VOLUME 3
ISSUE 2

SPRING
2022

Quarterly Newsletter

theSeedScoop

In this issue:

Upcoming Dates

April 1st
Crop Insurance Earliest Planting Date for Corn

April 20th
Crop Insurance Earliest Planting Date for Soybeans

May 25th
Crop Insurance Final Planting Date for Corn

June 20th & 25th
Crop Insurance Final Planting Dates for Soybeans
- 20th: Lafayette & Saline Co.
- 25th: Johnson & Pettis Co.

September 30th
Deadline to spend TruChoice chemical prepay funds

PLANTING SEASON REMINDERS

It's that time of year again! Planting season is upon us, and we want to share a few key reminders to keep in mind this season.

***SUPPLY* |** Last fall we saw a large amount of corn acres switch to soybean acres due to high input prices. It appears anhydrous prices are still holding steady. If you know you are going to have acres switch, please let us know as soon as possible so we can work on getting seed to cover the additional acres.

***PMZ DRY & MOLY DRY* |** We have many growers who are using PMZ Dry on corn and Moly Dry on soybeans as a talc/graphite replacer. These products act as flow agents and also provide additional nutrition to the seed. We have both products in stock now. Let us know if you're still needing either of these products before you begin planting.

***TURF PRODUCTS & SPRING FORAGES* |** We have grass seed, lawn fertilizer, Weed 'n Feed & crabgrass preventer available now. We can also get spring forages and pasture mixes for those who still need to seed products this spring.

***STEWARDSHIP* |** The current soybean industry is a still a mix of different soybean herbicide traits and technologies. Please take the time to do two things this season:
1) Talk to your neighbors and ask what herbicide tolerant soybean trait they are using in their fields (*BEFORE* spraying your own fields) to avoid herbicide damage in neighboring fields
2) Make sure *YOU* know what soybeans *YOU* are planting when talking to your custom spray applicator. It may seem silly, but we've heard growers say "Xtend" instead of "Enlist" (and vice versa) when talking about their own soybeans. No one wants to replant soybeans because of a trait mistake.

***SAFETY* |** Without a doubt, this time of year is busy, stressful, and exhausting (both physically and mentally). We encourage everyone to take the extra time to slow down when necessary and take all safety precautions, especially around planting equipment and when traveling from field to field. The most important thing is returning home safely to your loved ones at the end of the day.

A-Series Enlist E3 Soybeans

The future is bright with Enlist E3 soybeans, and we're excited that Pioneer has exclusive, new A-Series Enlist E3 Soybeans. These varieties are exclusive to Pioneer, and combine the elite A-Series genetics (the company's highest-yielding varieties) with Enlist technology. 28 varieties across a range of maturities will be available in limited quantities this 2022 season with wider availability expected in 2023.

Don Gehrls, Pioneer Soybeans Marketing Lead, said "As Pioneer breeders leverage our extensive localized breeding and testing program, the result will be even more varieties that are both customized to farmers' acres and packed with even more yield potential. As excited as we are to deliver these new varieties now, this is just the beginning."

Just like when A-series Xtend soybeans came around, these A-Series Enlist E3 genetics will move quick. The varieties you plant in 2023 might not be the same varieties you plant in 2024, as new soybeans continue to come down the pipe. This year, our agency will have four Enlist soybean plots with the new A-Series soybeans. Give us a call this summer if you're interested in walking through a plot with us. We're excited for what's in store.

CONTACT US

KNIPMEYER SEED
PO Box 360 | 902 E 1st St.
Concordia MO 64020


JEFF KNIPMEYER
660-229-2656
Jeff.Knipmeyer@plantpioneer.com


LAUREN KNIPMEYER
660-641-6675
Lauren.Knipmeyer@plantpioneer.com

FIND US ON SOCIAL MEDIA:
@KnipmeyerSeed

PRODUCT SPOTLIGHT

P1718AML

P1718AML is a new 117 day corn hybrid suitable for your most productive soil types. If you're looking at full season hybrids, this is a yield leader product. It has good late season stalks and responds well to a fungicide application.

P37A18E

P37A18E is a group 3.7 maturity A-Series Enlist soybean. It's a leader product for high yielding acres in the mid– to late– group 3 range. It has great standability and would work well in bottoms or highly productive soil types where lodging is a concern. It also has excellent SDS tolerance.

COLD STRESS ON CORN

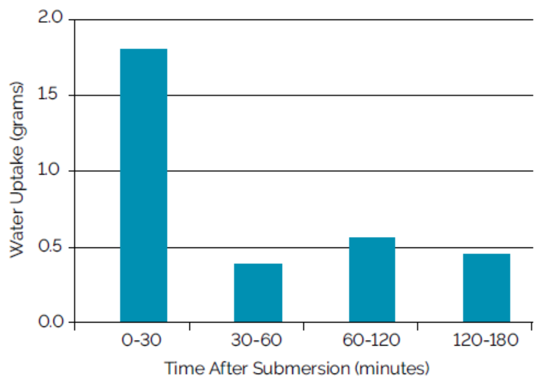
Every year we get questions about the effects of planting ahead of cool and/or wet weather. So, as corn planting quickly approaches, we want to highlight some key factors to consider before planting in unideal situations.

Corn is a warm season crop, so a cold event following planting can cause significant stress on corn emergence and seedling health. Successful corn emergence is a combination of three factors:

1) environment, 2) genetics, and 3) seed quality.

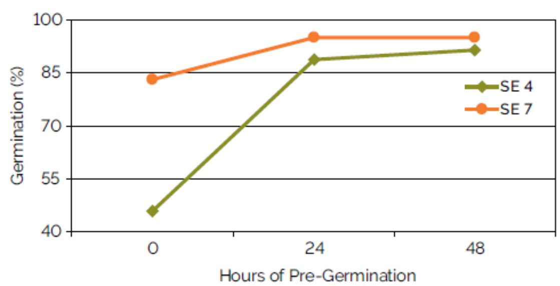
Corn seed is particularly susceptible to environmental cold stress during imbibition. Temperature during imbibition is critical to corn emergence because the seed imbibes most of the water needed for germination very rapidly. The data in Figure 1 shows that seed imbibes the most water within the first 30 minutes after exposure to saturated conditions. When dry seed imbibes cold water as a result of a cold rain or melting snow, imbibitional chilling injury may result. This is because the cell membranes lack fluidity at low temperatures—causing rupture of membranes. The degree of damage ranges from seed death to abnormalities such as corkscrews or fused coleoptiles.

Figure 1. *Amount of water uptake by corn seed during the first 3 hours after submersion in 50°F water.*



Timing of the cold stress event and seed genetics also play a critical role in germination success. Pioneer provides stress emergence (SE) scores for all hybrids to help growers manage early-season risk. Stress emergence refers to the genetic potential of a hybrid to germinate and emerge under stressful conditions associated with early planting, including cold, wet soils or short periods of severe weather. Figure 2 shows germination rates for two hybrids with a SE score of 4 and 7 with a cold stress imposed at different times after planting.

Figure 2. *Germination of two hybrids with stress emergence scores of 4 (below average) and 7 (above average) following imbibitional chilling after planting (0 hours) or after 24 hours or 48 hours pre-germination in warm conditions.*



Both hybrids in Figure 2 showed significant stand loss when the cold stress was imposed immediately (0 hours) after planting. However, the hybrid with the higher SE score had a higher percent of germination than the hybrid with a low SE score. Germination rates for both hybrids were greatly improved if allowed to uptake water and germinate at warmer temperatures for at least 24 hours before a cold stress.

A study was also done a few years ago that tested yield reduction in situations where there was a cold stress. Figure 3 shows estimated yield reductions relative to the check based on timing of chilling (hours after planting). These two hybrids also had different SE scores, with P0993HR having a higher SE Score than P1151AM.

Figure 3. *Estimated percent yield reduction relative to the check based on timing of chilling a (hours after planting).*

Hybrid/Brand[1]	0 hours	24 hours	48 hours	72 hours
P0993HR	28%	6%	8%	0%
P1151AM™	26%	25%	13%	14%

Ears from P0993HR (left) and P1151AM™ (right) hand-harvested from the untreated check and each of the chilling stress application timings.

Both hybrids had respectable stands that didn't warrant a replant after the chilling event. However, estimates of final yield indicated the potential for substantial yield penalties associated with chilling injury after planting. Even though a stand can be established in adverse conditions, the effect on harvestable plants and yield is something to be considered.

We saw similar situations occur two years ago, as a lot of corn was planted before a cool, wet spell. Timing of planting and improved seed genetics allowed for many fields to germinate and produce respectable stands, even after sitting in the ground for upwards of three weeks. However, the cold stress still seemed to reduce the top end yield potential in many of those situations.

One more thing worth noting— high amounts of residue in fields can present management challenges. Residue tends to hold excess water and significantly lower soil temperature in the spring. In another test in April 2019, a 15°F midday temperature difference was noted in the same field between soil under low residue and soil about 60 feet away under soybean residue. If planting corn in fields with high amounts of residue, consider strip tillage or use row cleaners to allow soils to warm up faster and allow for optimum seed-to-soil contact.

Of course, we're always at the mercy of Mother Nature during planting season, and perfect conditions don't always present themselves. However, we hope this helps answers some questions you may have this spring while weighing potential risks and benefits if planting in less than ideal situations.

SPRING ANHYDROUS APPLICATIONS

There was a lot of NH3 applied this fall. However, there's still a significant amount to put on this spring, and there still hasn't been much of a window (outside of a few pockets) to get it done. With most everyone getting rain these past couple weeks, it looks like the time between anhydrous applications and planting could be minimal. Below are a few points to think about in this instance:

To prevent seedling injury, separate the seed and ammonia with time and/or distance.

- There is no magic number of days to wait between NH3 applications and planting. However, waiting at least 5-7 days is a good rule of thumb.
- Depth is actually ***more*** important than wait length. Injecting NH3 8" or deeper is ideal this time of the year. NH3 expands 3-4" in ***all*** directions from the point of injection, shown in Figure 1 to the right. If you are only putting it on 5-6" deep, that puts it right next to the seed. This will dehydrate the seed and cause NH3 burn.
- Applying the NH3 at an angle or parallel with the corn row at least 5 inches to the side will minimize the potential for seedling injury. Splitting the anhydrous shank marks at 15" might be ideal.
- The drier the soil, the more NH3 expands for water. So, in drier years, we tend to see more issues with NH3 burn. However, still keep in mind that NH3 put on too wet can run back up the sidewall if we smear it. This allows it to get in the seed zone where the planter row and NH3 shank mark intersect.
- Chasing the NH3 applicator with the field cultivator is NOT the best plan. Give the NH3 a few days to convert over to NH4 before opening the ground up.
- Higher concentrations of NH3 have a greater risk for NH3 burn. So, one method to mitigate risk if you are concerned is to reduce the amount of preplant N and put the remaining balance on in-season as a sidedress/topdress application. Not only is sidedressing/topdressing a good practice, but it will give you a chance to correct any loss that may happen in-season.

Figure 1. *Applying anhydrous ammonia 8-10 inches deep can help prevent seedling in jury by keeping the seed out the NH3 retention zone.*

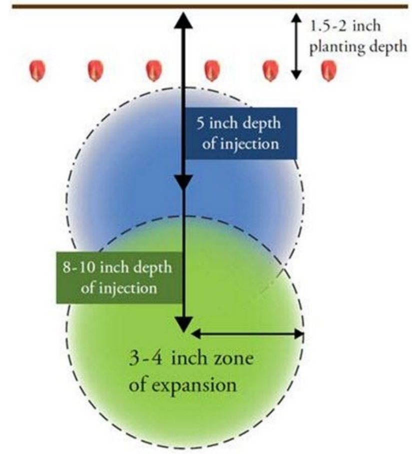
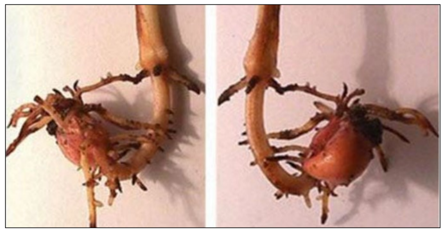


Figure 2. *Roots of corn seedlings showing injury due to spring application of anhydrous ammonia.*



SOYBEAN SEED TREATMENT

The term "LumiGEN"™ represents our entire soybean seed treatment technology package. Of the soybeans we sell, 92% are protected with our standard LumiGEN seed treatment that we apply at our warehouse. Of the 92% protected with the standard treatment package, 99% is also treated with ILeVO. Soybean seed treatment is becoming an industry standard. However, each year we get inquiries about what's included in the treatment packages. Below you'll see the benefits and details of each product that's included.

STANDARD PACKAGE

FUNGICIDES

- **L-2030 G Biofungicide |** Inhibits seedling and root pathogens, while also using microbials to produce plant hormones to trigger root growth and nodulation, increasing nutrient uptake.
- **EverGol® Energy |** Controls both seed and soil-borne diseases and promotes more root growth, ensuring greener and fuller plants, better crop establishment, and improved growth .
- **Lumisena |** Provides the most advanced seed-applied technology to protect against phytophthora, the #1 disease in soybeans, while also enhancing emergence and vigor.

INSECTICIDE

- **Gaucho |** Provides unmatched protection against the worst insects, acting both on contact to protect the roots and systemically to protect the plant.

INOCULANT

- **Inoculant |** Enhances soybean performance by adding beneficial rhizobia bacteria to the soil which converts and stores nitrogen in the plant's roots. Nitrogen-packed nodules form, turning your soybean plants into nutrient-rich powerhouses.

ILeVO Add-On

FUNGICIDE/NEMATICIDE

- **ILeVO |** The only proven winner against *both* Sudden Death Syndrome (SDS) and soybean cyst nematodes (SCN).

MANAGEMENT OF SDS IN SOYBEANS

Sudden death syndrome varies in severity from area to area and from field to field. Therefore, growers must clearly understand the extent of SDS infection in each of their fields to effectively manage the disease. A combination of crop management practices discussed below can help minimize the damage from SDS. It's important to note that foliar fungicides are <u>not</u> effective for SDS. Although foliar symptoms and defoliation are trademarks of SDS, the fungus itself does not spread to the leaves. The fungus only colonizes in the roots and at the base of the stem, and then produces toxins that are transported to the leaves. For this reason, foliar fungicides are not effective in reducing damage to soybeans from SDS.

Tolerant Soybean Varieties

Soybean varieties can show dramatic differences in tolerance to SDS infection, with tolerance exhibited as a reduction in symptom severity. For that reason, variety selection is a key management practice to reduce plant damage and yield loss due to SDS. Pioneer researchers rate products in multiple test sites with known historical SDS occurrence. These sites, located where SDS is problematic, are irrigated and/or planted early to encourage SDS development. Tolerance data is collected and analyzed across years to determine the appropriate SDS tolerance score. Due to continued improvements in breeding for this trait, Pioneer now has varieties that score as high as 8 for SDS tolerance on a 1 to 9 scale (9 = most tolerant).

Planting Sequence

Although many growers today are reluctant to delay planting when fields are ready, research has demonstrated later planting to be effective in reducing SDS occurrence. For this reason, growers should at least consider planting high-risk fields last in their planting sequence. If this delays planting for one or two weeks, the impact on SDS occurrence could be significant.

ILeVO Fungicide Seed Treatment

ILeVO® fungicide (active ingredient: fluopyram) seed treatment provides protection of soybean seedlings from *Fusarium virguliforme* infection, the causal agent of SDS. In Pioneer soybean research trials over 3 years and 80 locations, the addition of ILeVO to the FST/IST check increased soybean yield an average of 2.8 bu/acre across all environments, and increased yield 9.8 bu/acre across 17 high level SDS locations.

Managing Soybean Cyst Nematode (SCN)

SCN is a problem requiring management in many soybean fields that are also at risk to SDS. SCN both increases the stress on the soybean plant and also creates wounds in the plant roots that the SDS pathogen can enter. Like SDS, SCN cannot be eradicated from an infested field. However, planting SCN-resistant varieties, using seed treatments effective against SCN, rotating crops, and rotating sources of SCN resistance <u>can</u> reduce SCN populations. Keeping SCN numbers below threshold levels that will cause significant yield loss is the primary goal of SCN management.

Improving Field Drainage and Reducing Compaction

Improving field drainage and reducing compaction go hand-in-hand, as wet areas are easily compacted, and compacted areas stay wetter due to restricted soil drainage. Wet, compacted field areas fare badly in the presence of the SDS fungus. SDS infection is aided by high soil moisture conditions, and soybean roots already inhibited by compacted and saturated soils are further diminished by the disease. When stress conditions develop on these fields, yields are often severely reduced due to a limited root system and the devastating effects of the SDS. Improving field drainage and improving compacted areas is a high priority to reduce the effects of SDS.

Evaluating Tillage Systems

A study conducted at the University of Missouri showed that no-till systems resulted in much higher percentages of SDS infected leaves than disking or ridge-till with both May and June planting dates. High crop residue levels are known to result in colder, wetter seedbeds in the spring. In fields with high levels of SDS infection, growers may want to re-evaluate the tillage system they are using.