

No. 16 August 29, 2024

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***Dry beans ready to harvest and pinto bean in Wells County (Greg Endres, former NDSU Extension Agronomist, CREC)***

**BEAN TOUR AT CARRINGTON ON AUGUST 29**

NDSU Carrington Research Extension Center’s annual row crop field tour will feature soybean and dry bean on Thursday, Aug. 29. Registration begins at 4 p.m., with the tour starting promptly at 4:30. Topics are:

- Weed identification with an emphasis on pigweeds
- Weed seed destructor, including a demonstration of a Redekop Seed Control Unit
- Dry bean variety overview
- White mold management:
  - o Soybean – Fungicide spray volume impact on reducing disease
  - o Dry bean – Optimum fungicide application timing, interval and droplet size
- Soybean root and stem disease: Season incidence and future management
- Maintaining soil productivity with beans in the crop sequence

A supper sponsored by the North Dakota Soybean Council and Northharvest Bean Growers Association will follow the tour.

For more information about the tour, visit [ndsuhq.com/rowcrops2024](https://ndsuhq.com/rowcrops2024) or call the center at 701-652-2951.



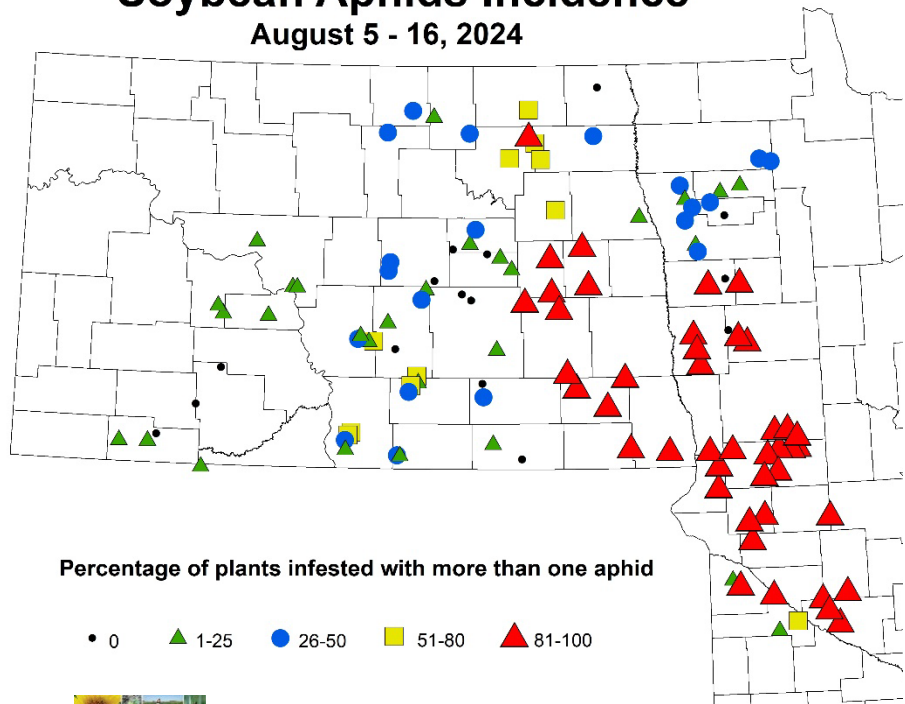
**UPDATE ON SOYBEAN APHIDS**

There are some signs that soybean aphids are getting ready for their fall migration back to their overwintering host, buckthorn, triggered by cooler nights, shorter days and decreasing host quality (mature soybeans). Winged male and female aphids will eventually move out of soybeans back to buckthorn to mate and lay eggs (sexual reproduction). Typically, soybean aphid populations crash late August to mid-September in fields.

Scouting for soybean aphid from IPM scouts, crop consultants and farmers found that soybean aphids are lingering above economic levels in some areas of ND and western MN (source: A. Peltier & A. Hanson, UMN). Crop stage ranged from R2 (full bloom) through R6 (full seed). The percent of plants infested ranged from 0 to 100% (average of 75%) and an average of 103 aphids per plant (range of 1 to 585 aphids per plant). About 13% of the fields were above the Economic Threshold (E.T. = average of 250 aphids per plant, 80% of the plants infested, increasing populations up through the R5 crop stage).

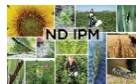
For our Fargo insecticide trial, we have soybean aphid counts for 4, 8, 12 and 19 days after treatment (DAT).

**Soybean Aphids Incidence**  
August 5 - 16, 2024

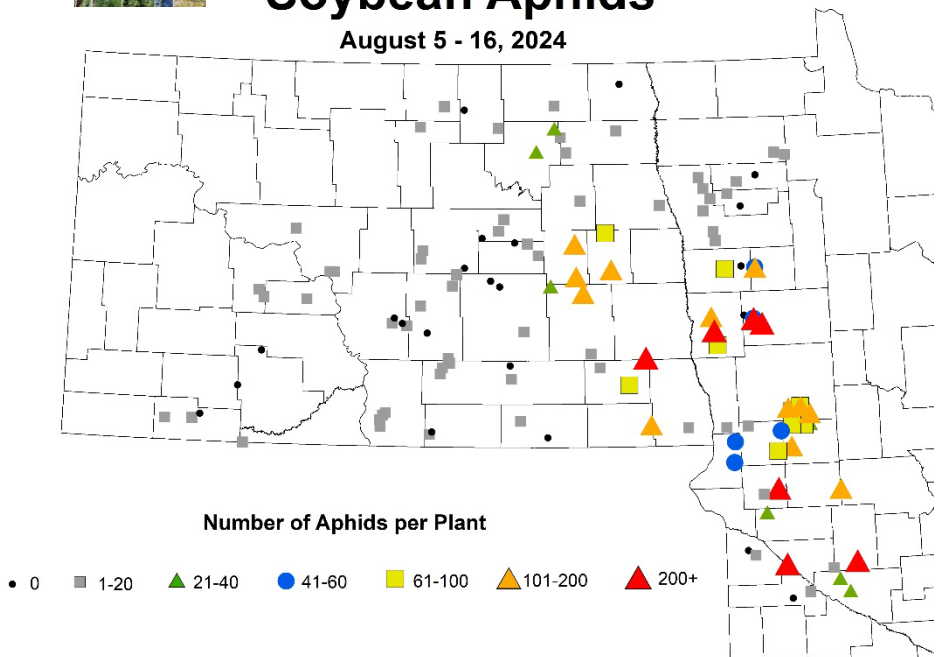


Percentage of plants infested with more than one aphid

- 0
- ▲ 1-25
- 26-50
- 51-80
- ▲ 81-100



**Soybean Aphids**  
August 5 - 16, 2024



Number of Aphids per Plant

- 0
- 1-20
- ▲ 21-40
- 41-60
- 61-100
- ▲ 101-200
- ▲ 200+

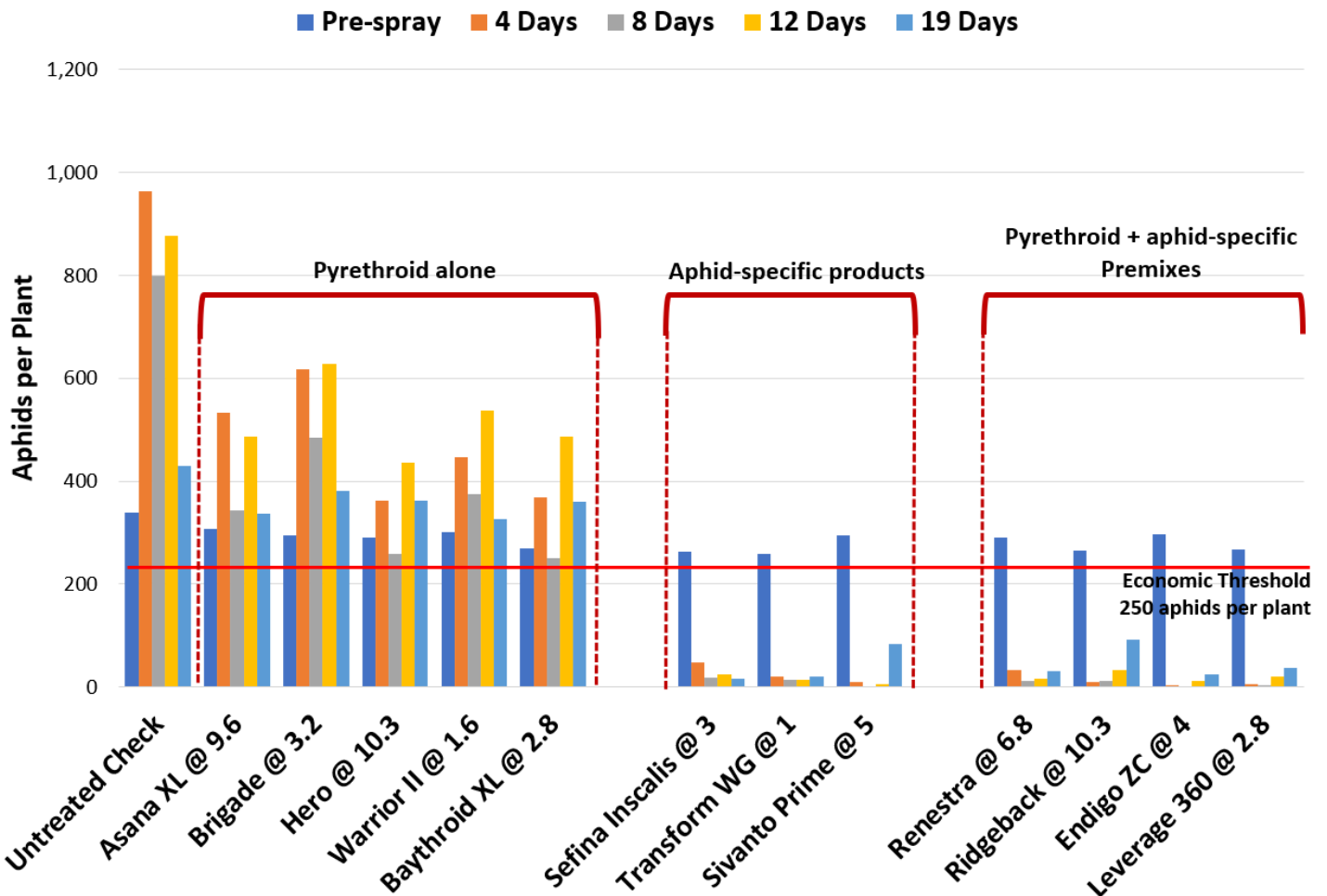
Again, all of the pyrethroid products tested (Baythroid XL, Brigade, Warrior II, Asana XL, Hero) showed a small increase in aphid numbers at 12 DAT followed by a decrease at 19 DAT. The same held true for the untreated check at 12 and 19 DAT.

The aphid-specific products (Transform WG, Sefina, Sivanto Prime) continued to have low aphid numbers at 4, 8, 12 and 19 DAT (all below the E.T.), and were gentler on beneficial insects than broad spectrum pyrethroids. We were pleased to receive a positive comment about Sefina from a soybean grower who was pulling resistant waterhemp out of his field with his grandchildren. His grandchildren noticed numerous orange-colored insects in the field, which were lady beetle adults and larvae feeding on soybean aphids. The farmer explained to his grandchildren that he used Sefina because it is aphid-specific and less toxic to natural enemies like lady beetles.

The pyrethroid + aphid-specific premix products (Leverage 360, Endigo ZC, Ridgeback, Renestra) also had low aphid numbers. However, premixes are best used when multiple insect pests of soybeans are present at economic levels in a field to prevent the further development of insecticide resistance.

*Thanks for support from the North Dakota Soybean Council and chemical companies. Disclaimer: Mention of insecticides does not imply any discrimination against any product not tested by the authors or the university.*

### Treatment Means for Soybean Aphids Per Plant at Fargo, 2024





### WHAT SOYBEAN CROP STAGE IS PAST THE SOYBEAN APHID THREAT?

There have been some questions about when it is too late to treat and what crop stage are soybeans no longer susceptible to yield loss caused by soybean aphids. Multiple years of research conducted at Iowa State University for soybean aphid management at a later crop stage - R6 (full seed set) found that it is NOT economical to treat for soybean aphids (Source: [Integrated Crop Management, Is it too late to spray soybean aphids? A. Dean and E. Hodgson](#)). No benefit or yield gain was observed when treating aphids from R6 to maturity.

When making a pest management decision during the later crop stage, additional factors also need to be considered like the presence of other yield-robbing insect pests (bean leaf beetle, grasshoppers, spider mites or green cloverworms); and whether large populations of natural enemies are providing effective natural control insect pests (ladybeetles, syrphid fly larvae, lacewing larvae and more). In North Dakota, grasshoppers and bean leaf beetles are known to clip or feed on soybean pod causing direct yield loss, so be sure to scout for these other late season insect pests.

### CORN ROOTWORMS INCREASING

Reports of northern corn rootworms (NCR) in field corn and stalk lodging are being observed in southeast North Dakota, especially in continuous corn or non-Bt corn fields. Although the western corn rootworm (WCR) occurs in North Dakota, the NCR is the dominant species and found widely in North Dakota. Due to the reports of root lodging in rotated corn (e.g. corn/soybean rotation), we suspect that we are seeing a NCR variant called the "extended diapause"



**Northern corn rootworm beetle**  
(Eric Quale, C.S. Agrisolutions)



**Lodged corn field due to larvae of corn rootworm feeding on roots.**  
(Joel Ransom, retired NDSU agronomist NDSU)

The NCR extended diapause is when female rootworms lay eggs in the corn field in fall, but eggs remain in diapause for two or more winters (up to 4 years). If corn is rotated annually with soybeans or another nonhost crop (wheat), extended-diapause eggs will hatch in the subsequent spring when corn is planted again in the field. Northern corn rootworm populations with extended egg diapause primarily occur in Minnesota, South Dakota, Iowa, and Wisconsin. Overall, this is genetic variation of NCR that has adapted to our two-year crop rotation, e.g. planting corn-soybean over the last several decade.

Until there is further research on extended diapause NCR, the best pest management includes:

- Monitor corn fields during pollination-silks (usually first three weeks of August) to determine population levels of NCR by placing yellow-green sticky traps or field scouting. Obviously, this is too late for this year to start



monitoring. Thresholds: Two or more beetles (either NCW or WCW, or both) on yellow-green sticky cards or an average of >0.75 beetles per plant (either NCW or WCW, or both) for field scouting indicates that you will need to use a corn rootworm pest management tactic next season.

- Extend crop rotations to at least a 3-year corn cycle for high-risk fields with extended diapause NCR, e.g. corn-soybean-wheat-corn or use other non-hosts (broadleaf crops) of corn rootworms.
- Control volunteer corn in other crops and weeds attractive to corn rootworms (ragweed, waterhemp, wild sunflowers).
- Use Bt and RNAi corn rootworm-traits that are still effective against NCR and WCR populations. Be aware of Bt-RW traits that either NCR or WCR have developed resistance to, such as Cry34/35Ab1 and Cry3Bb1. Please rotate to different traits each year to prevent the development of corn rootworm resistance to Bt and RNAi traits. See the [Handy Bt Trait Table](#) by Dr. Chris DiFonzo of Michigan State University at: <https://www.texasinsects.org/bt-corn-trait-table.html>
- Use a soil-applied insecticide at planting applied as either in-furrow or t-band to help control corn rootworm larvae, usually about 70% control, especially for conventional non-Bt corn.
- Use a high rate of an insecticide seed treatment (neonicotinoids) to help reduce low to moderate corn rootworm infestations.
- Quantify rootworm larval feeding injury to corn roots by conducting root digs to identify hot spots.




***Sticky trap mounted on corn stalk at ear height to monitor corn rootworm adults. (V. Calles Torrez, former Post-doctoral Research Scientist NDSU)***

For more information, please see the NDSU Extension publication [IPM of Corn Rootworms in North Dakota E1852](#) and the University of Minnesota article on [Northern corn rootworms and extended diapause problems increase in areas of Minnesota by Dr. Fei Yang](#).

We do not know where populations of extended diapause NCR occur in North Dakota. Please call/email any field reports of suspect extended diapause NCR and location of corn field. Thank you for your help.

*Thanks for support from the North Dakota Corn Council.*

[Janet J. Knodel](#)  
Extension Entomologist



# plant pathology

## EARLY REPORTS OF DON (VOM) IN SMALL GRAINS

The best term to describe early deoxynivalenol (DON/vomitoxin/VOM) reports in small grains is “variable.” Reports of DON have ranged from 0 ppm to greater than 10 ppm with most of the reports falling below 2 ppm. There have been several conversations highlighting the importance of genetic resistance and fungicides that kept levels below 2 ppm. It is still too early to tell the widespread impact of DON in the state (i.e.: still a lot of harvest left and new wheat crop is being binned), but it has become a common conversation topic the past two weeks. Based off those conversations, here are the three most commonly asked questions:



**Figure 1. Kernels from spikelets with *Fusarium* head blight. Notice the range in kernel characteristics from extremely shriveled to fairly plump. It is likely DON will be associated with the three exposed kernels shown in the photo.**



**Figure 2. Residue of hard red spring wheat after harvest. Note pink fungal growth on stem (a sign of *Fusarium graminearum*).**

### What is DON?

Deoxynivalenol is a mycotoxin produced by *Fusarium graminearum*, the primary pathogen responsible for Fusarium head blight (scab). The mycotoxin is associated with causing vomiting in humans and animals. Therefore, FDA has implemented advisory levels to promote safe food and feed. Advisory levels for food and food products consumed by humans is 1 ppm with elevators starting to apply discounts at levels above 2 ppm.

### Where is DON found?

The mycotoxin can be found on kernels, residue, and chaff. In other words, any plant part that can be colonized by *Fusarium graminearum* may have DON associated with it. When it comes to kernels, DON can be found on symptomless kernels and scabby kernels. Most of this will depend on when *Fusarium* infection or colonization occurred (Figure 1).

Small grain residue can also harbor DON as the fungus is able to grow on and within the stem (Figure 2). Caution should be used if the residue from fields with high levels of FHB is used as feed or bedding source for livestock.

### Can I estimate DON levels?

It is very difficult to estimate DON levels in a field, in a grain sample, or across a farm. Although we assume a high amount of scab in a field will translate into elevated DON levels, this is not always true. Similarly, a low level of scab in a field does not always translate to low DON levels. Another important reminder about DON testing is that there is greater error in sampling than in the method used to quantify DON. For example, you can take two samples from the same grain lot and it is possible to get vastly different DON values. This is why it is important to obtain a representative sample for testing grain loads.

[Andrew Friskop](#)

Extension Plant Pathology, Cereal Crops

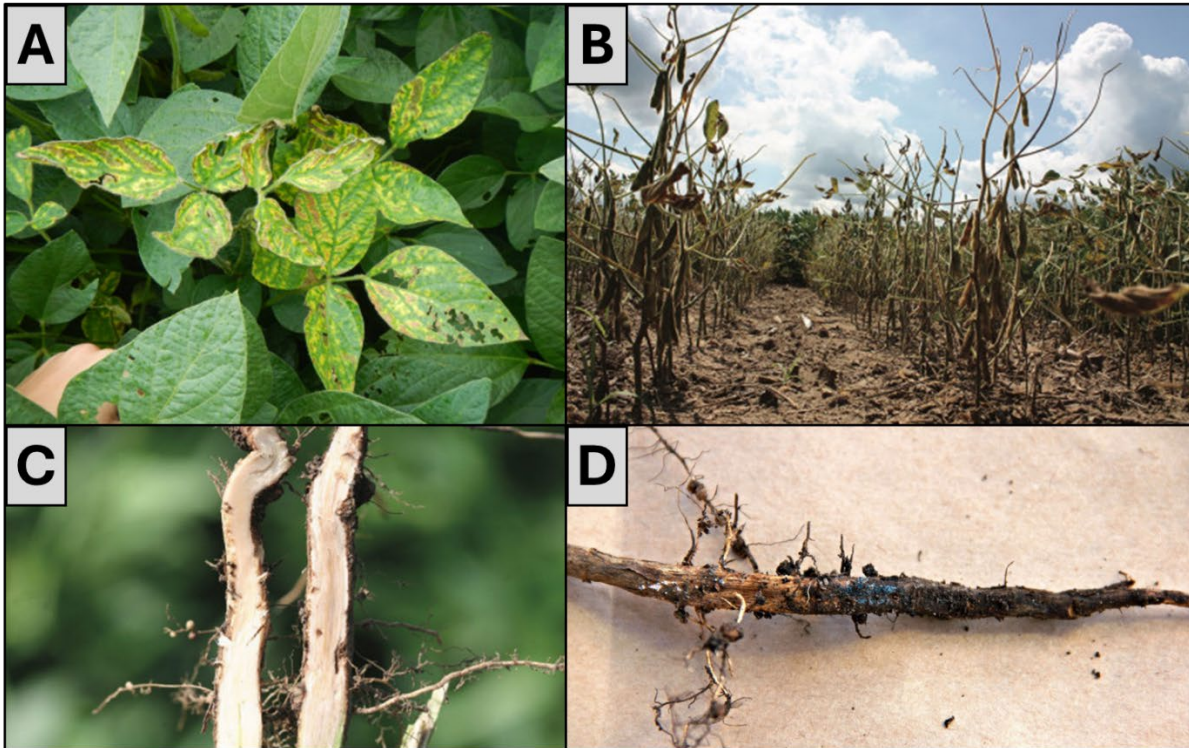
## THE NEW KID ON THE BLOCK: SUDDEN DEATH SYNDROME SHOWING UP IN SOYBEANS

As of August 22nd, we have received multiple batches of soybean samples displaying symptoms of sudden death syndrome (SDS) coming from both Southeastern ND and Western MN. But SDS isn't a problem in this area, right? That may have been the case a few years ago, but this could be a devastating soybean disease that has started to appear in our area.

From a historical perspective, SDS was reported in North Dakota in 2018 from a localized area in Richland County, and again from a localized area in Cavalier County in 2020. However, neither of these incidents developed into regional issues that spread across their county lines. But this may be changing this fall.

SDS is a fungal pathogen caused primarily by *Fusarium virguliforme*. This pathogen differs from many of the other *Fusarium* root rot pathogens that we typically discuss when we are thinking about seedling diseases. This SDS pathogen does survive in the soil typically on crop residue and will begin its life cycle by infecting susceptible soybean crops early in the season. After initial infection, the fungus may begin to develop throughout plant tissue and the root system, but symptoms do not develop until later in the season, typically around the reproductive growth stages. The most prominent symptom of SDS is the development of interveinal chlorosis and necrosis which is the deep green color of the vein tissue on leaves while the areas between the leaves will initially turn yellow and eventually turn brown and die (Fig. 1A). This interveinal chlorosis is not the pathogen itself, but rather a toxin that the fungus produces that is moved upward through the plant vascular tissue. The development of these foliar symptoms will typically be exacerbated by heavy rainfall events during these growth stages. Quickly after the onset of symptoms, as the name suggests, the plant will look like it has suddenly died due to the leaflets dropping off the infected plants. However, the petioles will remain attached to the plants (Fig. 1B). As these plants die off, seed fill may be reduced if disease onset occurs early enough leading to yield losses. Once the crop is harvested, all the infected stem tissue and root systems will then serve as a source of inoculum for future years of SDS infections. Other diagnostics of SDS include the appearance of browning cortex tissue within the root and lower stem tissue of the plants. I typically recommend taking a knife and slowly shaving away strips of the lower stem (Fig. 1C). If the cortex appears to be white then it is healthy, but if it appears with a bruising color than this could indicate SDS. Finally, one last common sign of SDS is the appearance of blue fungal growth on the soybean root structure (Fig. 1D). However, this blue growth is not always present on SDS infected plants, so do not use this as a standalone indicator of disease.





**Figure 1. Common signs and symptoms of sudden death syndrome (SDS) on soybean. These include A) the development of interveinal chlorosis on the leaf tissue, B) leaflets dropping suddenly while petioles remain attached to plants, C) browning or bruising appearance of the root tissue when cut but the pith tissue remains healthy, and D) the development of blue fungal masses on root tissue. (Credit: Crop Protection Network)**

Now, this is great to understand the biology of SDS, but what can we do about it? As with every disease, it is critical to scout your fields to first understand if SDS is present and needs to be actively managed. But let's assume that you have scouted and unfortunately confirmed that the disease is present. The first line of defense is the use of genetic resistance through soybean variety selection. While we DO NOT have complete resistance (think *Phytophthora* and *Rps* genes where the disease will not develop if we have the right resistance package), but we DO have varieties with partial resistance. This means that there are multiple soybean genes involved in fighting off the fungus during infection. With partial resistance, we will have much better control of disease but will still see some levels of SDS developing, especially under high environmental conditions.

Another important note is that SDS is found to be associated with high SCN pressure. This is now understood to be driven by the SCN worm manipulating the soybean root structure to be more likely to be infected by SDS. So, the use of SCN resistant varieties will also assist in the management of SDS. I would also highly recommend soil sampling for SCN to better understand where it is present.

The next tool that can be used is the reduction of compaction in your fields. We often see SDS appearing in areas where plants are stressed allowing for the pathogen to attack plants already weakened by factors such as compaction.

Chemical seed treatments can also be a tool for preventing this early season infection by the SDS pathogen. And thankfully our neighbor states to the south of us have done heaps of research to help us understand. From replicated field trials from Extension specialists across the Midwest, most seed treatments do not show a high level of disease control, but two products that have shown consistent levels of control are ILEVO (a.i. Fluopyram) and Saltro (a.i.

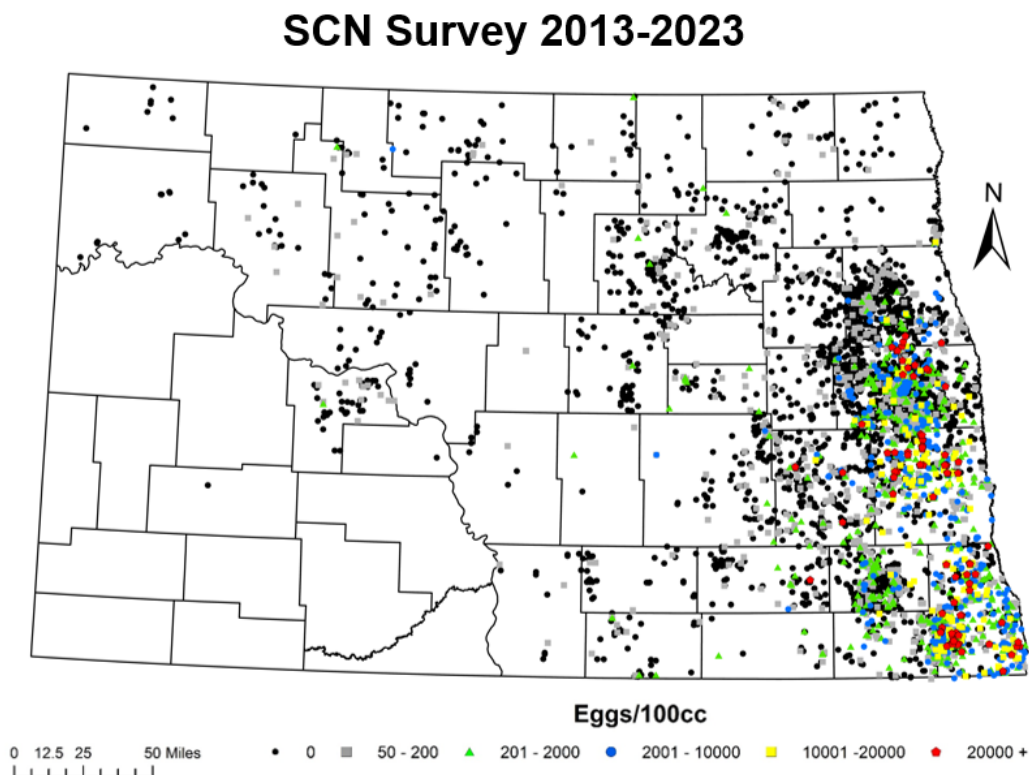
Pydiflumetofen). However, new products are being developed and there may be more effective options in the coming years.

Taken together, SDS is a very important disease that soybean farmers of North Dakota need to keep their eyes out for when scouting fields for the rest of this season. Please reach out to me if you happen to see potential SDS fields in your area so that we can develop disease maps as SDS continues to develop. Further information on SDS can be found [here](https://cropprotectionnetwork.org/publications/an-overview-of-sudden-death-syndrome): <https://cropprotectionnetwork.org/publications/an-overview-of-sudden-death-syndrome>

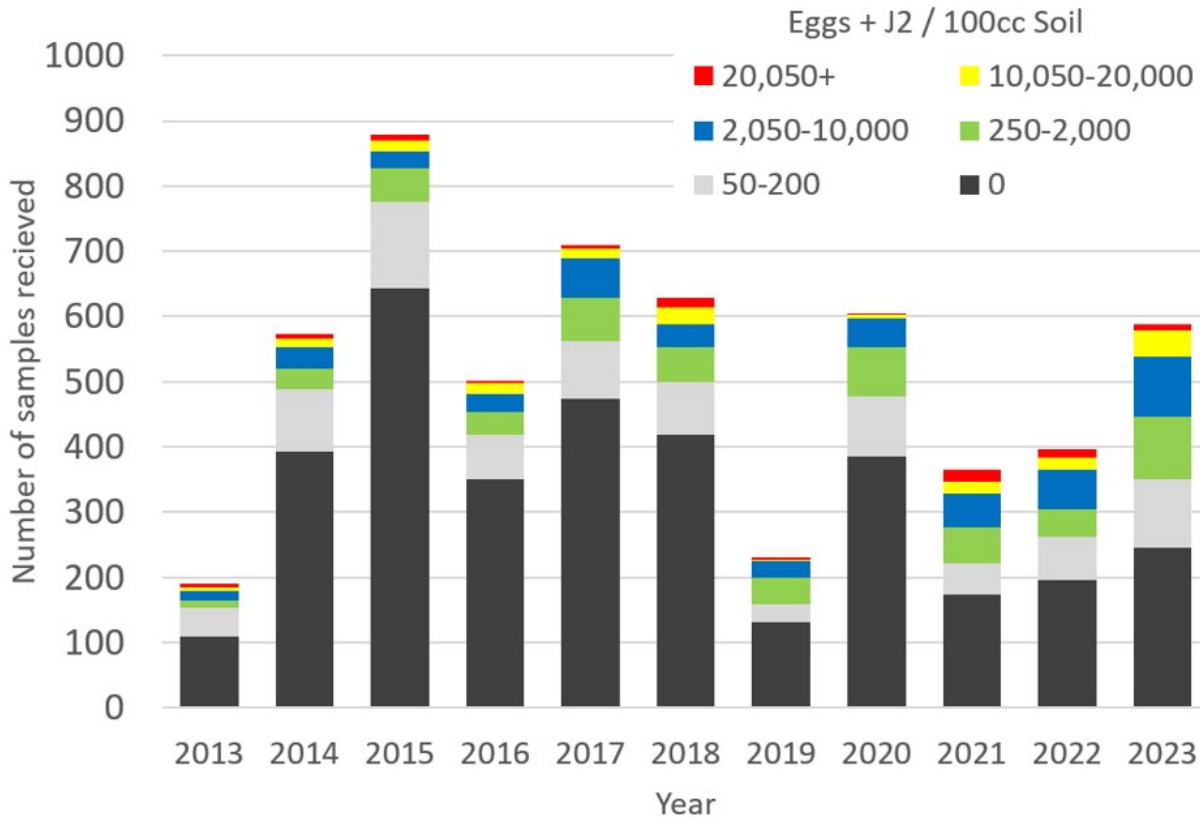
### THE SILENT ASSAILANT: SOYBEAN CYST NEMATODE

Soybean cyst nematode (SCN) is the number one yield-robbing pest of soybeans in North Dakota. This microscopic worm lives in the soil and infects soybean roots, causing significant damage that often goes unnoticed until yield loss becomes severe. SCN can reduce soybean yields by up to 30% or more, depending on the egg levels present, the soybean variety selected, and environmental conditions. As a persistent threat, SCN remains a major concern for farmers across the soybean production region.

Currently, SCN is primarily a major threat in Eastern North Dakota within the Red River Valley, but there have been an increasing number of reports of SCN presence in central and western regions of the state (Fig. 1). In 2023, we also saw the largest number of positive soil samples submitted through the NDSU SCN Sampling Program, indicating that SCN populations are continuing to develop even in areas where it has been present for many years (Fig. 2).



**Figure 1. Map of soybean cyst nematode samples from submitted through the NDSU SCN Sampling Program. Individual dots represent one single soil sample taken from a single season. Samples with over 200 eggs/100 cc of soil are considered to be a positive test.**



**Figure 2. Bar charts of soybean cyst nematode samples from submitted through the NDSU SCN Sampling Program. Bars represent the cumulative number of samples submitted within each year.**

SCN thrives in various soil types across North Dakota, with infestations becoming more prevalent due to the pest's ability to adapt and survive in different environments. The nematode's lifecycle is tightly linked to the soybean plant, beginning when juvenile nematodes invade the root tissues to feed. After reproduction within the soybean roots, female SCN begin feeding and form specialized feeding sites called syncytia, which disrupt the plant's ability to uptake water and nutrients. This feeding damage weakens the plant, leading to stunted growth, yellowing leaves, and reduced pod set and seed size (Fig. 3). As these females continue to mature, they will produce new eggs within their bodies which expand to form what we call the cysts (Fig. 4). Each one of these cysts can contain up to 200 eggs within themselves.





**Figure 3. Soybean field with slight yellowing during the middle of August due to SCN pressure. (Credit: Jeff Stachler)**



**Figure 4. Images of cysts of SCN present on soybean roots. Yellow cysts are newly developed while darker brown cysts are more mature.**

One of the challenges in managing SCN is its ability to go undetected in fields until infestations are severe. Unlike other pests, SCN does not always cause obvious symptoms, making it difficult for farmers to recognize the problem until it has already impacted yields. Due to SCN requiring the soybean plants to survive to reproduce, these plants will only exhibit foliar yellowing and stunting under high pressure. Additionally, these nematodes can survive in the soil for many years, even in the absence of a host crop, which complicates management efforts.

Understanding the biology of SCN is crucial for developing effective management practices. SCN eggs can remain dormant in the soil for several years, hatching when conditions are favorable, typically when soybean roots are present. The nematodes will typically undergo 2-3 generations per growing season, allowing populations to build rapidly under conducive conditions. This rapid population growth, combined with the ability of some SCN populations to overcome genetic resistance in soybean varieties, poses a continuous threat to soybean production.

To help manage SCN, the North Dakota Soybean Council funds a free SCN Sampling Program run through NDSU. This program encourages farmers to test their soil for SCN, allowing them to detect infestations early and implement management strategies before significant yield loss occurs. By participating in the SCN Sampling Program, farmers can make informed decisions about crop rotation, resistant variety selection, and other integrated pest management practices to protect their soybean yields from this devastating pest. Please reach out to your local county Extension agent for these sampling bags for use on your own operation. More information can be found at [here](https://ndsoybean.org/scn-sampling-program/):  
<https://ndsoybean.org/scn-sampling-program/>

[Wade Webster](#)  
Extension Plant Pathology, Soybeans



### **YOUR NEXT CROPPING SEASON STARTS RIGHT BEHIND THE COMBINE**

With the delayed spring we experienced this year, it has made our summer fly by quickly—nevertheless, there are signs fall and harvest season will be soon upon us. Although many of the crops are still in the field, it is time to start thinking about the next cropping season, because the success or failure of next year's crop depends on decisions starting right behind the combine.

For those in no-till systems, the management of next year's crop starts with this year's residue. To prevent a "mat" of residue from hindering planting next spring, consider two strategies to manage it 1) cut the crop high and 2) spread the residue evenly. In corn, for example, setting the header just below the ears will leave the maximum amount of stalk standing, which will capture snow, increase soil water, and reduce the amount of residue on the surface which may create planting woes in the spring. Evenly spreading the residue out the back of the combine will ensure more field uniformity in the coming spring easing planter settings and promoting an even stand. With lighter crop residues or wide combine headers, perfect uniformity may not be attainable, but adjustments can be made to improve spreading.

As we all saw last spring, the region is still plagued by wind erosion robbing us of valuable soil, nutrients, and organic matter. If fall tillage pass(es) are to be made, consider delaying the pass as long as possible, the longer the soil is left undisturbed, the longer the harmful effects of erosion can be delayed. Further, choose your tillage implement carefully; using implements which leave ridges or clods on the soil surface (the *K* factor, for those of you familiar with the Wind Erosion Equation, [https://efotg.sc.egov.usda.gov/references/public/WA/The\\_Wind\\_Erosion\\_Equation\\_\(WEQ\).htm](https://efotg.sc.egov.usda.gov/references/public/WA/The_Wind_Erosion_Equation_(WEQ).htm)) will reduce the expected soil loss by capturing soil particles and reducing the wind velocity directly at the soil surface. Ensuring 30% residue coverage will also serve to mitigate the negative effects of tillage while still breaking compaction and redistributing crop residue. Using tillage tools in the fall which leave the soil perfectly even and pulverized and the crop residue in small pieces is the perfect recipe for soil loss in the event of an open winter or dry, windy spring. More information on best management practices for tillage systems can be found in the University of Minnesota publication *Upper Midwest Tillage Guide* (<https://hdl.handle.net/11299/263302>).

[Brady Goettl](#)  
Extension Soil Science Specialist





## EMERALD ASH BEETLE FOUND IN ND

The North Dakota Department of Agriculture news releases (August 22, 2024) addressed the first detection of emerald ash borer (EAB) in North Dakota.

BISMARCK, N.D. – This week, adult emerald ash borers (EAB) were collected from a trap placed in LaMoure County, nine miles north of Edgeley, North Dakota. Upon follow-up from North Dakota Department of Agriculture (NDDA) staff, additional larvae were collected and have been officially confirmed as EAB. The detection is the first in North Dakota, and it becomes the 37th state to detect EAB.

“The North Dakota Department of Agriculture and our partners have been preparing for emerald ash borer’s eventual arrival for many years,” Agriculture Commissioner Doug Goehring said. “We have been placing and monitoring traps each summer and promoting awareness through outreach events, training and communication with the public. Now that it is unfortunately here, we urge North Dakota residents and travelers to be proactive to keep EAB from spreading.”

EAB is a wood boring insect originally from Asia, first found in the U.S. in 2002. It has since spread to 37 states and killed hundreds of millions of ash trees.

“North Dakota has more than 90 million ash trees that are at risk in native, rural and urban forests,” State Forester Tom Claeys said. “Ash trees make up between 20% - 80% of the trees along city streets and parks. Unless treated, infested ash trees can be killed in a few years.”

NDDA maintains a quarantine restricting movement of regulated commodities from infested areas. The quarantine will be extended to LaMoure County. Travelers should leave firewood at home and purchase or gather from local sources. Moving regulated materials from a quarantined to a non-quarantined area can result in civil penalties of up to \$5,000.

NDDA will collaborate with the North Dakota Forest Service, and North Dakota State University Extension to determine the extent of the infestation, continue monitoring ash trees and conduct outreach in the coming months. The ice storm that the area endured in December of 2023 will complicate efforts to find infested trees due to tree damage sustained in the storm.



***EAB adult (Photo courtesy of L. Bauer, USDA Forest Service Northern Research Station, Bugwood.org)***



***Serpentine galleries of EAB larva (Photo courtesy of Joe Zeleznik, NDSU Extension)***



Residents should check their ash trees for signs of an infestation, which include dieback, S-shaped tunnels, also known as serpentine galleries, under the bark, small D-shaped exit holes and woodpecker activity in the upper canopy of the trees.

One option to protect high-value trees are insecticide treatments. Treatments are not recommended until EAB is detected within 15 miles. Residents who choose to treat their ash trees are strongly urged to select a reputable tree service company with a certified applicator able to do these treatments. Most treatment options are restricted use and can only be done by a tree care professional.

Additional information is available for homeowners from NDSU Extension below.

- [Emerald Ash Borer: Biology and Integrated Pest Management in North Dakota \(E1634, Reviewed June 2023\)](#)  
Note: The EAB distribution range and map in E1634 will be updated soon.
- [Insects Frequently Confused with Emerald Ash Borer in North Dakota \(E1604, Revised May 2023\)](#)

If you think your ash tree might be infested with EAB, please contact your local county Extension agent, or one of the following individuals:

Charles Elhard, ND Department of Agriculture, 701-220-0485, [reportapest@nd.gov](mailto:reportapest@nd.gov)

Guido Frega, ND Forest Service, 701-809-4386, [guido.frega@ndsu.edu](mailto:guido.frega@ndsu.edu)

Joe Zeleznik, NDSU Extension, 701-231-8143, [joseph.zeleznik@ndsu.edu](mailto:joseph.zeleznik@ndsu.edu)

For more information, or to report a tree you think may be infested, please visit [www.ndda.nd.gov/eab](http://www.ndda.nd.gov/eab).

[Joe Zeleznik](#)

NDSU Extension Forestry Specialist

[Janet J. Knodel](#)

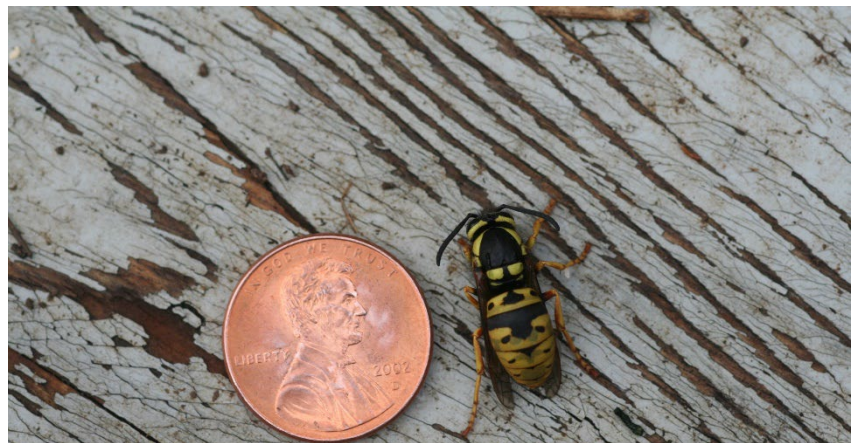
Extension Entomologist



### HORNETS SWARMING

The Extension Entomology office has swarming with calls on annoying hornets, or hornet nests in ground, homes or in trees near houses.

Hornets (or yellowjackets) belong to the family Vespidae. All yellowjackets sting and their stinging behavior is considered a defensive reaction when the colony is threatened. They can sting more than once because their stinger stays with the insect. Yellowjackets are more aggressive during August and September and more likely to sting people. Although yellowjackets are actually a beneficial insect



*Prairie yellowjacket (Vespula atropilosa)* Photo courtesy of Whitney Cranshaw, Colorado State University, Bugwood.org

UGA5084031

feeding on other insects, they often become a pest problem when nests are located near homes, schools, picnic areas, or playgrounds. Pest control is often warranted.

**Biology:** These wasps are social insects and build nests of paper-like material. Nests generally are located underground in mammal burrows, cavities or in between house siding. In the northern temperate climates, only the mated queen wasp overwinters from the previous year's colony. Queens are inactive during the winter, hiding in protected places like under tree bark or attics. In early spring, the overwintering queen builds a new nest and lays an egg in each cell. Larvae hatch from the eggs and are dependent on the queen for food. The queen forages outside the nest and brings food (caterpillars and other insects) back to the larvae until pupation. Sterile female workers emerge from the pupae and take over nest building and brood rearing, while the queen stays in the nest. During late summer into early fall, adult males and newly produced queens leave their parent colony. The colony dies off, and only newly mated queens will find a protected place to overwinter.



***Western yellowjacket (*Vespula maculifrons*) nest in ground.***  
***Photo courtesy of Mohammed El Damir, Bugwood.org***

**Control:** Vespid wasps are active outside the nest during the daylight hours. Nearly the entire colony is in the nest during the evening and night-time hours, so control measures should be applied to the nest then. There are many insecticides labeled for control of hornets and yellowjackets. The difficulty is making the treatment without being stung. Usually, an aerosol spray of one of the many fast-acting wasp killers will quickly kill all workers present in nest. Examples are permethrin, synergized pyrethrins (Spectracide Bug Stop and other brands) or pyrethroid insecticides (such as, esfenvalerate - Ortho Bug-B-Gon Garden & Landscape Insect Killer; lambda cyhalothrin – Spectracide, beta-cyfluthrin - Tempo SC Ultra). A slower-acting insecticidal approach is to apply carbaryl (Sevin) dust directly onto the exposed nest and entrance hole. After treatment, check the nest for any activity the following day and re-treat if necessary. If dealing with yellowjacket nests in structures like homes, the nest entrance should never be plugged from the outside. If constrained, yellowjacket workers cannot escape to the outside, and they may locate or chew a new way to escape toward the inside of the home or structure, creating a possible stinging threat for people inside. When outside enjoying your picnic, avoid wearing bright colors and perfumes which are attractive to hornets and yellowjackets, and keep garbage away from the picnic table.

Janet J. Knodel  
Extension Entomologist



### NORTHEAST ND

Small grains harvesting is going full speed in the region. Barley harvesting is winding down whereas spring wheat is at 40-50%. So far, yields are very pleasing with good protein content and low DON content in spring wheat samples. However, after last week's rain, many growers are facing unpleasant falling numbers and are expecting discounts from the base price. Corn is looking very optimistic in some areas which might hit the black layer in 3<sup>rd</sup> week of September, if night temperatures continue to hold up above normal. But, the concern remains for those that have not tasseled yet. Soybeans, for the most part are looking good and have benefitted from the recent rains. Many farmers had to spray their fields for soybean aphids. Sunflowers are looking good where majority of them are early to late R5 stages. Early planted canola fields are ready for pre-harvest desiccation as majority of the farmers are opting for straight cutting. Also, there are a few fields that have been swathed in Cavalier County.

[Anitha Chirumamilla](#)

Extension Cropping Systems Specialist  
Langdon Research Extension Center

### SOUTH-CENTRAL/SOUTHEAST ND

The region received the least rainfall in the past week across the whole region similar to the last newsletter, but most of the area received over 1.5 inches the previous week. Rainfall in the region this past week ranged from 0 inch near Edgeley in LaMoure County and Ekre in Richland County to 0.74 inches near Harvey in Wells County with an approximate average for the region of 0.19 inch, practically the same as the last article. Only locations in Foster, Richland, and Wells Counties received greater than 0.5 inch of rainfall over the past week. Griggs County crops improved immensely that were suffering from lack of rainfall with the rain two weeks ago! Average high temperatures for the region last week were near normal. However, some parts of the region, particularly Griggs County, had the second highest daily average low temperature for the entire past week on record by only 0.1 degrees Fahrenheit!

**Hard red spring wheat** harvest is moving slowly across the region due to the big rains on August 15<sup>th</sup> and 16<sup>th</sup> which caused much of the wheat to lodge at least in the eastern part of the region and the high humidity and cloudy days of last week! Wheat yields and quality across the region are highly variable! Wheat yields range from 40 to over 100 bushels per acre across the region with some farm averages in the 60's bushels/A and others in the high 80's + bushels per acre. Quality was pretty good across the region prior to August 15<sup>th</sup> except for protein levels being low in some areas of the region. Protein levels are mostly between 13 and 15% in Griggs County before and after the rains, but some areas of the region have been way below 13% protein. Since the big rains, vomitoxin (DON) levels increased in Richland County with most of the wheat harvested to acceptable levels in Griggs County. The biggest issue for hard red spring wheat harvest at least in Griggs County is Falling Numbers due to sprouting wheat even in standing wheat! I'm hearing nearly 50% of the hard red spring wheat in Griggs County is below 300 with occasional samples below 100! Only around 50% of Griggs County hard red spring wheat has been harvested so far. Proper management of waterhemp and kochia after spring cereal harvest will be necessary in many fields due to resistance to herbicides in kochia and late-season emergence of waterhemp.

Most of the **spring barley** has been harvested in the southern part of the region and into Griggs County with sprouting being reported in some barley harvested after the big rains. Spring barley yields were above normal for most of the region.



**Corn** is looking amazing over most of the region as long as excessive water and hail did not damage it. Some plants are producing two ears in well-drained areas of fields! As of August 26<sup>th</sup>, corn growing degree days since May 1<sup>st</sup> are ranging from 1657 at Harvey in Wells County which is 236 Growing Degree Days (GDD's) greater than two weeks ago, but 43, 137, and 237 GDD's below the normal, the 5-year average, and 2023, respectively to 1935 GDD's at Mooreton in Richland County which is 267 GDD's greater than two weeks ago, but 19, 94, and 205 GDD's below the normal, 5-year average and 2023, respectively! Most corn in Griggs County is between late milk stage (R3) to early dent stage (R5). An 82-day corn hybrid only needs 1966 GDD's to reach physiological maturity (black layer). Therefore an 82-day corn hybrid planted on May 1<sup>st</sup> near Mooreton, ND only needs 31 additional GDD's to reach physiological maturity! With frost not forecasted at least for Cooperstown until October 1<sup>st</sup>, much or most of the corn should reach physiological maturity in the region before a frost at least based upon the current Cooperstown, ND forecast and have some time to dry down as well. The most common corn disease in the region at the moment is leaf rust which can be seen in most fields, but at very low levels.



***Average stage of corn in Griggs County (R4).***



***Corn leaf rust in Griggs County.***

**Soybean** conditions improved immensely across most of the region as long as soils were well-drained early in the season. If water stood for a very long time, soybean conditions are highly variable. Soybeans in the region are ranging from R4 (3/4-inch pods in one of the upper four nodes of fully expanded leaves) stage to R6 (full-sized seeds in one of the upper four nodes of fully expanded leaves) stage with most soybeans at the R5 (seeds beginning to form in the pods in one of the upper four nodes of fully expanded leaves) stage.

Most soybean fields have been sprayed for soybean aphids from at least Griggs County to the Red River. Nearly every soybean disease can be found in soybean fields across the region! It appears late season defoliating insects will not be a problem this year.



Frogeye leaf spot is bad in the south-central part of the region all the way up to Foster County and sporadically in most fields east of this area. At least one soybean field in southern Nelson County has severe soybean cyst nematode populations, but many other fields in this area and into northern Griggs County are likely affected as well! Please take time to collect soil samples from soybean fields this year to test for soybean cyst nematodes. When taking soil samples be sure to test the poorest looking areas of the field and not taking a field composite soil sample as you will miss finding the soybean cyst nematode in a field!



**Numerous soybean cyst nematodes on soybean roots in southern Nelson County. Photo by Traci Lagein.**

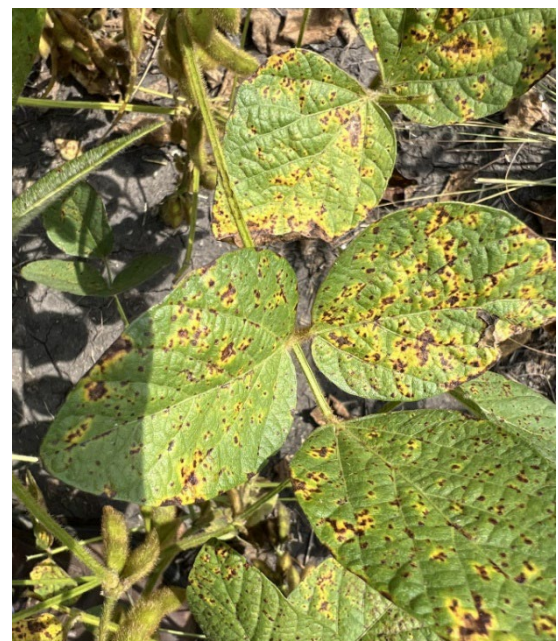


**Severe infestation of soybean cyst nematodes and potential leaf symptoms.**

For the first time in my life (including my days working in Ohio), I have never seen soybeans totally defoliated from Septoria brown spot, but there are large parts of a soybean field in Griggs County where this is occurring!



**Complete defoliation of soybean plants by Septoria brown spot in Griggs County!**



**Septoria brown spot lesions on soybean leaves.**



I'm finding what appears to be sudden death syndrome in some Griggs County soybean fields. I can find white mold in some soybean fields, but at the moment it appears to be less frequent than last year. Soybean plants continue to die from phytophthora root rot in most soybean fields. Please scout all soybean fields and plan to plant more defensive soybean varieties next year!



**Potential sudden death in soybeans. Leaf symptoms not typical of disease.**



**Patch of white mold in dry beans in Griggs County.**

**Dry beans** look pretty good across the region, but white mold is showing up in more fields now. Dry bean leaves are starting to yellow and drop in some fields in the region now. Most dry beans should reach maturity before any freezes as best as I can tell. Bacterial leaf and pod blight is present in some dry bean fields, but not at too high of levels. I'm not aware of any serious dry bean rust issues in the region at the moment. Weeds continue to come out over the top of dry bean canopies in many or most fields.

**Sunflowers** in the eastern part of the region are not looking very good due to the excessive soil moisture earlier in the season. The last sunflower report farther west was that sunflowers were looking good, but insects were becoming an issue.

[Jeff Stachler](#)

Griggs County Extension Agent

## **SOUTHWEST ND**

The last 7 days have brought much-needed moisture to our area, with the greatest precipitation recorded in Beach (1.64 inches). Temperatures were in the upper 80s and lower 90s for several days last week. Despite the recent rains, conditions in 50% of our area remain either abnormally dry or under moderate drought. Harvest activity was noticeable in areas that did not receive excessive moisture, while others are hopeful for a break in the weather to harvest without losing too much grain quality.

Some of the preliminary harvest reports include:

### **Stark and Billings Counties:**

#### **\* West of Dickinson (Western Stark County and Billings County):**

- **Yields:** Highly variable and spotty.
- **Spring Wheat:** Yields range from 30 to 60 bushels per acre, with reports of low test weights, shriveled kernels, and low protein levels.



- **Other Crops:** A stark contrast in yields, with one producer reporting 17-bushel durum while a nearby barley field yielded 95 bushels per acre.

- **Environmental Impact:** Drought and hail have significantly affected crops in this area.

**\* East of Dickinson and South of Richardton:**

- **Yields:** Crops in this region are performing very well, benefiting from timely rains.

**\* Southern Stark County (Near New England):**

- **Yields:** Also variable but generally above average.

- **Spring Wheat:** Low test weights have been noted, but some protein levels are as high as 15%.

**Golden Valley County:**

- **Spring Wheat:** Yields are reported at 20–30 bushels per acre, about one-third to one-half of expected outcomes. Some fields yielded up to 50 bushels per acre but with low test weight.

- **Winter Wheat:** Yields are within the normal range, averaging around 70 bushels per acre.

- **Corn:** Concerns are rising about the corn yield, because of how badly it was affected by drought and how delayed the crop development is, with some considering converting the crop to silage.

**Mercer County:**

- **Harvest Progress:** Slow due to unfavorable weather conditions, including high humidity, cool temperatures, and spotty rain showers.

- **Barley:** Yields are around 80 bushels per acre.

- **Wheat:** Yields range from 50 to 60 bushels per acre, with good quality, though some fields show slightly high falling numbers.

- **Peas:** Performing well, with many reports exceeding 40 bushels per acre.

- **Corn:** About two weeks behind schedule; an early frost could be damaging.

- **Soybeans:** Conditions have improved with recent rains, and the crop is starting to look better after a dry spell.

- **Sunflowers:** Just starting to flower, with a promising outlook.

- **Canola:** Some fields have been cut, but harvest is not yet widespread. Overall, yields are expected to be above average, contingent on improved weather for timely harvest.

**Oliver County:**

- **Winter Wheat:** Exceptional yields reported as the region benefited from timely rains throughout the season, with one farmer harvesting 800 acres averaging in the mid-90s bushels per acre.

- **Spring Wheat:** Yields mostly range from the upper 70s to low 80s bushels per acre.

- **Quality:** An exceptional small grain year overall, with several reports of ergot, though not at levels significant enough to cause rejections.

Huge thanks to the County Extension Agents Ashley Ueckert, Rick Schmidt, Craig Askim and Kurt Froelich for providing the data for this publication.

[Victor Gomes](#)

Extension Cropping Systems Specialist  
Dickinson Research and Extension Center



WEATHER FORECAST

The August 29 to September 4, 2024 Weather Summary and Outlook

Because of publishing timeframes, I write this report on Wednesday mornings. I mention this because the pattern we've been in this summer has tended to produce rain late on Wednesdays into Wednesday night. Figure 1 shows the total rain in the past 7 days through Tuesday and does not include the rain from the thunderstorms that likely occurred after I submitted this report. It appears that after the rain ends today (Thursday), the region will go several days, perhaps an entire week with little or no additional rain. The next more significant threat of rain looks to be coming toward the end of next week.

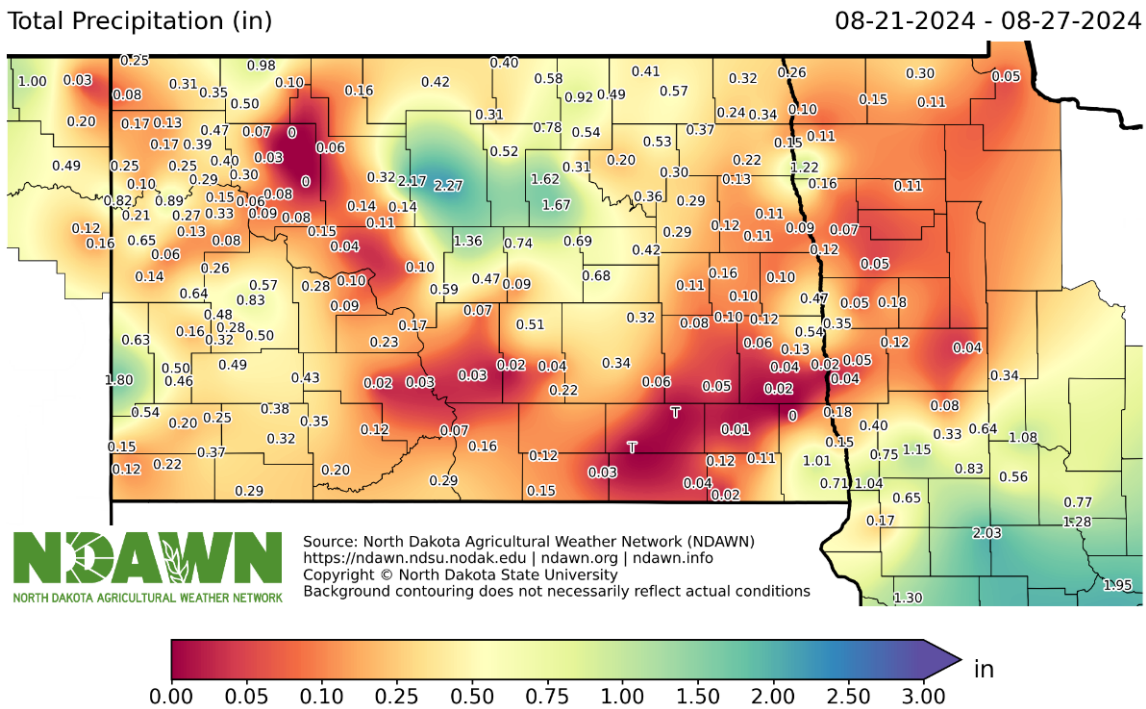


Figure 1. Total Precipitation for the Period of August 21 through August 27, 2024.

It will likely surprised no one that the past week was warmer than average. Most North Dakota Agricultural Weather Network (NDAWN) stations were anywhere from 3° to 5° above average (Figure 2). This brought some much needed heat, especially to the corn crop. These next 7 days look to be closer to average or just slight above taken as a whole, as each day, of course, will vary slightly. It would be just after this forecast period when cooler weather may come in for a few days that could possibly bring a morning or two with lows into the 30s.

Departure from Normal Average Air Temperature ( ° F) 08-21-2024 - 08-27-2024

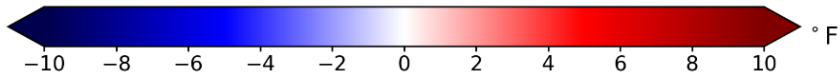
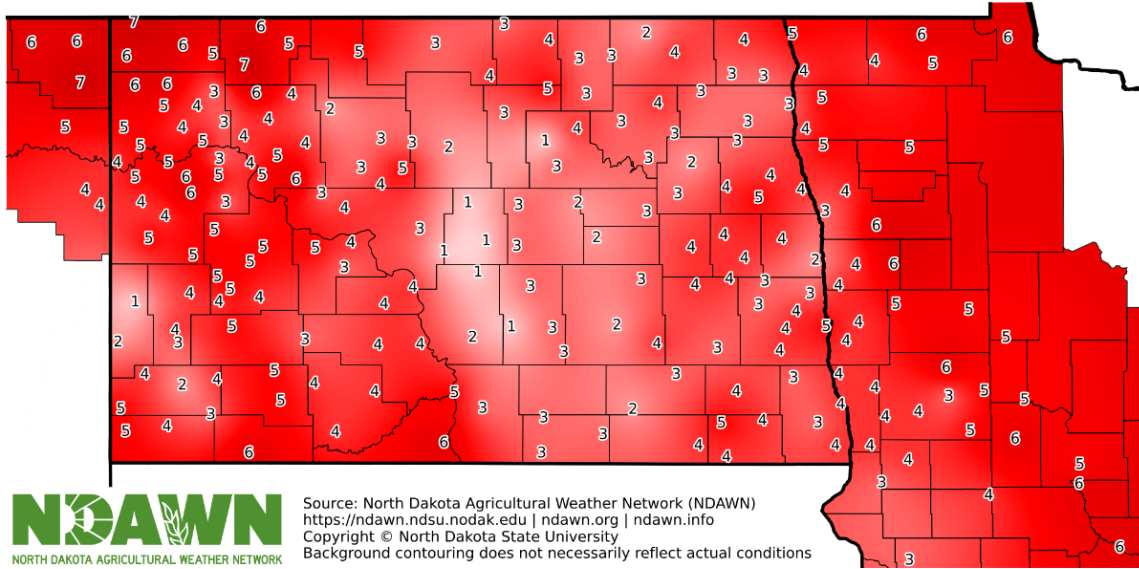


Figure 2. Departure from Average Air Temperature during the August 21 to August 27, 2024 time frame.

Figures 3 and 4 below are forecasted growing degree Days (GDDs) base 32° (wheat and small grains) and base 50° (corn and soybeans) for this forecast period. With temperatures expected to be near average, GDDs will be very close to average for this time of year as well.

Growing Degree Days (Base 32) Forecast Aug 29 - Sep 04 2024

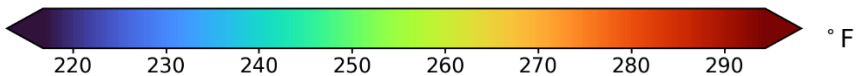
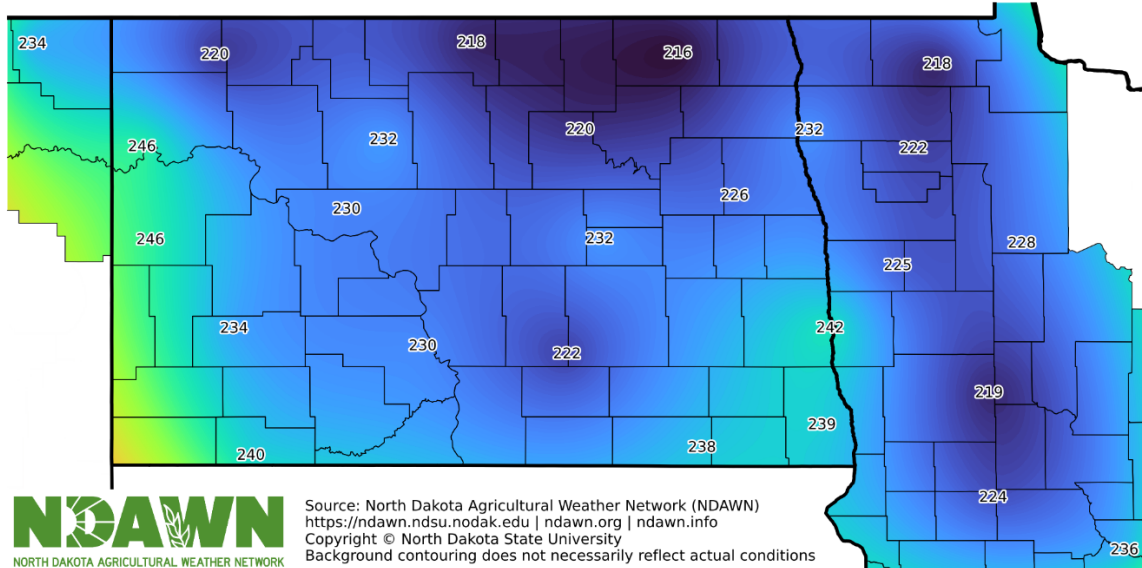


Figure 3. Estimated Growing Degree Days Base 32° for the Period of August 29 to September 4, 2024.



Growing Degree Days (Base 50) Forecast Aug 29 - Sep 04 2024

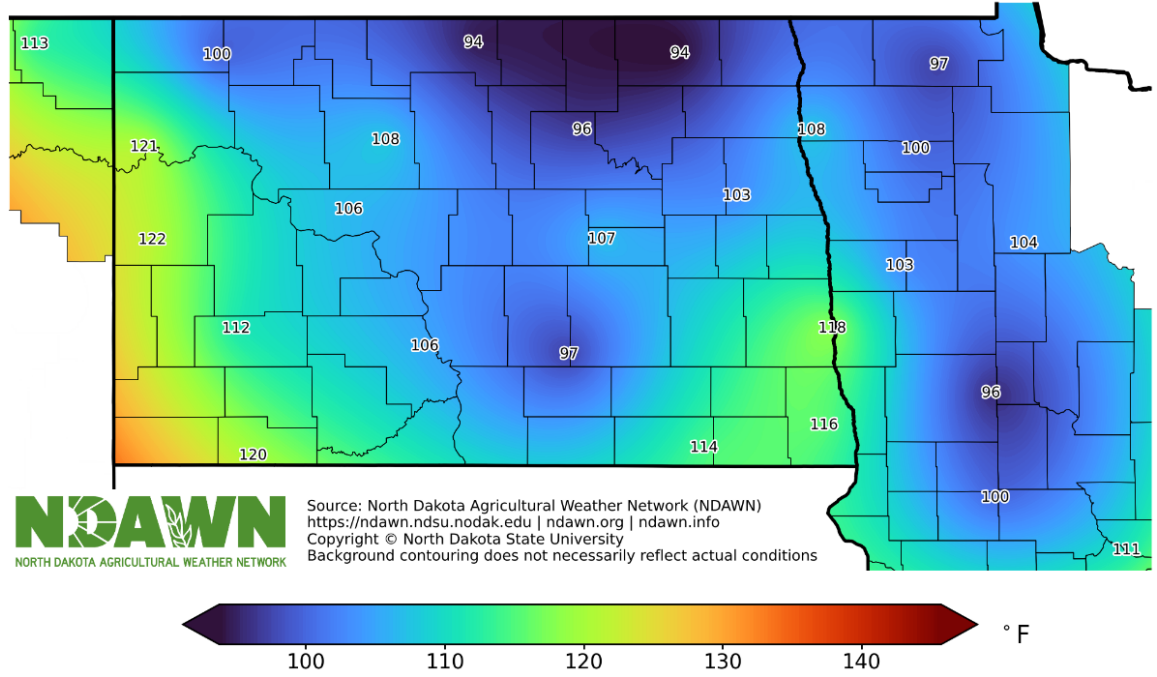


Figure 4. Estimated Growing Degree Days Base 50° for the Period of August 29 to September 4, 2024.

Using May 1 as a planting date, the accumulated growing degree days for wheat (base temperature 32°) is given in Figure 5. You can calculate wheat growing degree days based on your exact planting date(s) here: <https://ndawn.ndsu.nodak.edu/wheat-growing-degree-days.html>

Wheat Growing Degree Days Since May 1 Aug 26 2024

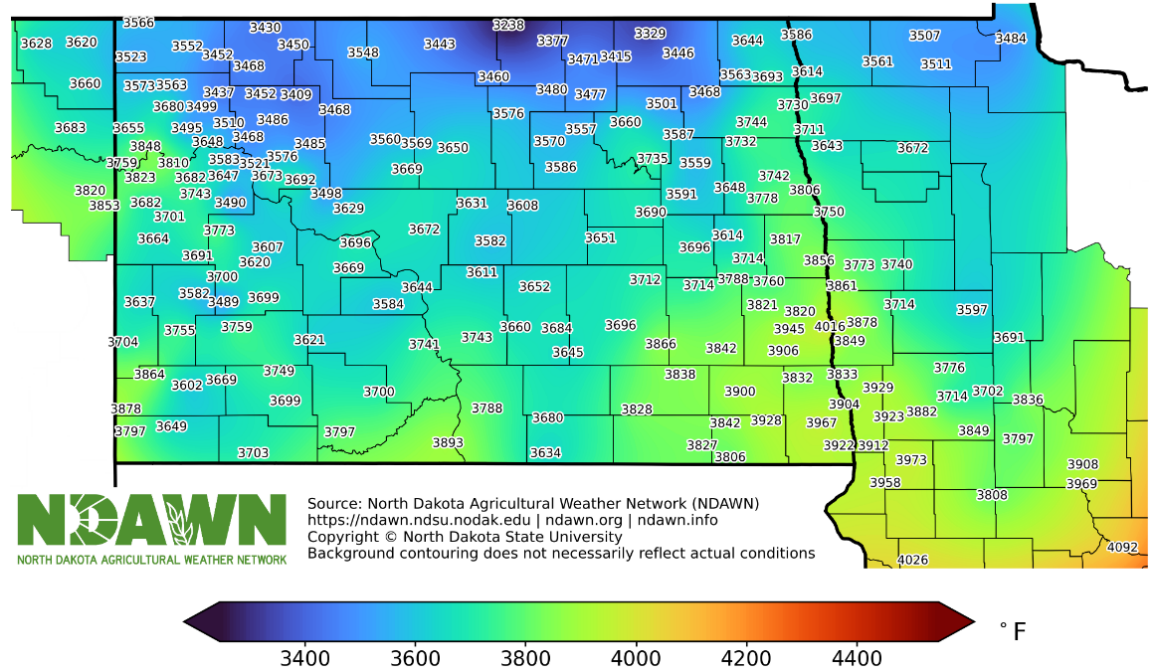


Figure 5. Wheat Growing Degree Days (Base 32°) for the period of May 1 through August 26, 2024

Using May 10 as a planting date, the accumulated growing degree days for corn (base temperature 50°) is given in Figure 6. You can calculate corn growing degree days based on your exact planting date(s) here:

<https://ndawn.ndsu.nodak.edu/corn-growing-degree-days.html>.

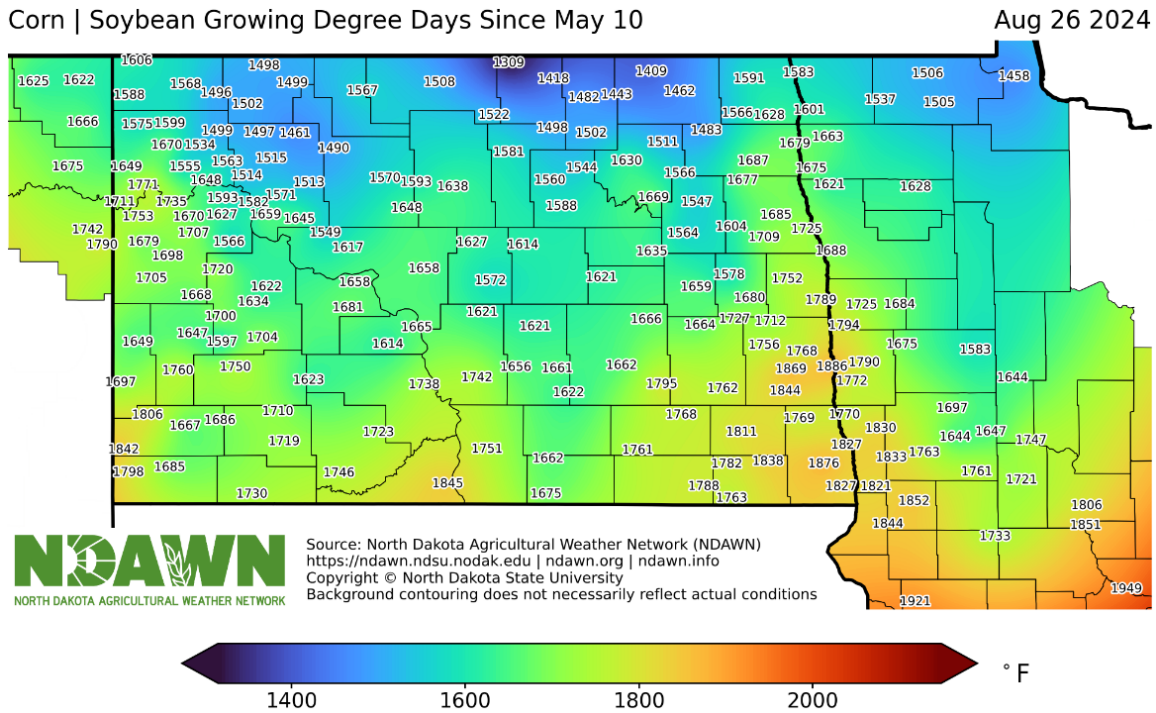


Figure 6. Corn Growing Degree Days (Base 50°) for the period of May 10 through August 26, 2024

Growing Degree Days for other crops can be found on the main website, <https://ndawn.ndsu.nodak.edu/> under the “applications” menu, or on our mobile compliant website, [https://ndawn.info/agriculture\\_gdd.html](https://ndawn.info/agriculture_gdd.html).

[Daryl Ritchison](#)

Director of the North Dakota Agricultural Weather Network (NDAWN)  
 State Climatologist for North Dakota

North Dakota State University  
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