



AGVISE

LABORATORIES

Timely Information for Agriculture

FALL 2024

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NORTHERN NOTES

History doesn't repeat itself, but it often rhymes. From a drought in fall 2023 to a very rainy spring and summer, the 2024 growing season rainfall pattern in the Northwood trade area has strangely mirrored the rainfall patterns of the 2021 drought and the 2022 monsoon. In spite of their similarities, these two sets of dry and wet years will be different, as only Mother Nature can promise. As small grain harvest has gotten underway, early wheat yield reports have been favorable. Let's hope soybean and corn yields follow suit.



JOHN BREKER
SOIL SCIENTIST,
CCA, 4R NMS

A current soil test is the best start to making fertilizer plans for 2025. With uncertain fertilizer and crop prices continuing, the economics of soil testing only makes dollars and sense. Last fall, fertilizer prices caused some people to reduce fertilizer rates or even skip a year of applying phosphorus and potassium fertilizer to reduce input costs. It can work for one year, but it is not a sustainable strategy for good crop yields and long-term profitability. It is more important than ever to have current soil test data to make profitable fertilizer decisions for 2025.

Through the rest of the growing season, we will need some good summer and fall weather to finish the late-season crops and assure a successful harvest. This means that every day in the field will be important for fall soil sampling, and the right soil sampling equipment will help you get that done. AGVISE has a full inventory of soil sampling equipment and supplies to help you obtain high-quality soil samples and collect them quickly. If you need to upgrade your equipment or add another soil sampling system before fall, we are ready to help. We have extended our Fall Special on hydraulic soil sampling systems (see article on page 5 for details).

AGVISE Soil Fertility Seminar Dates are Set

The AGVISE Soil Fertility Seminar dates are set for 2025. These seminars cover soil fertility and plant nutrition topics along with other issues that currently challenge our region. You will not want to miss the great program lineup, so mark your calendar now! More details and registration will be sent in November.

- January 7: Willmar, MN**
- January 8: Watertown, SD**
- January 9: Grand Forks, ND**
- March 11: Portage la Prairie, MB**
- March 13: Saskatoon, SK**

Soil Sampling on Unplanted Acres (Prevented Planting)

With over 300,000 unplanted acres across the region in 2024, there are many questions about soil testing on these unplanted fields: When should you start soil sampling? What kind of residual soil nitrate-nitrogen amounts can you expect? The extremely wet soil conditions may have caused considerable soil nitrogen losses to leaching or denitrification. Through summer, warmer and drier weather added nitrogen through mineralization of soil organic matter. The residual soil nitrate level will depend on numerous environmental and management factors, which vary from field to field and zone to zone.

MANAGEMENT FACTORS

- What was the crop grown in the previous year?
- What was the nitrogen fertilizer rate and application timing? Was it applied last fall?
- Did you do any summer tillage? More tillage promotes nitrogen mineralization.
- How was your weed control? Did the weeds get large and acquire substantial nitrogen?
- Did you plant a cover crop? Did the cover crop get incorporated later?

ENVIRONMENTAL FACTORS

- Did excessive rainfall cause nitrate leaching on well drained soils?
- Did excessive rainfall cause denitrification on poorly drained soils?
- Were summer temperatures warm? Warm temperatures promote N mineralization.

Soil testing on these unplanted fields can begin as soon as good quality soil samples can be collected after mid-August. There is no reliable way to guess how much residual soil nitrate may be present in these unplanted fields or unplanted parts of fields. Soil testing is the only accurate way to learn how much residual soil nitrate remains in the soil profile.

To obtain the best information for nitrogen management, we recommend splitting fields into management zones for soil testing. The unplanted field areas can vary considerably from the rest of the field,



Figure 1. An aerial photograph of a Preventing Planting field, taken July 15, 2024, near Maynard, MN. The red circles indicate parts of the field that remained wet through the growing season.

which will skew the field-average soil test result and resulting nitrogen fertilizer rate. Often, the unplanted or drown-out parts will have higher soil nitrate-N (no crop N uptake), but sometimes the situation is oddly reversed for no good reason (Figure 2). This data highlights the importance of collecting separate soil samples for the planted and unplanted parts of the field.

Soil immobile nutrients like phosphorus, potassium, and zinc should stay put in soil. If these nutrients were applied the previous fall, a current soil test will reflect their current availability in soil, following any fixation reactions and/or nutrient uptake from weed or cover crop growth. If previous soil test records indicate that soil test P was low to medium, university research has

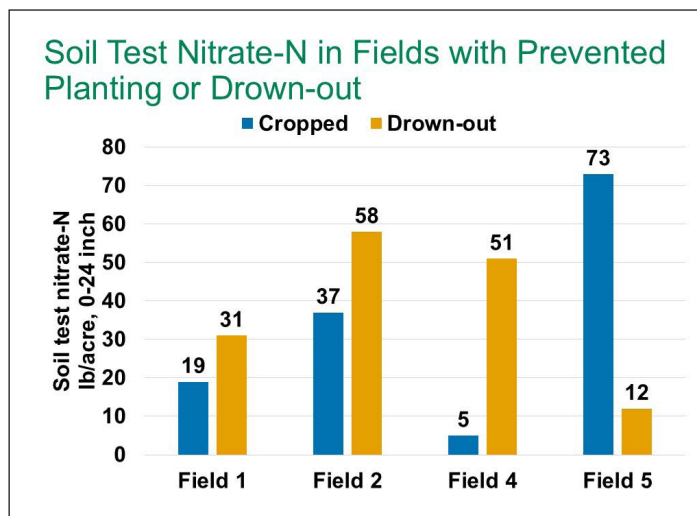


Figure 2. Soil Test Nitrate-N in Fields with Prevented Planting or Drown-out Spots. Taken August 2014 after wheat.

emphasized that starter P fertilizer is suggested for small grains and corn on fallow soils (i.e., unplanted fields with no cover crop).

FALLOW SYNDROME

Fallow syndrome is a concern for small grains or corn on unplanted fields that were not planted with a mycorrhizae-supporting cover crop. To reduce fallow

syndrome risk in corn or wheat, extra phosphorus fertilizer should be placed with or near the seed. Applying more broadcast phosphorus or relying on high soil test P alone may not prevent fallow syndrome. In some university research trials, up to 60 lb/acre P₂O₅ with 2x2-band placement near the seed was needed to prevent corn yield loss to fallow syndrome. Always ensure that your starter fertilizer rate and placement strategy maintains seed safety.

Making the Grade: Is Your Fertilizer Strategy Passing or Failing?

Jed Grow - AGVISE Agronomist

Producers often desire a seasonal “report card” on their soil fertility and crop nutrient management. For some producers, this report card is simply measured in bushels of grain or tons of forage, but others want to peek behind the curtain and see what the Wizard of Oz is really doing. Did the crop recover most of the nitrogen fertilizer applied? Are you maintaining or mining soil test P and K? In fact, this is a great use of fall soil test results and post-mortem plant analysis tools, like the Corn Stalk Nitrate Test.

Most often, we use fall soil testing as a predictive tool for next year’s fertilizer plan, but we really should use it more frequently to look back at the previous year’s crop nutrition plan and identify places for improvement. For example, this year, heavy spring and summer rains caused widespread soil nitrogen and sulfur losses across the region. As nitrogen and sulfur

deficiencies appeared, many producers took action with topdress or sidedress fertilizer applications before substantial crop yield loss occurred. It can be hard to know what the “right rate” of rescue nitrogen or sulfur was adequate at the moment. This is one place where fall soil testing can help fill in that knowledge gap and help answer if the in-season fertilizer application was enough, or even if more was needed.

Since Mother Nature often throws a curveball, it is important to take a look back with soil testing and make improvements for next year. We’d all like to predict A+ grades before putting seed in the ground, but I know of no reliable method—unless you consult a groundhog in Punxsutawney, PA. (There is also a rumored more-accurate hedgehog in Oregon named FuFu.)

SOUTHERN TRENDS



Where is the nitrogen sitting in the soil profile? That was the big question this spring and summer. We had more than our fair share of rainfall in the Benson trade area. The Benson airport recorded over 20 inches of rain since April 1, which is

the highest on record, surpassing the previous record set in 2014. The above-average rainfall resulted in waterlogged soils, soil nitrogen losses (nitrate

leaching and denitrification), and too much stunted and yellow corn. In fact, some corn was still yellow and only knee-high at July 15... I am curious if this corn will produce a harvestable ear. We will only know once the combines hit the field and the yield monitors let us know.

Although the summer started cool and wet, a warmer and drier July did provide good weather for soil samplers to continue summer grid soil sampling in soybean fields. We received a pile of summer grid soil samples in July, which will help alleviate the fall soil testing rush. We look forward to another productive and busy soil sampling season just around the corner!

Chad Turner, New CFO



CHAD TURNER
CHIEF FINANCIAL
OFFICER

In April, we welcomed Chad Turner as our new Chief Financial Officer. He is located at our Northwood office. Although he was raised as a proper “townie” in Larimore, ND, he was fortunate to work on a farm in high school and gained real experience in production agriculture. He still remembers his favorite rock piles.

In 2007, Chad started working in the financial industry and has worked in the areas of consumer and commercial financial services, personal and business lending, payment processing, and deposit products. Chad lives in Larimore, ND with his wife and two teenage children. He enjoys camping and volunteering at his local church.

Jed Grow, New Agronomist



JED GROW
AGRONOMIST

In June, we welcomed Jed Grow to our technical support team in Northwood, ND. Jed was raised in Utah around agriculture and became involved in agricultural humanitarian work, including a two-year service mission in Peru. He earned a Bachelor’s degree

in Genetics and Biotechnology from BYU, with a special interest in plant breeding for impoverished communities, and his Master’s and PhD from

NDSU focused on potatoes. Jed loves potatoes and their potential to fight poverty and world hunger. His graduate work focused on potato physiology and novel agronomic methods to manage the Early Die Complex in potato using precision agriculture technology and innovative drone imagery techniques.

Jed is a people person who enjoys learning and teaching others about agriculture. Outside of work, Jed is active in his church and community. He loves playing hockey and watching his kids on the ice. He has a wife and three children who enjoy living in Northwood. We are excited to have Jed on our team!

Sticky Wet Soils? Try Adding a WD-40 Holster

Do you have challenges collecting good quality soil cores in sticky wet soils? You are not the only one! WD-40 has been the soil probe lubricant of choice for over 30 years to help obtain better quality soil samples. University researchers have also tested WD-40 and found it does not contaminate soil samples.

Spraying WD-40 on your soil probes with the spray cans can get messy inside the pickup cab. A smart idea to make the WD-40 application process simpler and cleaner is making a WD-40 holster with some PVC pipe. The PVC pipe holster lubricates the soil probe with WD-40 between each soil core and also keeps the soil probe within easy reach. The clever idea came from a client who had spent too much time fiddling with WD-40 spray cans and losing them underneath the pickup seat.

The WD-40 holster is made from 2-inch diameter PVC pipe with a cap glued on the bottom and a threaded fitting on the top with a screw-in plug for storage when not in use. The PVC pipe should be fastened so that the open end faces the soil sampler and the soil probe can be easily placed into the pipe. Fill the PVC pipe with about 3-4 inches of WD-40 in the bottom. With the PVC pipe opening near the hole in the pickup floor, any excess WD-40 drops coming off the soil probe will go down the hole and reduce the mess of spraying WD-40 in the pickup cab.



Soil Testing Right Behind the Combine



Dr. David Franzen

Professor Emeritus of Soil Science - North Dakota State University

It is more the rule than the exception that soil sampling begins in mid-September, rather than starting immediately following small grain harvest. However, many producers miss an excellent window for soil testing by waiting too long. The reason for waiting is the hope that additional nitrogen will be made available through mineralization (i.e. decomposition of crop residue and organic matter). A review of research has shown that soil nitrate levels change very little, up or down, following small grain harvest.

If volunteer small grains are allowed to grow (like a cover crop), delay soil sampling for nitrate-N until the volunteers are terminated, no later than the 5-leaf stage. The field can be soil sampled immediately after the termination spray. Soil sampling right after harvest is recommended and has numerous advantages.

1. Producers are more likely to use the actual soil test results for deciding fall nitrogen fertilizer rates if the soil test results are in their hands soon enough to consider before fall fieldwork begins.
2. Soil sampling before fall tillage provides more consistent 0-6 inch soil cores, which provides the best soil sample quality for phosphorus, potassium, zinc, organic matter, and other non-mobile soil nutrients.
3. Soil sampling right after harvest guarantees that fields will be soil sampled on time and not missed due to weather problems that could happen later in the fall.



Fall Special: Hydraulic Soil Sampling Kit (24 inch)

AGVISE Laboratories is offering a fall special on the first 50 Hydraulic Soil Sampling Kits (24 inch) sold this fall. You will receive \$200 credit on soil analysis for each kit purchased. The Hydraulic Soil Sampling Kit (24 inch) is priced at \$3,400.00 USD. The kit includes a 12VDC electric-hydraulic pump, 30-inch hydraulic cylinder and mounting channel, two stainless steel soil probes (solid and slotted), two heavy-duty (HD) soil probes (solid and slotted), and a complete set of 5/8-inch, 3/4-inch, and wet-style tips for each soil probe type. The HD soil probe is ideal on hard, compacted, or frozen soils. You can view details of the Hydraulic Soil Sampling Kit (24 inch) on our website: <https://www.agvise.com/product/hydraulic-soil-sampling-kit/>

If you need to collect deep soil samples for deep-rooted crops like sugar beet and sunflower, we also have a 42-inch telescoping hydraulic cylinder system, which can be outfitted with an 8-HP Honda gas-powered hydraulic pump or large-capacity 12VDC electric-hydraulic pump. Please call for details on the 42-inch soil sampling systems.



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■ PRESIDENT'S CORNER



CINDY EVENSON
PRESIDENT
AGRONOMIST, CCA

As we kick off the Fall Soil Testing Season, everyone at AGVISE is excited to serve our clients and deliver their soil test results in a timely fashion. Preparing for the fall soil testing season often feels like training for the Super Bowl or the Olympics.

We need to restock laboratory chemicals and

supplies, perform instrument maintenance and repairs, and train the extra seasonal staff. AGVISE is ready to tackle your agricultural analysis needs each fall. In the end, we count it as a “win” when we can provide you accurate results in a timely manner with superior customer service.

We have some new faces at AGVISE. Inside the newsletter, you can learn more about our new agronomist Jed Grow and CFO Chad Turner. These two additions to the team have brought new skills and ideas to our company, and we are excited for their help as we grow in the future.

We are also looking forward to launching the new online AGVISOR portal. We will be conducting internal testing through the fall with an anticipated launch date in January 2025. The new portal will help streamline data handling and provide a new framework to make future website enhancements easier. The AGVISOR portal is customer focused, and we want it to work for you. If you have new ideas to improve it, please do not hesitate to let us know. I wish everyone a safe and productive fall harvest and soil testing season ahead.