WILDCAT AGRI SERVICES
WILDCAT AGRI-SERVICES INC.
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WILDCAT AGRI-SERVICES

PIONEER PREMIUM SEED & TREATMENTS, CROP INSURANCE, AGRONOMY SERVICES, FIELD DAYS, SEED WHEAT, SEED DELIVERY, AND PERSONAL SERVICE

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2020 PIONEER SAVINGS PROGRAM

There is still time to lock in a discount on your Pioneer seed purchase for 2020.

Silver Level

QUALIFIERS
Invoice & Payment by
Feb 28th 2020

BENEFITS
50% Replant
Pioneer Agronomy App
Financing: Prime –1 @ 15% discount
Corteva Cash & Corteva Prepay Incentive

SOIL TEMPERATURE & CORN EMERGENCE

Successful corn emergence is a combination of three key factors– environment, genetics, and seed quality:

- Environment: Temperature, residue, compaction and water
- Genetics: Stress tolerance and vigor
- Seed Quality: Harvest moisture, drying and conditioning.

Hybrid genetics provide the basis for tolerance to cold stress. High seed quality helps ensure that the seed will perform up to its genetic ability. Environmental factors may dictate stand establishment.

Soil temperatures at planting are a key environmental component of stand establishment. It is generally recommended to plant corn when soil temperatures are at or above 50 degrees F. However, conditions after planting are also critical-low soil temperatures after planting are also critical—low soil temperatures after planting can greatly reduce stands at emergence .

Optimal temperature for early corn growth

Corn is a warm season crop and does best under warm conditions. In North America, early-season planting typically puts stress on the corn seedlings. In germination tests using temps ranging from 59-95 degrees growth rates of both roots and shoots were measures. All three hybrids were averaged to determine the optimal temperature for corn growth. Both exhibited the fastest growth rate at 86 degrees suggesting optimal germination and emergence occur at much higher soil temps than is common most corn producing areas.

Planting date remains a critical management factor to help minimize the risks associated with sub-optimal conditions for germination. Planting into cold, wet soils, inflicts stress on corn seed emergence, as does planting just ahead of a cold spell. In some years, corn maybe planted prior to a cold rain or snow. This imposes very high stress on corn emergence due to seeds imbibing chilled water or prolonged exposure to cold, saturated soils.

Timing of Cold stress Impacts Germination

Data suggests that planting just before a stress event such as a cold rain or snow can cause significant stand loss. The chances of establishing a good stand are greatly improved if hybrids are allowed to germinate at least one day in warmer, moist conditions before a cold-stress event. Choosing a hybrid with a higher stress emergence score can help moderate stand losses due to cold stress. One reason why temperature doing imbibition is critical to corn emergence is the fact that seed imbibes most of the water needed for germination very rapidly.

Data show that seed imbibes the most water within the first 30 minutes after exposure to saturated conditions.

Cont. on Pg. 2

AG RISK MANAGEMENT

Crop Insurance today offers...Lots of choices, if you want a crop insurance agent that can help you make choices from a farmers perspective contact Steve McGinn 316-284-1935

Contact Information

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BILLING QUESTIONS

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susannah.mcginn@plantpioneer.com

VARIABILITY IN CROP YIELDS IN 2019 CONTINUED

- higher yield variability across fields.

MANAGEMENT INFLUENCES

- Planting late r into May and early June reduces total photosynthesis over the growing season and pushes grain-fill periods later. Fields that enter reproductive growth later can be more susceptible to foliar disease, drought , and other stresses.
- Fields that emerge more uniformly have a greater chance of producing higher yields.
- Soil fertility levels are extremely important in years where soils are either too wet or too dry as root growth and soil microbial activity are reduced under wet and dry conditions.
- In-season applications of nitrogen in wet years can help improve yields.

PLANTER TEST STAND

Get your meters calibrated and repaired. We have a planter test stand for checking the accuracy of vacuum, finger pickup, and Kinze brush meter units.

This is something that we suggest should be done on a planter at least every other year. Contact Mike, Tye, or Korey for details and to schedule your test.

We would really like to do these now instead during the spring rush.

VARIABILITY IN CROP YIELDS IN 2019

2019: ANOTHER CHALLENGING YEAR IN CROP PRODUCTION

- Management factors can include planting date, tillage practices, fertility programs, weed management, disease management, Yield is determined by the interaction of the environment, management practices, and genetics of the seed.
- Understanding the effects of the environment the crop is grown in, management of the field ,and their interactions with crop genetics can help explain some of the variability within fields.
- Environmental factors include soil type, drainage, sunlight, rainfall and temperature.
- and a host of other practices.

2019 WEATHER

- Wet conditions in April and May led to delayed planting and planting into less than ideal soil conditions in many areas
- Planting was delayed across much of the corn-growing acres in the US resulting in the slowest planting progress on record.
- Soils became saturated again in July and September, leading to nutrient losses and reduced plant health.
- Temperatures were near average for much of the growing season

Continued on Page 3

Soil Temperature & Corn Emergence Cont.

If this early imbibition occurs at cold temperatures, it could kill the seed or result in abnormal seedlings. You should consider the soil temperature at planting but also the expected temperatures when seed begins rapidly soaking up water. Seed planted in warmer, dry soils can still be injured if the dry period is followed by a cold, wet event.

Soil Temperature Fluctuations and Emergence

Often you are able to plant fields with sandier soils earlier in the spring because they dry out faster than heavier soils. However, reduced stands after early planting have often been noted in sandier soils. Sandy soils are more porous and have lower water-holding capacity than heavier soils and will experience wider temperature fluctuations.

Data has shown that day-night temperature fluctuations after planting can pose an added stress on germinating corn. You should be aware of expected nighttime temperatures when choosing a planting date.

High amounts of residue can alter soil temperatures. Residue tends to hold excess water and significantly lower soil temperature in the spring, depriving seed of critical heat units needed for rapid emergence. These conditions can also promote seedling disease, particularly in fields that are not well drained or have a history of seeing blights.

Impact of Cold stress on Stand Establishment

The optimal temperature for corn emergence is in the range of 80-90 degrees F. Emergence is greatly reduced at lower temperatures and is effectively halted around 50-55 F or below. Emerging seed may experience a degree of stress and potential damage from this as emerging temperatures are almost never optimal.

For success full emergence to occur, all parts of the shoot must working a coordinated way to push the coleoptile above the soil surface and allow the first leave to unfurl. Damage to any one of these structures will likely result in loss of the seedling and its yield potential.

When the dry seed bed imbibes cold water (50F or below) imbibitional chilling injury may result. The degree of damage ranges from seed death to abnormalities such as corkscrews or fused coleoptiles. The potential for cold-water damage generally decreases as the seedlings emerge. This may explain why early planted corn that was followed by favorable weather emerged better than corn planted later followed by a cold spell or snow cover.

Damage to the emerging root usually has less severe consequences on seedling survival. The primary root plays a relatively minor role in seedling establishment compared to the lateral and nodal roots. Seedling establishment an usually progress normally if the later and nodal roots are intact. Any damage to the roots will likely reduce vigor and increase the potential for disease and insect injury. Cold damage to emergence is generally irreversible. It can be difficult to diagnose since it usually occurs below the soil surface, long before the crop emerges. Above-ground symptoms of damage may take weeks to become apparent.

Variability in Crop Yields in 2019 Continued

- and generally were above average in September.

Effects of Wet Soils On Crop Yields

- Field conditions at planting were often highly variable in 2019, leading to differences in emergence and root development
- Wet soils at planting can lead to reduced ,delayed, or uneven emergence:siidewall compaction: and reduced yield performance
- Saturated soils reduce oxygen levels in soils, slowing toot growth and creating a favorable environment for disease
- Saturate soils also reduce biological activity in the soil and increase loss of key nutrients, such as nitrogen.
- Soils with better drainage experience shorter durations of these conditions, resulting in higher yield potential.

Sunlight influence On yield

- Solar radiation is critical to providing plants the needed energy to conduct photosynthesis and fuel plant growth.
- The most critical period for photosynthesis is crop production is during the reproductive growth stages. Many fields received below average solar radiation during this time frame in 2019.

Other Influences on Yield

- Soil type is a major environmental factor when it comes to water-holding capacity and drainage.
- In wet years, soils with poor internal drainage are difficult to manage.
- The Fall of 2018 was historically wet in many area, so crop growth in 2019 could have been affected by compaction created during last years harvest
- Plants with slower emergence or reduced root growth due to soil compaction are often smaller and capture less sunlight as well as other critical resources for yield
- Wet conditions also prevented fall tillage in many areas in 2018, creating residue management challenges. Residue that is not properly managed can reduce stand establishment, restrict root growth, and tie up nutrients.
- Diseases such as northern corn leaf blight and tar spot, can lead to

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Have something to sell?

If you want to advertise farm equipment or farm related items you may do so free of charge. Deadline is the last day of each month. Send your ad to

susannah.mcginn@plantpioneer.com

Wiggins 4,000 lb. lift 2WD. Side shift, four cylinder Ford gas engine. Have operator manual and all service records. $4500. 316-393-7731

80 net wrapped straw bales for sale. 620-386-4640

1200 Feet of gated 8" PVC pipe. 620-386-0569

Western Land Roller Tailwater Pump. 3 phase motor 5 HP. 316-650-2678

Hedge posts. 316-650-8485.

1985 Case 2390 Tractor (Cab & AC) 316-283-5165

1973 Chevy C-60, 16 ft. bed w/hoist 316-283-5165

Misc. Aluminum Irrigation Fittings $25 each. Line valves $50 each. 8 & 10 inch size. 316-284-1935

Berkeley 8X6 pump w/trailer. $1000. 316-772-0147

1000 gallon used fuel tank $850. 316-641-4967

Irrigation gear head 6-5 ratio. 620-386-0569

Precision Planting parts—Call Mike for pricing on parts. 316-772-7171

Achieving 100 bu/acre Yields in Soybeans

Mark Jeschke, Ph.D., *Agronomy Manager*

INCREASING YIELDS IN SOYBEANS

- Improvements in genetics and management have driven substantial gains in soybean yields in the U.S. over the past 50 years, at a rate of 0.48 bu/acre/year (Figure 1).
- U.S. average soybean yields topped 50 bu/acre for the first time in 2016 and again in 2018.

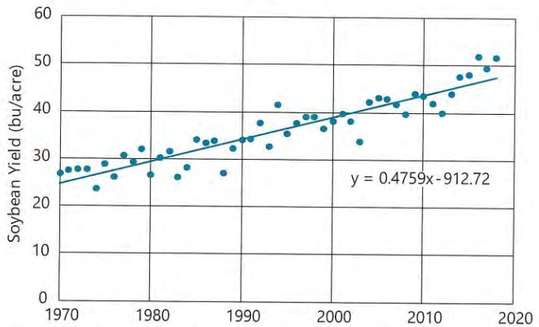

Figure 1. U.S. average soybean yields, 1970-2018 (USDA-NASS).

- 100 bu/acre has often served as a target yield level for farmers seeking to see how high they can push yields with optimized management and the newest genetics.
- Across all of the on-farm genetic and agronomic trials Pioneer conducts each year in the U.S. and Canada, it has not been unusual for a few entries each year to top 100 bu/acre.
- In 2018, however, the number of plots exceeding 100 bu/acre increased dramatically. The majority of these plots were planted to new Pioneer® brand A-Series soybean varieties (Figure 2).

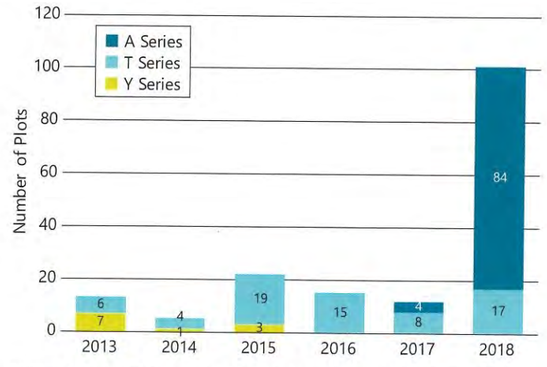

Figure 2. Series of Pioneer brand soybean varieties used in Pioneer on-farm trial entries exceeding 100 bu/acre, 2013-2018.

PIONEER ON-FARM TRIAL RESULTS

- A total of 101 on-farm soybean trial entries exceeded 100 bu/acre in 2018, 84 of which were planted to A-Series soybean varieties (Figure 2).
- 100 bu/acre was achieved with 35 different Pioneer brand varieties from maturity group 2.3 to 5.2 (Table 1).
- Yields over 100 bu/acre were achieved over a relatively wide geography from 2013 to 2018, including 17 U.S. states and 2 Canadian provinces.

Table 1. Pioneer brand soybean varieties used in 2018 Pioneer on-farm trial entries exceeding 100 bu/acre.

Variety/Brand[3]	Plots	Variety/Brand[3]	Plots
P23A15x (RR2X)	1	P37A69x (RR2X)	3
P24A80x (RR2X)	3	P37A78x (RR2X)	1
P25A54x (RR2X)	1	P37T51PR (Plenish, R)	1
P25A70R (R)	2	P38A98x (RR2X)	3
P26A61x (RR2X)	1	P38T42R (R)	1
P27A17x (RR2X)	1	P40A47x (RR2X)	11
P27T59R (R)	8	P40T84x (RR2X)	1
P28A94x (RR2X)	1	P42A52x (RR2X)	4
P28T71x (RR2X)	4	P42A96x (RR2X)	7
P29A25x (RR2X)	5	P44A72Bx (BOLT, RR2X)	1
P31A22x (RR2X)	16	P44T63R (R)	1
P33A24x (RR2X)	5	P45A23x (RR2X)	1
P33A53x (RR2X)	3	P46A16R (R)	1
P33T72R (R)	1	P46A57Bx (BOLT, RR2X)	1
P35A33x (RR2X)	1	P48A60x (RR2X)	4
P35A91Bx (BOLT, RR2X)	2	P49A34x (RR2X)	1
P36A18x (RR2X)	2	P52A26R (R)	1
P37A27x (RR2X)	1		

PIONEER® BRAND SOYBEAN VARIETIES TOPPING 100 BU/ACRE IN ON-FARM TRIALS IN 2018 INCLUDED:

- 27 varieties with Roundup Ready 2 Xtend® Technology
- 8 varieties with glyphosate tolerance
- 3 varieties with BOLT® Technology
- 3 varieties with Peking SCN resistance source (P25A70R, P27A17x, P27T59R)
- 1 Pioneer® brand Plenish® high oleic soybean variety

AGRONOMIC PRACTICES

- 100 bu/acre yields were achieved in a range of different environments and with a range of different agronomic practices.
- Analyses of management practices used in yield contest winners in other crops have produced similar findings (Jeschke, 2019), indicating that there is no single one-size-fits-all formula for achieving high-yield potential.

Previous Crop

- The vast majority of 100 bu/acre plots were planted to corn the prior season – 155 of 168 – while 9 were planted to soybeans and 4 to another crop (data not shown).

Tillage

- The most common tillage system used at locations with 100 bu/acre plots was conventional tillage, followed by no-till (Figure 3).

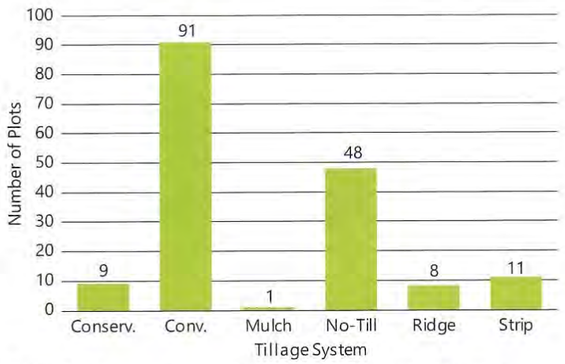

Figure 3. Tillage practices used in Pioneer on-farm trials with entries exceeding 100 bu/acre, 2013-2018.

Seeding Rate

- Seeding rates used in plots yielding above 100 bu/acre ranged from 110,000 seeds/acre to 200,000 seeds/acre, with an average of 157,000 seeds/acre (Figure 4).

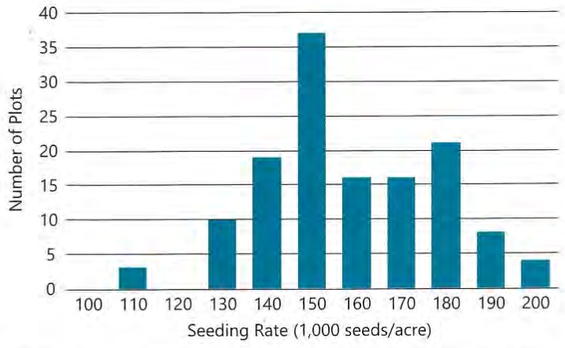

Figure 4. Seeding rate used in Pioneer on-farm trials with entries exceeding 100 bu/acre, 2013-2018.

- Average seeding rate was slightly higher among no-till locations (159,000 seeds/acre) than conventional-till locations (152,000 seeds/acre).
- Seeding rates differed among the 4 states with the most 100 bu/acre plots:
  - » The average seeding rate across Illinois and Indiana locations was 149,000 seeds/acre.
  - » The average seeding rate across Kansas and Nebraska locations was 170,000 seeds/acre.
- Seeding rates in Kansas and Nebraska are similar to those documented in a larger, multi-year survey of high-yield soybean production in these states, which found an average seeding rate of 174,000 seeds/acre (Propheter and Jeschke, 2017).

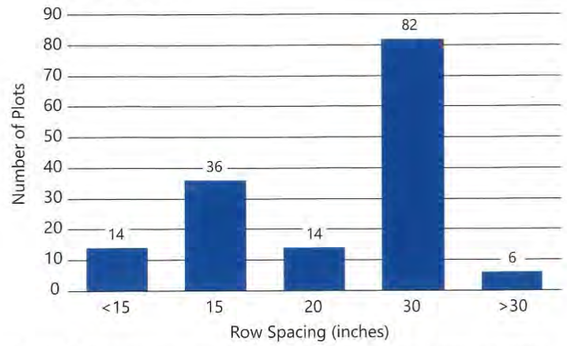

Figure 5. Row spacing used in Pioneer on-farm trials with entries exceeding 100 bu/acre, 2013-2018.

Row Spacing

- Over half of the 100 bu/acre plots were planted in 30-inch rows with most of the rest in 15-inch rows or other narrow row configurations and a few in rows wider than 30 inches (Figure 5).
- Geographic distribution of row-spacing practices roughly corresponded with findings of recent USDA surveys, with 30-inch rows most common from Illinois west and narrower rows more common from Indiana east (Jeschke and Lutt, 2016) (data not shown).

Planting Date

- Recent research has shown the importance of early planting for maximizing soybean yields (Van Roekel, 2019). Most trial locations with 100 bu/acre plots were planted in the latter half of April through the first half of May (Figure 6).

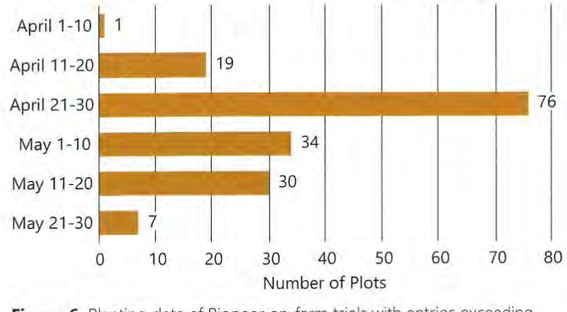

Figure 6. Planting date of Pioneer on-farm trials with entries exceeding 100 bu/acre, 2013-2018.

Other Practices

- Other management practices employed at locations with 100 bu/acre plots included foliar fungicides, foliar insecticides, and supplemental nitrogen applications.

Sign Your Pioneer Technology Use Agreement through AgCelerate.com Website

Pioneer is now using AgCelerate.com for growers to be able to sign seed technology agreements for Pioneer seed and Corteva Agriscience.

What is the Corteva Agriscience Technology Use Agreement (TUA) and why is it important?

The TUA serves as an agreement between the customer and Corteva demonstrating that the customer understands and agrees to follow all stewardship and legal responsibilities related to their purchase. The TUA protects two major components; (1) technology (e.g. Enlist, E3, RR2, etc.) and (2) intellectual property rights (e.g. germplasm, patents and other proprietary know-how). This is why TUAs need to be captured for both GM and non-GM products (e.g. sorghum and wheat products). Corteva makes substantial investments to bring new traits, technology and products to the market. It is important to protect these investments so Corteva can continue to fund research and business development initiatives.

Who will need to sign the new Corteva TUA and when will this TUA be required?

All customers will be required to sign the new Corteva TUA to gain access to Corteva products before the September 1st 2020. Even if you have signed in the past you will need to complete a new TUA agreement by September.

If you already have an AgCelerate account all you will need to do is to log into your account and go to your dashboard. From there you can choose Sign Agreements. Then simply scroll down through the agreements on the right-hand side of the page and choose the Corteva Agriscience agreement to sign.

If you do not have an account you will need to create one.

Step 1 – Grower Information

1. Go to www.AgCelerate.com

2. Click *Growers Click Here*

3. Enter your Email Address

4. Create a Password

5. Name – Fill this in with your Legal First, Middle and Last names. Licenses are issued to a person, NOT a business. The business can be covered under your license, and can be added in step 2.

6. Last 4 of SSN# – This will be your personal SSN, not the Business EIN.

7. Enter your Telephone Number

8. Physical Address– The address where you reside. This is what is on your driver's license or government issued ID and cannot be a PO Box. Don't worry if the farm address is different. You can add that in step 2.

9. Mailing Address– Check the box if your home address and mailing address are the same. If not, enter your USPS mailing address. This can be a PO Box.

10. Choose the Crops which you farm

11. Click the box to accept the *Terms of Service and Conditions of Use*

12. Click *Continue to Next Step* Validating Addresses

Step 2 – Farm Information

The farms or entities you need covered under your licenses must be listed under "My Farms" so the seed license agreements can be associated with them.

For all farms that you are associated with, click the orange This is your farm button. If it is not your farm or you are no longer associated with it, click the *grey this is not your farm button*. This address must be the physical address where your farm is located. PO Boxes will not be accepted here. You can update the information by clicking the grey *Edit Farm* button.

The business mailing address can be entered as the account mailing address after registration is complete, if needed. If none of your farms are listed, then manually add them by clicking *Add a Farm*. Fill out the required fields and validate the address. Click *Save* when done. Repeat to add multiple farm businesses as needed. Once you are done click *Continue to Final Step.*

Step 3 – Supplier Information

Select all of the seed suppliers you do business with from the list provided.

If you would like help in setting up your account and signing your agreement call Susannah at 316-772-5050 to schedule a time to come by the office to get everything completed.

If you have questions about this process please call Susannah at the office or you can contact AgCelerate Support: (866) 784-4630.

Step 4—Return to the dashboard and choose – Select Agreements

⇒ ***Scroll*** down the list on the right side of the page for the Corteva Agriscience agreement.

⇒ ***Select Agreements*** – Once you have selected the agreement you need to sign, the banner for the agreement will be highlighted in orange. Then click *Sign Selected Agreements.*

⇒***Information*** – A small window should appear that will ask for any additional information that may be needed based on the agreement selected. Answer the question(s) and click *continue*. Note: If you do not get a popup, you may need to check if you have pop-ups or redirects blocked in your internet browser settings.

⇒***ID Questions*** – In this next step, you will be asked a minimum of 3 multiple choice questions based on your background, using the information that you entered during the registration process. If any of your registration information is not your personal information, these questions will not populate and you will have to call the Support line for assistance.

⇒***Signing the Agreements*** – In this step you will use DocuSign to sign the actual agreement(s). Make sure your browser will allow pop-ups and has a current PDF reader installed. Click continue and follow the prompts.