planters

- **Speed kills**
  - **Faster you go, the more yield you lose!**
  - **4-5.0 mph is best balance between speed and planting performance.**
  - **Guess what speed most yield champions plant at?**
  - **What do doubles and skips cost you in yield?**
    - **Say you lose 10% of your stand from planter issues i.e. too shallow, slow emergence, doubles and skips.**
    - **If 10% of 32,000 seeded is 3200, what is the value of 3200 ears? 3200 ½ lb ears = 1600 lbs = 28.5 bu @$3.50/bu = $99.75 per acre. Calculate at $7.00 corn!**

Equipment - planters

- **Planting depth 2-2.5 inches…period**

- **Treated seed? If you don't use graphite or talc as specified you will effect seed drop by 10-20%!**
- **You will effect stand density, lose yield, waste your time and $$$.**

Planters, etc.

- Stand uniformity
- Stand uniformity
- Stand uniformity
- Etc.
- Etc.
- Etc.
- The old picket fence approach to yield!


Non-uniform emergence will cost you yield!

Equipment - tractors

- Expected results from wide assortment of equipment.
  - Plowing and residue management
  - Field cultivators
  - Aerators
  - Disks
  - Rotary hoes/row cultivators
  - Strip and ridge tillage
  - No-tillage – can your soils handle it?
  - Residue managers/trash movers
  - Seed firmers on planter units

Equipment - tractors

- Inspections
- Wear and tear
- Tire performance
- 2wd vs FWD
- RPM’s and fuel economy


Evaluate the combine everyday during harvest!!!

Equipment - combines

- Expected results from wide assortment of combine features
  - Conventional/Rotary/Straw Choppers/ETC
- What to expect from your combine
  - Adjust
  - Re-adjust
  - Re-re-adjust
  - Check the grain
  - Check the ground
  - Check the elevator sheets
  - Use of yield monitors (calibrate/calibrate/calibrate)

Inputs

- Seeding rates (corn and soybean)
  - What is an optimum rate? (28K or 36K?)
  - Calculate extra cost of seed vs. yield
- Row spacings (corn and soybean)
  - Best for your geography?
  - Best for your operation?
- Fertilizers (broadcast/starters/in-season)
- Herbicides (types)
- Fungicides (seed applied/foliar)
- Insecticides (seed applied/foliar)

Inputs

- Fertilizers (broadcast/starters/in-season)
- N source = (0.8 to 1.1#N needed/bu grain)
- NH3 with stabilizers?
- Urea (46-0-0)
- 32%
- 28%
  - Split application is needed to get high yields
  - Feed steadily during the season!

Inputs

- Fertilizers (broadcast/starters/in-season)
- Starters =
- N-P-K
- Liquid vs dry
- 2 x 2 vs in furrow vs broadcast
  - Watch the salt index!

- Do you sidedress?

Inputs

- Herbicides (types)
- Growth Regs/ALS
  - Distinct, Banvel/Clarity/Dicamba
  - Northstar/Permit
  - Accent/Steadfast
- No, Glyphosate is not the only herbicide choice!
- What about weed resistance?
- Is it a “real thing?”
- Weed shifts? Are weeds that smart?

Inputs:

- One pass
- Two pass
- When to pass and when to punt?
- Have we forgotten how to control weeds?

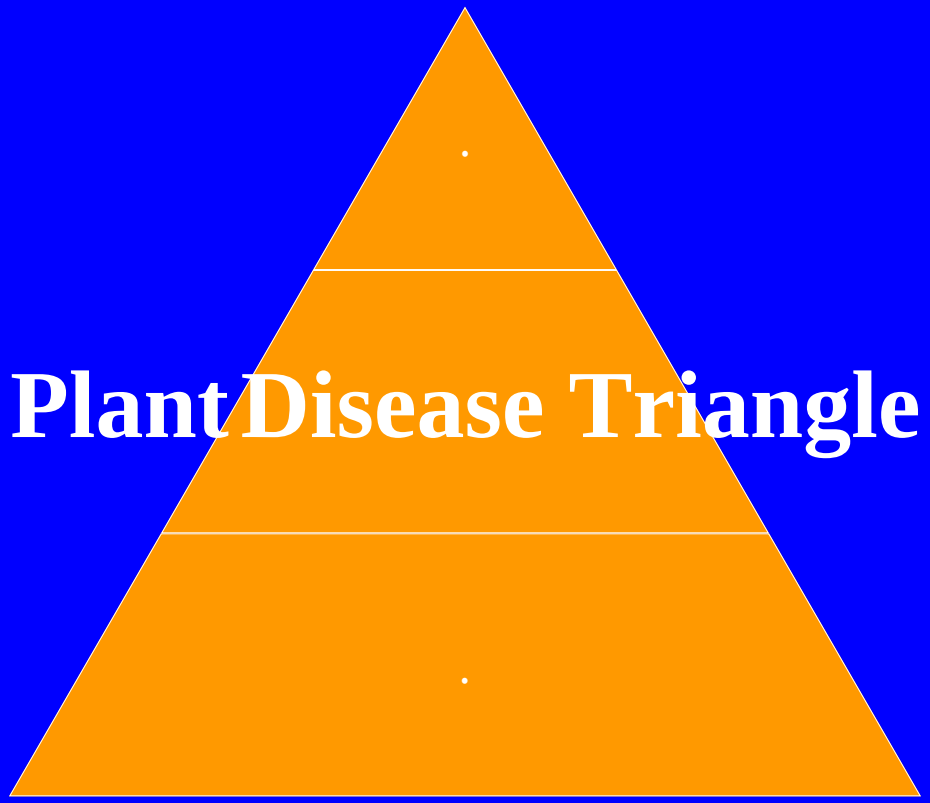
Inputs

- Fungicides (seed applied/foliar)
  - What is all that stuff on my seed?
- Insecticides (seed applied/foliar)
  - Is that on my seed too?
  - Do I need it for anything else?
  - Biologicals and nematicides?
  - More stuff on my seed???

Do we maximize plant health? Does yield come with it?

- Foliar fungicides
  - What to expect?
  - When to expect it?
  - Who can expect to see a response?
  - Do we understand diseases enough?
  - What about V5/6?
  - R1/>75% silking
  - Ear leaves and plant: scouting?

Susceptible Plant



Plant Disease Triangle

Pathogen

Favorable Environment

Understand the triangle

- **BEFORE attempting to control anything!**

Remember, seed is king, start here first!!!

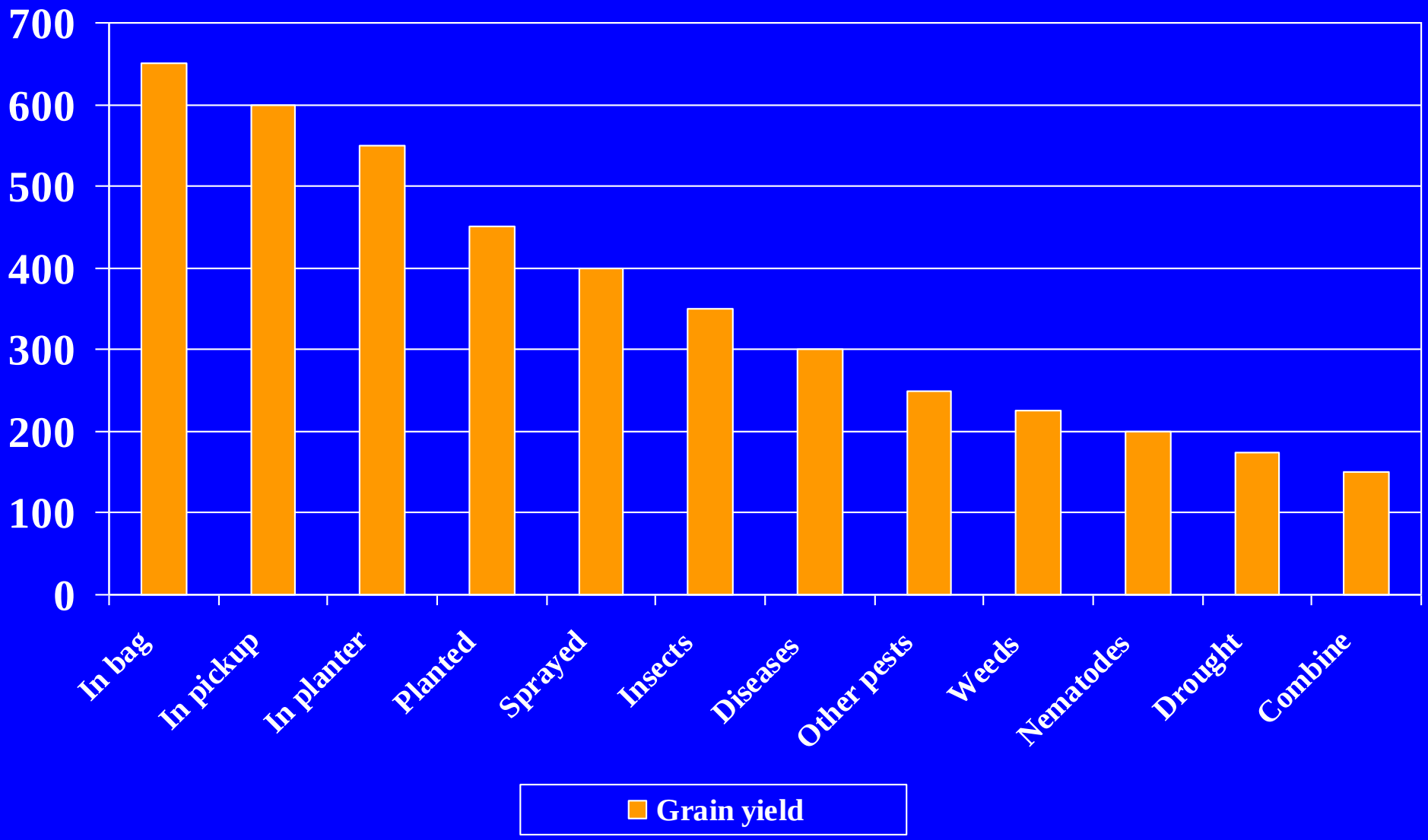
Outputs

- **Yield**
- **Yield**
- **Yield**

- **Our influence on yield starts at harvest one year and continues through the next harvest!**

The downward slide of yields

Potential yield falling to the actual yield!!



Soils and soil fertility

- pH (match to your rotation)
- O.M. % (sand is low, peat is high)
- P (ppm) i.e. 40
- K (ppm) i.e. 140
- Other nutrients
- Timing
- Why do we need to fertilize?

Skills

- **Innovators (first to play)**
- **Adopters (watch the innovators play)**
- **Followers (wait for everyone else)**

- **What do we need to know about ourselves to be successful?**

Final thoughts

- What do you need to know before you pull the trigger?
- Waiting for others first?
- Waiting for plot data?
- Basing next year on last years results?

Reinvent yourself!

- Use these last few weeks to:
  - Understand the genetics you need to plant
  - The importance of equipment performance
  - The importance of planting a uniform stand
  - The timeliness of what you perform
  - Controlling weeds, insects, diseases, nematodes
  - Optimize combine timing and quality
  - Market commodities based on YOUR economics

The rest is easy!!!

- Have a great year…

- $10.00/bushel corn
- $20.00/bu soybean
- $12.00/bushel wheat

- Fencerow to Fencerow, let the party begin!