VOLUME 3
ISSUE 1

WINTER
2022

Quarterly
Newsletter

theSeedScoop

In this issue:

Upcoming Dates

January 27th
1st Annual MO Ag Stewardship Conference (Concordia Community Building)

January 31st
Contact us if you're needing a large amount of sweet corn for 2022

February 25th
⇒ 2nd Cash Payment Discount deadline for your 2022 seed order

⇒ Deadline for TruChoice account funding and Crop Protection Early Pay Savings

NEW YEAR UPDATE & REMINDERS

It's hard to believe another year has come and gone. We hope everyone had a safe, healthy, and happy holiday season! We took time over the holiday season to recharge and spend time with family, and we hope you did as well. We thank you for your business in 2021 and look forward to working with you in 2022!

Christmas Eve 2021
Kendall (2) and Mason (5 months)

We will have two sweet corn varieties available this spring: Incredible & Peaches 'N Cream. We'll have 6oz packets available both at the office and when we deliver corn. If you're needing a large amount of sweet corn, please let us know by January 31st so we can add it to our order.

One last reminder, if you would rather receive this newsletter by email, or receive it both by mail and email, please let us know so we can update your preferences ahead of our spring newsletter.

This fall, we had an exciting addition to our agency with the construction of three soybean bulk bins. Each bulk bin is filled with one variety of soybeans. As agricultural changes, we believe it's important to continue to grow and evolve to better serve our customers. The addition of these bulk bins will make planting season more efficient for you as a customer as well as our agency. Below is a picture of the first bulk bin being filled with Enlist variety P45T88E. Planting season is just around the corner!

With significantly higher nitrogen and fertilizer prices, we have seen some corn acres switch to soybean acres for 2022. If you are making a change to your 2022 crop rotation, please let us know so we can ensure adequate seed supply. For a few things to keep in mind when making this decision, please see the "Cost Cutting Decisions" article on page 4.

KNIPMEYER SEED SURVEY

Thank you to everyone who has completed the Knipmeyer Seed customer feedback survey. We have received some great feedback! Any comments, suggestions, or concerns that you have, we would like to hear them. If you haven't had the time yet to complete the survey, please take 5 minutes to do so. If you did not receive the survey by email, please call or text Lauren and she can send the link to you to complete. Thanks again!

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PRODUCT SPOTLIGHT

P1222AM

P1222AM is a new 112 day corn hybrid suitable for your most productive soil types. It has strong stalks and roots, coupled with great stay green and late season harvest standability. It has the most ear flex in our lineup, and has excellent top end yield reach. P1222AM won the 2021 NCGA Yield Contest, at 602 bu/ac.

P44A91E

P44A91E is a group 4.4 maturity Enlist soybean. It's a leader product for high yielding acres in the mid-group 4 range. It has a good disease package with above average SDS tolerance and harvest standability.

AGRONOMY Q&A: Nitrogen

Answered by Pioneer Field Agronomist Nick Monnig

1. Have we lost any nitrogen that was fall-applied due to our abnormally warm November and December?

The short answer to the question is no. The long answer is maybe. I'll try to keep my explanation concise, but there is a lot to take in here. When we apply anhydrous ammonia, we are applying NH3, which is a gas at normal temperatures. However, the anhydrous ammonia (NH3) quickly reacts with moisture in the soil to convert to NH4+ (ammonium), which is a stable form of nitrogen. The positively charged ammonium (NH4+) is then held by the negatively charged soil particle (Cation Exchange Capacity, CEC, is a measure that tells us how many cations, or positively charged ions, the soil can hold). Overtime, specific soil bacteria convert the ammonium (NH4+) to nitrate (NO3-). Nitrate has a negative charge and is not held onto by the negatively charged soil particle. Therefore, the nitrogen is vulnerable to loss if it is not being taken up by a corn plant. The two main pathways we lose nitrogen at this point are through leaching (on well-drained or sandy soils the nitrate is pushed down through the soil profile with water), or denitrification (on a poorly drained soil with excessive rain the soil becomes starved of oxygen and the nitrate is lost to the atmosphere as a gas – there is more to that explanation, but that is the end result).

So, have we lost any of the fall-applied anhydrous we applied in November and December? The short answer was no. In my answer above, you notice that we need significant rainfall to cause both loss pathways of nitrate. We have not had any excessive rain events yet. So, no the nitrogen is still there.

Ok, then why the long answer of maybe? Well, for most of us, December went down as the warmest on record since 1889. The conversion process of ammonium (NH4+) to nitrate (NO3-) is called nitrification and it is a temperature mediated process. As soil temperatures move above 50 degrees, that process really starts to ramp up. So, we could have had some nitrification starting to occur with the applications this fall. There might be a larger percentage than normal fall-applied anhydrous that has converted to nitrate. However, as noted above, we need excessive rainfall to cause loss. We haven't had that. Also, while a percentage of ammonium may have converted to nitrate, the majority of it is likely still in the stable ammonium form. What I am trying to get to is that major nitrogen losses occur with heavy spring/summer rains. Excessive moisture with warm temperatures in months like May and June usually cause our nitrogen loss. 2021 will go down as a major nitrogen loss year, and it is because of the excessive rain we experienced in May through July. Especially, the extreme saturation in late June and July. The longer the soil is saturated, the warmer the temperatures, and the more of your anhydrous that has converted to nitrate, the worse the nitrogen loss.

Bottom-line, you likely haven't lost any fall applied anhydrous yet. However, if we have heavy rainfall events this spring, you'll want to have a rescue nitrogen plan in place. Especially, on the fall-applied anhydrous acres.

2. Does it pay to put on a Nitrogen Stabilizer?

Depending on the product, a nitrogen stabilizer can help reduce nitrogen losses in certain situations. A product like N-Serve, for reference, is a great partner to fall anhydrous applications. I mentioned above that soil bacteria convert the stable form of ammonium (that anhydrous quickly converts to when applied) to the losable form of nitrate over time and with temperature (call nitrification). A product like N-Serve is a nitrification inhibitor. It slows the conversion process of ammonium to nitrate by targeting the specific soil bacteria responsible for that process. Using this fall as a reference, with one of the warmest December's on record, the addition of N-Serve to a November application of anhydrous would have helped to ensure that the nitrogen stayed in the ammonium form and did not convert to nitrate. Thereby, helping to prevent some nitrogen loss later in the season. N-Serve does eventually run out with time and temperature, however, it most definitely helps protect your fall-applied anhydrous investment.

3. Is there a difference between Nitrogen stabilizers N-Serve and NZONE?

Yes, there is a difference. The active ingredient of N-Serve is nitrapyrin. It delays the nitrification process (converting stable ammonium (NH4+) to losable nitrate (NO3-)) by targeting the soil bacteria that mediate this process. So, it has a proven pathway as a nitrification inhibitor that can reduce nitrogen loss. NZONE claims to delay the nitrification process by acting as "a cation catalyst that delays the conversion of ammonium to nitrate". It says it adds competitive cations to the soil and allows the ammonium ion to attach to the CEC site. Its mode of action is less understood than that of N-Serve (nitrapyrin).

If you look at the data in this decision, N-Serve, or nitrapyrin, has over 40 years worth of testing and data behind it. You can do a quick internet search and find numerous amounts of proven data on it. NZONE is not the same. It is much more difficult to find any data on it. Especially, unbiased data (i.e. university research, etc.). There is a paper out there from North Dakota State University called "Nitrogen Fertilizer Additives, Which Ones Work?" that includes NZONE. They did several studies with various nitrogen stabilizers, including NZONE, on urea and UAN solutions. Their final sentence of the abstract sums it up, *"In these nine studies Nutrisphere, **NZONE**, StayN, and NStay demonstrated little value as fertilizer additives for the purpose of inhibiting urea hydrolysis, **nitrification**, or ammonia loss from the soil."* Which means it did not delay the conversion of ammonium to nitrate (nitrification), so it did **not** reduce nitrogen loss. On the other hand, they did have N-Serve (nitrapyrin) in one of the studies. They commented that with urea, *"nitrapyrin slowed nitrification, but Nutrisphere, NZONE, StayN, and NStay had no effect."*

TruChoice Program®

As a Pioneer customer, we can help you save on over 100 crop protection products from Corteva Agriscience when you fund a TruChoice prepay account.

►**FUND**
Fund your TruChoice prepay account with a minimum of $5,000 by February 25, 2022

►**EARN**
You earn upfront savings (no waiting for a rebate) on Corteva Agriscience chemical products like N-Serve and Enlist herbicide. Save up to 15% with cash funding and up to 10% with funding through deferred pay.

►**SPEND**
You can spend your TruChoice funds at participating retailers from November 7, 2021 through September 30, 2022.

EXAMPLE 1

Customer has a bill of $6,000 for N-Serve & Enlist. They are funding with cash, so they are qualified for 15% savings. They fund their account by writing a check for $5,100 (15% less of the $6,000 bill). The customer then tells their specified retailer that the money is deposited into their TruChoice account. The retailer looks them up in the system with their Pioneer Business Partner I.D. and can see that that they have $6,000 in their account to pay for the bill.

- Funds $5,100 **CASH**
- **15%** prepay multiplier is $900 ($5,100/0.85)
- Customer now has $6,000 ($5,100 + $900) in their account to spend
- Customer saved $900 on a $6,000 bill

EXAMPLE 2

Customer has a bill of $30,000 for N-Serve, Enlist, Sonic & Aproach Prima. They are going to fund their TruChoice account through Deferred Pay, so they are qualified for 10% savings. They fund their account by putting $27,000 in their Deferred Pay account (10% less of the $30,000 bill). The customer then tells their specified retailer that the money is deposited into their TruChoice account. The retailer then looks them up in the system with their Pioneer Business Partner I.D. and can see that that they have $30,000 in their account to pay for the bill.

- Funds $27,000 via financing on **Deferred Pay**
- **10%** prepay multiplier is $3,000 ($27,000/0.90)
- Customer now has $30,000 ($27,000 + $3,000) in account to spend
- Customer saved $3,000 on a $30,000 bill

2022 CHEMICAL SHORTAGE

Supply chain disruptions and material shortages are just a couple of factors that are leading to a herbicide shortage for the 2022. Glyphosate (Roundup) and glufosinate (Liberty) are the two main active ingredients that potentially may be in short supply this growing season. Allan Gray, executive director of the Purdue University Center for Food and Agricultural Business, said, *"Flooding, COVID-19 outbreaks, and congested ports disrupted production and exports in China for months, resulting in chemical manufacturers rationing supply."* It's critical, now more than ever, to plan your upcoming weed control strategies to accommodate for limited availability, both because of supply and price of these two active ingredients. Even if there isn't a widespread shortage, growers will likely be encountering higher chemical prices. For reference, glyphosate prices in 2021 were $20/gallon on average and are currently $65/gallon on average, and glufosinate prices in 2021 were $45/gallon on average and are currently $70/gallon on average. Finally, if there's a glyphosate shortage, make sure you're using your available glyphosate efficiently (see list below). The bottom line is be aware of potential chemical shortages and price increases—talk to your chemical supplier or retailer and have a plan in place for this growing season.

Best places to use glyphosate:

1. Cereal Rye Termination. There is just no good substitute when it comes to terminating grass cover crops. Compared to other burndown options, glyphosate control of annual rye, cereal rye, and wheat can be significantly greater compared to other alternatives

2. In-season corn and soybeans

3. Burndown of non-cover crops (other alternatives may provide effective control).

GRANULAR INSIGHTS

As of January 10, 2022, the Pioneer Seeds mobile app has retired. All tools that were once in the Pioneer Seeds app are now in the Granular Insights app, for a more streamlined mobile experience. If you already have the Pioneer Seeds app on your mobile device, you will need to download the Granular Insights app. Tap "Sign in with Corteva" and use your Pioneer Seeds credentials to log in. Contact us if you need assistance.

WHAT YOU WILL FIND IN THE NEW GRANULAR INSIGHTS MOBILE APP:

Access to your Field Plans

Agronomic & Financial Field Layers

Planting Rate Estimator

Directed Scouting

Notes/Photos

Threat ID

Yield Estimator

Digital Bag Tag

MO AG STEWARDSHIP CONFERENCE

Sustaining Land & Profit on Missouri Farms

The Santa Fe Agri Leaders are hosting the First Annual MO Ag Stewardship Conference on Thursday, January 27th. It will be held at the Concordia Community Building from 8:00am to 3:15pm. This conference will focus on sustaining land and profit on Missouri farms. Lunch will be included and CCA credits available. Listed below are featured speakers and topics. Register online at www.santafeagrileaders.org or contact Brittany Hemme at 660-674-2220.

Jimmy Emmons, Producer—Leedey, OK
What Stewardship Looks Like

Keith Berns, Green Cover Seed
Session 1: Carbonomics
Session 2: 7 Lessons on Cover Crops

Clayton Light, MO Soybean Association
Leveraging Carbon & Biodiversity

Russ Jackson, Producer—Mountain View, OK
Practical Stewardship Practices

COST CUTTING DECISIONS

There's no doubt inputs are much higher for the 2022 crop than they were for the 2021 crop. Higher commodity prices help, but it still looks like margins will be much tighter than they were for last year's crop. Our agronomists have recently shared some things we wanted to mention as many customers weigh decisions regarding crop rotations and input prices:

1. Everyone is talking about the increased cost of P and K (especially P). It is much higher than it was a year ago. While a solid fertility bank in the soil is important (and it's not ideal to cut rates unless field levels are really high), everyone's budget is different and everyone will have to make hard decisions based on that budget. However, when things are tight, it's important that growers are not wasting money. Efficiency is key. It's always important to fix the lowest stave in the barrel. While liming is usually an early fall activity, with the dry conditions we've had, it is something that some growers will continue to do for at least another couple of weeks. However, because it's best to try and do it at least 6 months prior to needing the desired pH. if you're applying over the few weeks, it's really best to incorporate it to assist with seeing the full benefits. If you have a low pH field, your money is best spent on lime before you do anything else (i.e. spending money on P especially). The table below shows the importance of liming on fertilizer efficiency. With N, P, and K (especially P), you can see why it is critical to maintain that 6.5-7.0 pH. Bottom line: <u>If you want to maximize your fertilizer dollars, then lime your acid soils first</u>.

Fertilizer Waste

Soil pH	Nitrogen	Phosphate	Potash	Fertilizer Wasted
4.5	30%	23%	33%	71%
5.0	53%	34%	52%	53%
5.5	77%	48%	77%	32%
6.0	89%	52%	100%	20%
7.0	100%	100%	100%	0%

2. Some growers are considering or have already made the decision to go beans on beans for 2022 considering the current prices of nitrogen. Our agronomist shared a few points to remember for those growers who are facing that decision.
   a. Long term University of Missouri data shows an 8-10% yield penalty for soybeans after soybeans vs. soybeans after corn. This past year with a really wet spring and dry fall, that penalty was higher than 10%. It can create a pretty substantial hit when soybeans are over $13/bu. It might be helpful to keep in mind this yield reduction percentage when running numbers for the 2022 crop year.
   b. Soybeans are potassium (K) hogs. They remove anywhere from 1.2-1.4 lbs. of potash per bushel. So, if you just raised some really good 70 bu/a beans in 2021, you removed 90-100lbs of potash, so the soil might already be short. So, if you grow soybeans again and want them to yield well, it's really important to make up for the shortage last year, plus account for your yield goal in 2022.